THE USE OF CONSUMER PERCEPTIONS OF APPROPRIATENESS OF PROTEIN-BASED FOODS AS A MARKETING TOOL

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Karen Joanne Framingham

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KAREN JOANNE FRAMINGHAM

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ABSTRACT

The purpose of this study was to describe the market for protein-based foods with meat as the prototype, based on consumer perceptions of the appropriateness of the products for different use occasions. These ratings, along with consumer perceptions of cost and nutritional characteristics were used to predict frequency of serving the foods, one measure of food acceptance.

Ninety-one variables, including the appropriateness of foods rated by consumers on a 7-point scale for 46 use occasions, along with the frequency with which 40 of these occasions occurred, were examined for their ability to explain the frequency of serving 47 protein-based foods. Other variables included cost per serving, fat, energy, protein and sodium content of the foods.

Data were obtained the from the 101 consumer questionnaires properly completed and returned from 120 which had been hand delivered, explained, and left with randomly selected Winnipeg consumers in March, 1989. Mean scores across respondents were calculated for each food/use occasion combination. These mean scores provide a method of distinguishing among products on these 46 variables. These 46 variables were reduced to a more manageable number by performing factor analysis on the matrix of correlation coefficients among the use occasions. The procedure yielded 8 factors which accounted for 89 percent of the variance in the

original data. The factors were interpreted as a SPECIAL OCCASION FACTOR, a HEALTHY, NUTRITIOUS FACTOR, a WELL LIKED, COMMON FOOD FACTOR, a SANDWICH/LIGHT LUNCH FACTOR, a SUMMER FACTOR, a VERSATILE FACTOR, a MICROWAVE FACTOR, and a BREAKFAST FACTOR. Examining the scores of each of the foods on each of these factors permitted a study of the marketing strengths and weaknesses of each food. Correlation coefficients between factor scores and frequency of serving the foods were low, with only the correlation coefficient between the BREAKFAST FACTOR and frequency of serving significant at $p \leq 0.01$. Regression analysis frequency of serving foods and the factor scores of the food items resulted in the equation:

Fserve = 4.88 + 5.09(BREAKFAST FACTOR) + 2.58(WELL LIKED, COMMON FOOD FACTOR) + 2.42(HEALTHY, NUTRITIOUS FACTOR) - 2.63(SPECIAL OCCASION FACTOR), with an R-square of 0.48, and an adjusted R-square of 0.37.

Of the 46 appropriateness variables, the mean score of eight were significantly correlated with the mean frequency of serving the foods in the study. Foods with high mean appropriateness scores for "something good to keep on hand", "for between meal snacks", "easy to buy a size that suits me", "when you don't feel well", and "for breakfast" were served frequently; that is the scores positively correlated with mean frequency of serving foods. Foods with high scores for "something a little different", "makes a good, hearty meal" and "to cook in the oven" were served less frequently.

Neither an individual's rating of the appropriateness of a food for an occasion

nor his/her weighted appropriateness rating (appropriateness of a food for a given use occasion times frequency of occurrence of the occasion) were useful in explaining the frequency of serving the foods in the study.

This group of consumers showed fairly good awareness of the characteristics of the foods in the study. Consumer ratings of foods "for an inexpensive meal" were negatively correlated with cost per serving ($r=-0.75$), and of "an expensive (luxury) food" positively correlated with the same variable ($r=+0.81$). Consumer perceptions of the nutritional value of the foods were generally good. Ratings of foods "low in fat" and "low in calories" were negatively correlated with the actual fat content of the food ($r=-0.66$ and $r=-0.57$ respectively). Consumers were aware of sodium content of the foods as well. Ratings of foods "low in salt" and one that "doesn't contain additives" were negatively correlated with actual sodium content ($r=-0.79$ and $r=-0.78$ respectively). Ratings of foods "low in calories" were negatively correlated with actual caloric content of the food ($r=-0.46$) and of foods "high in protein" positively correlated with the actual protein content of the food ($r=+0.77$). While consumers were aware of the cost and nutrient content of foods, these characteristics did not predict the frequency of serving the items.

For marketers, while appropriateness ratings were useful in describing the markets in which the foods competed, they were less useful in predicting the frequency with which they were served. Perceived nutritional characteristics, while fairly accurate, were not useful in predicting the frequency of serving these foods.

I. INTRODUCTION

The goal of any marketer is to produce and distribute goods of the quality and quantity desired by defined groups of consumers. In order to do this successfully, the marketer must understand how consumers view the products available, in terms of the "bundles of benefits" they deliver; that is utility for the consumer is derived not from the goods, themselves, but from their characteristics (Lancaster, 1966). Physical characteristics of one's own and competing products are usually relatively simple to measure, but are not generally reliable indicators of a product's success in the marketplace. Rather, it is consumer perception of the entire "bundles of benefits" which appears to affect consumption (Yankelovich, 1964; Haley, 1963; Johnson, 1979; Sapp, 1991; Branson et al., 1986; Eales and Unnevehr, 1988). Consumer perceptions of these benefits will be influenced by many factors, including, but not limited to, the physical characteristics of the available range of products.

Many factors are known to influence food selection. Krondl and Lau (1982) discussed three groups of these influences. The first group, exogenous factors, includes economy, society and culture to which the individual belongs. The second group, endogenous factors, includes heredity, sex, age and activity of the individual. Demographic research, interested in these factors, is usually based on secondary data, much of which is furnished by government sources. Both these groups of factors, while

of interest as classification variables, are beyond the direct control of the marketer. The third group of influences, consumer perceptions, is of more direct interest to marketers because the factors in this group can be influenced. This group of factors includes an individual's familiarity with the product and the perception of such aspects as the product's convenience, price, healthfulness and prestige.

There is sometimes a poor relationship between attitude and behavior (Shepherd, 1988; Cialdini et al., 1981), presumably because food choice is such a complex phenomenon influenced by many factors. Attitudes are composed of a cognitive component (information or beliefs), an affective component (liking or disliking) and a conative component (tendency to behave in a certain way). The affective component is often believed to be the central component of attitude (Shepherd, 1988). Preference for a food is known to relate to increased consumption, although preference for specific attributes of the food do not relate as well (Shepherd, 1988). Therefore, it is not surprising that affect for a food, that is its hedonic rating, has been studied extensively to attempt to explain food-related behavior. Attitudes formed on the basis of direct experience with an object are better predictors of behavior than are attitudes formed without this experience (Cialdini et al., 1981).

The sensory and hedonic characteristics of a food have traditionally been focussed on to explain food acceptance and consumption. Numerous studies have showed the 9-point hedonic scale to be a valid tool in product-related decision making (Peryam, 1957; Moskowitz and Sidel, 1971). However, according to Meiselman et al. (1988), while acknowledging that there is an entire other set of variables, environmental or situational

ones, scientists for the most part have given them lip service, only. Hirsch et al., (1985) examined consumption rates of army rations fed to army support groups and found that, although receiving high hedonic scores, the food was not well consumed. Meiselman et al. (1988) reported on a number of studies showing that food consumption was influenced by situational factors. Haines et al. (1988) note that consumption decisions are actually two separate but related ones; whether or not to consume the food, and the quantity to consume. Situational and environmental factors are a possible untapped resource of factors explaining human food use.

One set of perceptions related to situational variables is the appropriateness of various products for different use occasions. These use occasions encompass such aspects as time (eg. breakfast foods vs dinner foods or winter foods vs summer foods), person (eg. foods for children), location (eg. foods to order at a restaurant), health factors (eg. foods to decrease risk of heart disease), sensory characteristics (eg. refreshing foods) and economic considerations (eg. foods that are good value for the money). These perceptions have been used to classify foods in a number of studies. They have been used with both a wide variety of foods (Schutz et al., 1975a), and with narrower groupings of such foods as rice and related products (Schutz et al., 1975b), wine (Schutz and Ortega, 1974), and dairy foods and related items (Bruhn and Schutz, 1986). These studies have shown that there is a simple cognitive structure underlying food perceptions, and that foods may be grouped according to their appropriateness for various use occasions. A major advantage of this method is that foods are grouped according to respondent-generated, rather than "expert" generated, criteria. Within

groups, foods may be considered as substitutes for each other, even though their physical characteristics may vary widely. It has been shown that general liking of the foods (based on hedonic or preference ratings) is not the same as appropriateness, as the situations in which the foods are consumed will influence their acceptance (Schutz, 1988a).

The current study was designed to determine how consumers perceive the appropriateness of a variety of protein-based foods for a number of use occasions. By determining how consumers mentally group these foods, insight is gained in terms of the "bundles of benefits" delivered by each group of foods, as well as the products that are seen by consumers to be suitable substitutes for each other.

In addition to providing information on perceptions of appropriateness, consumers were asked with what frequency they actually served these foods, and with what frequency the use occasions included in the study arose for them and their families. An attempt was made to predict actual frequency of serving of products using appropriateness scores and frequency of use occasion as independent variables. As appropriateness perceptions would likely be formed based on experience with the foods, they should be good predictors of frequency of serving those foods (Cialdini et al., 1981). It was hypothesized that appropriateness might be viewed as analogous to belief that a product possesses a given attribute, and frequency of use occasion as analogous to importance of that attribute in the additive model proposed by Bass and Talarzyk (1972) to explain consumer attitudes. Based on Fishbein's work, the model states that overall evaluation of a brand is a result of the beliefs about the attributes of that brand

and the perceived importance of those attributes (Fishbein, 1967). Scale ratings are usually used to evaluate both attributes and importance (Shepherd, 1988; Sapp, 1991).

Overall attitude results in a positive or negative intention to buy, which might ultimately result in actual purchase. Therefore, it was hypothesized that high frequency of use of a product would be related to high appropriateness ratings, especially if the use occasion occurred with high frequency.

The broadly-stated objectives of this study were:

1. To estimate consumer valuations of the appropriateness of specific protein-based foods;
2. To differentiate between products based on their appropriateness for various use occasions;
3. To examine these valuations along with product costs and nutritive characteristics to explain consumer frequency of use of the products;
4. To recommend marketing action based on quantitative results.

The study was designed to take place in three phases, sequentially. The first phase was to use focus groups to generate lists of foods and use occasions. The second phase was to design a small preliminary questionnaire, based on these foods and use occasions, which then was tested for content and for clarity with a small group of consumers. The data from this questionnaire were analyzed, and the results obtained were used to test appropriate computer programs for analyzing the data, as well as to calculate the number of respondents required for the main study, based on the variability found in this preliminary data. Based on the results from this preliminary questionnaire,

a comprehensive questionnaire was designed for the third phase, the main study. In addition to appropriateness data, this phase of the study involved the collecting the retail price and selected nutrient contents of each of the foods included in the study. This questionnaire was distributed to an appropriate number of randomly selected respondents. The results obtained from this phase were used a) to determine consumer perceptions of the appropriateness of each of the foods for each of the use occasions, b) to determine the underlying factors in the data, c) to compare perceptions of cost with actual costs of the products, d) to compare consumer perceptions of nutrition-related characteristics with actual nutrient content of the foods, and e) to attempt to predict frequency of use of the foods in the study.

II. LITERATURE REVIEW

This review is structured to provide a general overview of studies in the area of food marketing followed by more specific studies concerning consumption patterns of protein-based foods, characteristics of protein-based foods, and the rational for using the methodology in the study, including the focus group method for obtaining qualitative data, contextual evaluations using appropriateness evaluations, factor analysis and principal component techniques, and correlation/regression techniques for predicting consumer behavior.

A. Food Marketing

Food marketing is a complex business, with a plethora of new products appearing in the marketplace daily. Unfortunately, most will fail. To improve the probability of success, knowledge of both the marketplace and the consumer are essential.

Products provide utility, or satisfaction to the consumer. Lancaster (1966) noted, however, that the utility for the consumer is not derived from the goods, themselves, but from their characteristics. The marketing concept says that for success, products, prices, promotional materials and channels of distribution for any good must be chosen so that they best serve the needs of the ultimate consumer. Consumers are not viewed as identical, but as seeking different benefits from the products which they purchase.

However, if a group of consumers is seeking the same benefits, the group would be more alike in what it wants than the general population. In other words, marketers attempt to segment consumers into subgroups, each of which is more homogeneous than the general population in its purchase decisions. The strategy of the marketer is then to target the most attractive of these segments. New market segments come into existence when consumers evaluate a new product as being different from the "prototype" of products in a class (Rosch and Mervis, 1975; Mervis, 1981).

A key to success in marketing is to design and distribute products to meet the known wants and needs of known segments of consumers. Promotional efforts should reinforce the message that needs which are relevant for the purchaser are being met by the product. In a study of class membership, Saunders et al. (undated) noted that in most cases, product use was taken into account when the consumer evaluated the typicality of the product, thus reinforcing the need for marketers to consider the uses and contexts in which the product will be consumed when developing a product positioning strategy. In order to design an effective marketing plan, it is imperative to understand the consumers in each of the target segments. Understanding consumer perceptions of both one's own and competing products is essential if an effective marketing strategy is to be designed (Cialdini et al., 1981).

One long-recognized model of consumer choice is the expectancy-value model of Fishbein, who assumed that each consumer views each product as a collection of attributes. In addition, the consumer attaches different importance weights to the relevant attributes. The expectancy model states that a consumer's beliefs about a brand's

attributes are multiplied by the consumer's importance weights and summed to obtain an attitude score for the product (Fishbein, 1967). Attitudes, however, are not strongly related to behaviors, that is a consumer's positive attitude toward chicken would not necessarily lead to the behavior of chicken consumption. Rather the beliefs and affect (degree of liking) influence behavioral intention, which is a fairly good predictor of behavior (Fishbein and Ajzen, 1975). In its simplest form, the Fishbein model of reasoned action states that the behavioral intention (I)is determine by his attitude toward a behavior (A_{act}) and by his subjective norm (SN), or perceived social pressure to perform the action according to the equation:

$$I = w_1 \times A_{act} + w_2 \times SN$$

where w_1 and w_2 are relative weights, obtained by regression analysis. Shepherd (1988) notes that there are two main approaches attempting to link attitudes with food consumption. The first approach is to investigate the relationship between preferences for the food and consumption, and there is evidence that the two are related (Meiselman, 1984). There is a poor relationship between liking specific attributes and food consumption, however. Haines et al. (1988) point out that even consumption is not one decision but two; whether or not to consume the food, and how much of it to consume.

The amount of a food product a consumer could be expected to use is of interest to marketers. Many methods have been used in an attempt to predict food consumption, but, as consumer motivation for any behavior is complex, no one method has achieved complete success. One popular method is to use hedonic/preference ratings, but these are far from perfect predictors of food consumption (Lau et al., 1979; Pilgrim and

Kamen, 1963; Sidel et al., 1972). Abernethy (1984) in a study of ten semantic differential scales, found that the one most related to meat consumption was "Dislike/Love Eating the Food", and it accounted for only approximately eight percent of the variance, and only approached significance. Other aspects of the food and situation are important. For example, Kamenetzky (1957) compared hedonic scores with consumption of foods for the military. Even when the meats/eggs/ fish group received lower preference scores than the fruits/desserts group, there still was higher consumption of the first group of foods. The situation in which the food is consumed also affects preference Simonson (1998), studying variety-seeking behavior, found that preferences were even less reliable predictors of actual food consumption if consumers were seeking variety, and if several purchases were being made for future consumption. These situations are often present when food is purchased.

There are other beliefs and attitudes concerning actual food consumption, like perceived nutritional benefits or harm from the foods, and the relationship between these is not strong. According to Shepherd (1988), they may be related but only in a very general way, and will, like price, operate through a person's beliefs and affects.. Grotowski and Sims (1978), Eppright et al. (1970), Perron and Endres (1985), and Werblow et al. (1978) found few or no statistically significant relationships. Attitude was a better predictor of behavior than subjective norm in a study of consumption of food contributing a high percentage of fat to the UK diet (Shepherd and Stockley, 1985). In this study, a score for nutrition knowledge was not related to either attitude or behavior scores. Sapp (1991) examined whether nutrition knowledge affected consumers'

beef eating intentions using an expanded Fishbein and Ajzen model, wherein nutrition knowledge, beliefs about health and diet, opinions of significant others and social acceptability were examined at determinants of both attitudes and subjective norms. Nutrition knowledge was not directly related to behavioral intention or to attitudes.

According to Cialdini et al. (1981), the more an attitude corresponds with the behavior, the better is its predictive ability. Too, direct experience with an object leading to formation of the attitude, will increase the predictive ability of the attitude.

The understanding of consumer perceptions is also important when new products are being developed for any consumer segment. As new product development is a high-risk, high-cost operation, according to Cooper (1986), marketing information should be gathered long before prototype products are made, and only new products with high potential for success should be developed to the point where they are actually offered for sale. Ideas for products with low probability of success should be discarded early in the planning stages. The magnitude of the problem with food products is emphasized by the fact that in the U.S. in 1987, 7,866 new food products were introduced (Anonymous, 1988 cited by Altschul, 1989).

In recent years, consumers have exhibited marked changes in lifestyle and food consumption patterns (Danielson and Robbins, 1984; Breidenstein, 1988; Exter, 1988). Some of the variables thought to impact on food consumption patterns include the increase in real disposable income, smaller families, more working women, the number of consumers living in urban areas, and the age and sex make-up of the Canadian population (Fabris, 1990). There is a need for foods that are quick to prepare and

convenient, as well as those which are perceived as contributing to health. In recent years, Canadian consumers not only spend a lower percent of disposable income on food (21.7% in 1961 vs. 13.8% in 1989), they also spend a smaller portion of their food dollar on food prepared at home (83.1% in 1961 vs. 69.8% in 1989), according to Statistics Canada (1990). Heien and Pompelli (1988) view the lower demand for roasts as compared with steak and ground beef as relating to the change in household size and to ethnic factors.

Several authors agree that there was actually a structural change in the demand for meats in North America (Reynolds and Goddard, 1991), as consumers began to reject products high in cholesterol and saturated fat. White meat became preferable to red meat. Reynolds and Goddard (1991) suggest that the change was a gradual one, taking place between 1975 and 1984. Brandson et al (1986) suggest that, while beef marbling and palatability are generally related, lower, leaner grades of beef appear to be acceptable to approximately 25% of consumers, and suggested that this group represents a distinct, diet-conscious segment. Hahn (1988) stated that income distribution differs from meat to meat; pork consumption changes little with income, chicken consumption grows at approximately the same rate as income, but beef consumption grows with income, especially for consumers with low incomes.

These changes have impacted heavily on the red meat industry. Chen and Veeman (1991) have pointed out that this structural shift seems to account for a 6% decline in the expenditure share of beef and a 33% increase in expenditure share for chicken. According to Zafiriou (1985), between 1963 and 1976, total per capita meat

(including poultry) consumption increased from 78.2 Kg to 95.5 Kg, but has been falling since that time. However, while poultry consumption increased by 55.5% between 1963 and 1983, red meat consumption rose only 14.5% during the same period of time.

Many methods have been used to attempt to predict food consumption, but, as consumer motivation for any behavior is complex, methods such as hedonic ratings (the strength of preference for a product) and FACT ratings (food action-the likelihood a person would eat a particular product if given the opportunity) have met with only limited success (Schutz, 1988a). Hedonic ratings (or how much a food is liked) are useful in determining preference, but preference accounts for only a small percentage of actual consumption of food. For example, fruit rates higher in preference than meat, but meat consumption is higher (Kamenetzky et al., 1957). An interesting scale is the FACT, or food action scale, which determines how often a person would eat a food if given the opportunity. A drawback is that the scale does not measure how often the opportunities may arise.

A common method used at the present time is product optimization, based on multidimensional scaling techniques i.e. rating the various independent attributes of the product. This method is feasible when the attributes of the product important to consumers are known and are easily manipulated (as in, for example, sugar and acid levels in a beverage). The method is not useful for products which do not lend themselves to systematic variation (Moskowitz, 1988).

B. Consumption Patterns of Protein-Based Foods

Meat consumption in the North America has undergone radical changes in the past 40 years (Watts et al., 1988; Skaggs and Menkhaus, 1986; Hunt and Robbins, 1989; Wiley, 1989). In the United States, annual total meat consumption, which had traditionally been approximately 68 Kg (150 lb) per capita, has gradually dropped from a peak of 71.2 Kg (156.7 lb) in 1971 to 60.9 Kg (134 lb) in 1989. The pattern of meat consumption in Canada is somewhat more stable. In the early 1960's, annual total meat consumption in Canada was in the range of 60-65 Kg per capita. Consumption increased gradually through the 1970's until it peaked at 83.9 Kg in 1976. After 1977, consumption fell to 70-80 Kg, and has been slowly falling since then. Canadian 1989 per capita consumption of meat was 70.2 Kg (Agriculture Canada, 1990).

Protein-based foods with meat as the prototype have been selected for the current study for a number of reasons. They are foods which evoke reactions among consumers. Rozin and Fallon (1986), studying food likes and dislikes, noted that foods considered "disgusting" are almost always of animal origin. Surveys of customers in Italian supermarkets, however, (Fidanza, 1989) showed that meat was considered "among the most nourishing foods" by a high percentage of respondents. In reporting the results of two surveys, it was pointed out that the percentage of respondents who described meat that way had dropped between 1981 and 1989. For most North Americans, meat, fish, and poultry are among the most common menu items, normally served as the entrée. Turner and Collison (1988) have shown that entrée acceptance is a primary determinant

of overall meal acceptance. Using multiple regression techniques for 285 hedonic acceptance evaluations of whole meals and their components, the authors determined that the acceptance ratings for the whole meal = 0.57 + 0.43(entrée) + 0.21(sweet) + 0.14(starter) + 0.14(potato). These results are in agreement with those of Kamenetsky et al. (1957). Protein-based foods are relatively expensive, and meats and poultry account for more than 20% of the food expenditures in stores (Robbins, 1988). Many menu experts suggest that, when planning menus, the main item (meat, fish or poultry) should be chosen first, and the rest of the menu chosen to harmonize with, and complement the main item. Thus, one may expect that consumers give considerable thought to the protein-based foods they serve.

At the same time, there are data to suggest that North Americans appear to be losing traditional preference for red meats. According to United States Department of Agriculture data, before 1953, the most-consumed meat in the United States was pork. In the 1950's, beef consumption gradually began to increase, until, in 1976, it reached a peak of 42.9 Kg (94.3 lb) per person per year. Another revolution took place more recently when, in 1987, American chicken consumption was greater than beef consumption for the first time (Swientek, 1988). The gap is expected to widen. American per capita consumption of chicken was 30.9 Kg (68.1 lb) in 1989, up from 16.5 Kg (36.3 lb) in 1967 (Robbins, 1990). American beef consumption fell to 31.3 Kg (68.8 lb) in 1989 and continues to decline.

Although the change in Canada has been more gradual, it is still worrisome for the red meat industry. The meat of preference in Canada has traditionally been beef.

In the early 70's, Canadian annual per capita beef consumption, based on disappearance was approximately 32 Kg, gradually increasing until it peaked at 39 Kg in 1976. By 1979 it had dropped to 29.5 Kg, and through the 1980's and 1990's, consumption has been rather stable at approximately 28 Kg per capita. Poultry consumption has increased from approximately 15 Kg per person in 1963 to 28 Kg per person in 1989 . Per capita pork consumption had been approximately 19-20 Kg through the 1960's, peaked at 25.5 Kg in 1980, and has been approximately 22 Kg since 1985 (Robbins, 1990).

Many explanations have been offered to explain North American changes in consumption patterns, including increased interest in health of our aging population, and the need for convenient menu items by the high proportion of working women in our population (Watts et al., 1988; Sills-Levy, 1989; Hicks, 1990; Senauer, 1989; Roschnik, 1989; Miller and Frier, 1989; Charles and Kerr, 1988; Robbins, 1988). As Sabry (1989) points out, however, while it is believed that health concerns play a major role, it is difficult to separate those effects from effects associated with cost or convenience. Eases and Unnevehr (1988) note that beef and chicken demand is actually a demand for their constituent products, and rejected the hypothesis that consumers allocate expenditure first to animal product aggregates (like beef or chicken), then within the products making up the aggregates. They believe that the increase in demand for chicken seen after 1984 is due to the larger share of the parts and processed products, rather than a rate in the change of preference. Furthermore, they stress that the shift from beef cuts to chicken parts must have been caused by a demand for convenience, and questions the rational for believing that nutritional concerns are the cause of the increased demand for chicken.

Sapp (1991) would agree, noting that when an attempt was made to correlate consumer nutrition knowledge and beef eating intentions and behavior, it was not directly correlated with either.

In order to win back consumers, the red meat industry has been engaged in heavily promoting its products. Unfortunately, most meats are promoted as generic products, implying that one cut from an animal is much like another from the same animal. For example, if beef is promoted as a generic product, the implication is that any beef cut will offer the same "bundle of benefits" to consumers. This is in startling contrast to numerous studies on the characteristics of the product, which show that, in fact, beef products vary considerably in such characteristics as protein, fat and moisture contents as well as in sensory characteristics. This is true for other meat, fish and poultry products as well (Altschul, 1989; Lefens, 1986).

In order to be effective, promotional efforts should be targeted to meet specific needs of consumers with specific products (Lefens, 1986; Park and Smith, 1990; Saunders et al., undated; Fabris, 1990). This is virtually impossible unless the marketer understands consumer perceptions of products being marketed, as well as those of competitive offerings. To state it simply, a beef prime rib roast may or may not compete directly with another beef cut or other meat, poultry and fish products. It will not, in any case, compete directly with all meat, fish and poultry products available in the marketplace. A prime rib roast will, rather, be competing only against products perceived by the consumer to be suitable substitutes for a prime rib roast.

C. Characteristics of Protein-Based Foods

There is evidence to suggest that, while consumers perceive red meats to be high in fat, calories and cholesterol, breeding and rearing practices have, in fact, reduced the fat levels in meat products substantially. In 1977-78, more than 60% of total dietary fat in the U.S. was from animal products, with 42% from red meats, poultry and fish (Altschul, 1989). The same author points out that nutrient content varies considerably with grade, cut, preparation method and type of product. Some of the changes described to reduce fat content in meats include changing the grading system to enable marketing of leaner cattle, producing more large-framed, late maturing breeds of cattle, using hot-fat trimming of exterior fat, using genetic selection to breed leaner hogs and chickens, and producing more low-calorie, low-fat convenience products. An example of such a product is turkey franks, which are 91% fat free and provide 70 Kcal and 4 g of fat per serving (Altschul, 1989).

However, there are studies that suggest that the eating of red meats is implicated in such health problems as cardiovascular diseases that plague North Americans. Consequently, a panel of the National Research Council has encouraged the development of more low-fat meat and dairy products (National Research Council, 1988). They did so because there are important contributions of meats to the diets of North Americans including protein, iron, and b-vitamins (Altschul, 1989; Gibson, 1990).

Sabry (1989) points out that beef and pork in Canada are leaner than their U.S. counterparts. Animal production systems have emphasized leaner carcasses, primarily

by reducing visible fat, and the nutrient composition of these leaner products is reflected in the Canadian Nutrient File. When lean cuts have been trimmed of all visible fat, beef contains 7-14% fat, and pork contains 5-17% fat. In Canada, red meat contributes approximately 8% of the dietary energy intake and all meat contributes approximately 11% (Sabry, 1989). Fish is higher in protein, but generally lower in fat than meats (Sabry, 1991). While meats are leaner than in earlier times, they still make substantial contributions of fat to our diets (Robbins, 1987). The Canadian food supply provides slightly more than 3000 Kcal/person per day, and approximately 36% of the calories are from animal sources. These numbers are based on disappearance figures (Robbins, 1987). Other protein-based foods contain less fat (Health and Welfare Canada, 1987).

Several studies have indicated that consumers perceive a link between dietary fat and risk of heart disease (Armstrong et al., 1991). It is surmised by some researchers that the decrease in meat consumption is related to the fact that North American consumers perceive it as being high in fat, cholesterol and calories (Anonymous, 1987; Reynolds and Goddard, 1991). Gerber (1989) indicates that older consumers are interested in foods that will increase longevity and slow the process of ageing. Respondents in the study by Armstrong et al. (1991) tried and maintained several techniques aimed at reducing dietary fat including "draining grease from foods" (86%), "eating more fruits and vegetables" (82%), "trimming visible fat from foods" (81%), "using lean meats" (72%), "using chicken" (75%) and "using fish" (65%). Wiley (1989) notes an increase in deli sales of low fat, whole muscle products.

In order to win back consumers, the red meat industry is engaged in heavy

promotion of its products. Generic advertising for meats is common, and, especially in the United States, meat is often sold branded (Swientek, 1988).

A 1985 study showed that fewer consumers in 1985 were perceiving meat as an essential part of a main meal than they had in 1983 (Yankelovich, 1985). The same study found that more consumers in 1985 said they were either considering, or had cut down the amount of meat they were eating for health reasons.

D. Methodology

1. The Focus Group Method

Focus groups, or group depth interviews, are considered to be a rich source of qualitative data, and are suitable as a preliminary step in consumer studies. A primary use of focus groups in marketing is to obtain a broad understanding of the market (Dickens, 1982).

Bellenger et al. (1976) described seven appropriate uses of focus groups:

1. To generate hypotheses
2. To generate information that would be helpful in designing a consumer questionnaire
3. To provide background information on a product or a category of products
4. To obtain impressions on new product concepts
5. To stimulate new ideas about older products
6. To generate ideas for new product concepts
7. To aid in interpreting previously obtained quantitative results.

The advantages of focus group sessions are that they obtain data relatively quickly, are relatively inexpensive, are very flexible, and are helpful in generating hypotheses when little is known about the topic (Wells, 1979; Tynan and Drayton, 1989). The technique offers a number of advantages, including synergism among members, which results in a wider range of ideas and information than would be expected from individual interviews (Calder, 1977). The data are not projectable to the general population both because the sample is so poor and everyone in the group does not have an equal say, as some respondents are naturally more communicative than others (Bellenger et al., 1976; Calder, 1977).

The method grew out of the group therapy method used by psychiatrists (Bellenger et al., 1976), and, like group therapy, encourages a group to talk about feelings, attitudes and perceptions about the issues under discussion (Goldman, 1966). The sessions generally last one and one half to two hours (Bellinger et al.) and involve 8 to 12 people (Marlow, 1987; Templeton, 1976). Payne (1976), however, feels that no more than 8 respondents should be used. Levy (1979) feels that 8 is optimal, and, although some flexibility in numbers is permissible, groups with six or fewer members are too small, whereas groups with twelve or more are too large. Wells (1979) believes that 6 to 10 members is a comfortable size group to work with. Sampson (1986) believes there is no "correct" size, but that ideal group size is dependent on the type of members. He notes that 5 to 6 highly articulate, professionals is a sufficiently large group, but it may be necessary to include 9 to 12 members if the members of the group are inarticulate. He believes that for most groups of the "public", 7 or 8 members are

appropriate.

Groups should have a common interest (Goldman, 1962) or some experience with the topic under discussion (Bellenger et al., 1976). It is important for marketers to concentrate on the population segments that will give meaningful results (Axelrod, 1975).

The physical environment should be relaxed in order to encourage informal discussion (Bellenger et al., 1976), but some authors (Payne, 1976) feel that a good interviewer can conduct useful sessions in many types of environments. A relaxed atmosphere is thought to promote spontaneity, and it is this relaxed atmosphere that is seen as being partly responsible for the improvement in material obtained by this method over the individual interview method (Goldman, 1962). Most interviews are tape recorded, and several authors noted that respondents rarely object (Wells, 1979; Levy, 1979).

The moderator's role is essential to the method's success (Payne, 1979; Axelrod, 1976) as it is his/her role to conduct the session and encourage a high degree of interaction within the group, rather than between the moderator and individual group members (Bellenger et al., 1979; Goldman, 1962). The moderator must be highly knowledgeable about the category of product under discussion, and should have prepared a well thought through moderator's guide (Peterson, 1975; Axelrod, 1976). Moderator bias should be avoided (Kennedy, 1976). Flexibility is important, but the interview must be focussed, and not allowed to wander aimlessly (Bellenger et al., 1979; Goldman, 1962). If several group sessions are to be held, it is important to use the same moderator for all of them (Bellenger et al.,1979).

2. Appropriateness Ratings

The use of appropriateness measurements as a possible marketing tool began with Stefflre (1967), who applied experience from his field of cultural anthropology to the appropriateness of foods. Stefflre used a beer bottle to illustrate how differently various cultures throughout the world could perceive and use the same object depending on various factors such as cultural patterns, values, and language structure (Meyers and Tauber, 1977). Although recognized as a beverage container in most of the civilized world, the same bottle could be used as perhaps an ornament or a weapon in other cultures. His premise was that few articles would likely be used by all cultures in the same way, and that understanding the way new objects were perceived by a culture was essential in order to market them successfully.

The first step in Stefflre's marketing plan was to define the market, that is to define the array of relevant competing products. He believed that the array of competing products in any given market was broader than is generally assumed. Other marketers agree (Park and Smith, 1990). Stefflre's approach was to ask consumers in the geographical area of interest to supply three lists; one of products currently available, one of the uses to which these products are put, and other products that could be used for the same purposes. He then arrayed the items and uses in a matrix, and asked respondents whether each product was suitable for each use, by scoring it as 1 if the product was seen as suitable, and 0 if it was seen as not suitable. He noted that a fairly wide range of uses were similar in terms of which products were suitable to satisfy them (Stefflre, 1971; Myers and Tauber, 1977).

Since this pioneering work in the area of appropriateness, a number of studies have considered the appropriateness of textiles (Schutz and Phillips, 1976) and of foods for various use occasions (Schutz et al., 1975a; Schutz et al., 1975b; Schutz and Ortega, 1974; Bruhn and Schutz, 1986; Mullet, 1988). These use occasions encompass such aspects as time (eg. winter foods vs summer foods), person (eg. foods for children), location (eg. foods to order at a restaurant), health factors (eg. foods to ward off colds), sensory characteristics (eg. refreshing foods) and economic considerations (eg. foods that are good value for the money). These perceptions have been used by Schutz and co-workers to classify foods in a number of studies.

The method he used is based on five hypotheses:

1. Simple preference is not the same as appropriateness for use.

2. What is appropriate to consume varies. It is influenced by the occasion,who is consuming the product, cost, cultural differences and other factors.

3. By using measurements of uses of various items, it is possible to determine the underlying cognitive structure both of the aggregate and of individuals.

4. Within a class of items or use, consumers have a relatively simple cognitive structure relative to the total number of items or uses; that is both the items and uses may be grouped, with members of the same group being considered substitutable.

5. The cognitive structure dimensions differentiate among groups and predict consumption.

The questionnaires administered ask respondents to evaluate the appropriateness of given foods for given use occasions and attributes, often on a 7-point scale, although

shorter scales have been used (Schutz et al., 1972; Mullet, 1988). For example, in a study of rice and related products, the items included long grain rice, short grain rice, potatoes and spaghetti. Use occasions and attributes included "to serve on special occasions", "contains little fat", "for lunch" and "when I want to lose weight". The questionnaires usually contain approximately fifty foods and fifty use occasions. Each respondent evaluates the appropriateness of each food for each use occasion, giving rise to approximately 2500 evaluations per respondent.

The method has been used to determine consumer perceptions of a wide variety of food products (Schutz et al., 1975b) including rice (Schutz et al., 1975a), wine (Schutz and Ortega, 1974) beer (Mullet, 1988) and dairy products (Bruhn and Schutz, 1986). In addition to Schutz and his co-workers, the technique has been used by Sukhumsuvun and Resurreccion (1988) to classify perceptions of peanuts and related Thai products, and by Nantachi et al., (1992) who demonstrated that the technique was an aid in developing new products for domestic and export markets simultaneously.

3. Factor Analysis (Principal Component Analysis)

Principal component analysis is a type of factor analysis that has been used with appropriateness ratings to identify the relationships among individual variables. In the appropriateness literature, the terms "factor" and "principal component" have been used interchangeably, and, while principal component analysis was done in this and other studies, the extracted principal components will be referred to as factors in this document.

Prior to factor analysis, for each food and each use, a mean value is calculated over respondents, then these mean scores for each food are used to calculate correlation coefficients among the mean scores foods for each of the pairs of use occasions. Factor analysis is conducted on this correlation coefficient matrix.

The family of procedures known as factor analysis are statistical techniques concerned with identifying a structure within a set of observed variables (Stewart, 1987; Sharpe and Smith, 1979). Factor analysis is used to identify a reduced number of factors that represent the relationships among the original sets of interrelated original variables (Perreault and Barksdale, 1979), while, hopefully, retaining most of the information in the original data. Stewart (1987) points out that a factor is a qualitative dimension, defining the way entities differ in the same way that sweetness or sourness would be quality dimensions on which products may or may not differ. What factor analysis does, then, is to identify important qualities of the data. The extracted factors will be fewer in number than the original variables, but will express whatever it is that is common among those original variables (Stewart, 1987). Perreault and Barksdale (1979) used the method to develop what they termed "summary scales" about government intervention and marketing practices from a larger number of original scales. Implicit in factor analysis is that correlations among items is due to their common association with the underlying factor (Perreault and Barksdale, 1979). Thus, high calculated correlations among variables are an indication that they share the factors. The extracted factors, unlike the original variables, are independent.

Principal component factor analysis, a common type of factor analysis, forms

linear combinations of the observed variables. Its primary goal it data reduction, and assigns all the variance in the original variables to the principal components (factors) extracted (Kim and Mueller, 1988; Tabachnick and Fidell, 1989). The technique is similar to common factor analysis, but differs from it in that common factor analysis assigns to the factors only the covariance among variables, after removing error variance and variance associated with the unique factors. Thus common factor analysis analyzes covariance, whereas principal component analysis analyzes variance.

For simplicity, all variables and factors are expressed in a standardized form with a mean of 0 and a standard deviation of 1. The total variance in the data is thus equal to the number of variables. The first factor (principal component) extracted accounts for the largest amount of variance in the sample, as indicated by its high eigenvalue. Each eigenvalue is an index of how much variance in the initial correlation matrix is associated with the extraction of the factor. Thus the first factor extracted, the one with the largest eigenvalue, accounts for the highest percent of the variance. In principal component analysis, the percent of variance accounted for by a factor is a ratio of its eigenvalue to the total variance. For example, in a data set with 12 variables, a factor with an eigenvalue of 3.0 would account for 3/12 or 25% of the variance in the data set. The second factor (principal component) extracted, the one with the second largest eigenvalue accounts for the second highest percentage of variance and so on (Perreault and Barksdale, 1979). The successive factors extracted have progressively lower eigenvalues, account for progressively less variance, and are all uncorrelated with each other.

Factor analysis requires considerable judgement on the part of the experimenter,

and one important decision is related to the number of factors to extract. Since the proportion of variance accounted for by each individual variable is 1 after the correlation coefficient matrix is standardized, when factors are extracted, it is common practice to retain only those that have an eigenvalue of greater than 1, meaning that the factor accounts for more variance than an individual variable (Perreault and Barksdale, 1979). Obviously if as many factors as original variables were extracted, all the variance in the original data would be accounted for (Kim and Mueller, 1988; Tabachnick and Fidell, 1989).

Each individual variable has a "factor loading" or a correlation coefficient with each of the extracted factors. That is, the higher the factor loading of that variable with the factor, the more characteristic the factor is of that variable (Perreault and Barksdale, 1979). Factor loadings may be positive or negative values between 0 and 1. After initial extraction, it is common to find individual variables with high loadings on several factors, making interpretation difficult.

Therefore, once the factors are extracted, they are rotated mathematically to improve their interpretability. One common rotation method is Varimax, which attempts to reorganize the loadings on the factors so that they are either high (approaching 1.0) or low (approaching 0.0). A factor matrix subjected to this type of rotation will have most variables with high loadings on only one factor (Perreault and Barksdale, 1979). Stewart (1987) notes that in addition to being the most common rotation method, Varimax is among the best, although the same author states that the rotation method used should not have much impact on interpretation of the results. Varimax is an orthogonal

rotation method, meaning that, after rotation, each factor is uncorrelated with every other factor (Kim and Mueller, 1988).

The next step is to characterize the underlying factors, and to determine which variables belong with which factor. This task has been made simpler by rotation, as each item should, at this time, have a high loading on only one factor. Deciding which factor each variable belongs with is done by examining the factor loadings, or correlations between the factor and the variable. The factors are then assigned meaningful names by the experimenter based on the factor scores with the individual variables. Variables that are highly correlated with more than one factors are a problem, and are sometimes discarded (Perreault and Barksdale, 1979).

In order to assess how items rate on the different factors, factor scores are calculated. Factor scores are weighted combinations of all the original variables, with the variable weighted by the factor coefficients (Tabachnick, 1989). The factor score for an individual item is calculated by multiplying its standardized score by the associated factor coefficient, then summing across all the variables (Perreault et al., 1979). This procedure is repeated for each factor.

What is most interesting to marketers is that the groupings of variables done by factor analysis are made on the basis of consumer response, not some pre-determined characteristic. That is, the variables are grouped into sets with consistent answer patterns. In a beer study, for example, Mullet (1988) extracted four factors:

1. Drinkability, which included the following scales: a beer you can drink a lot of a one time/a good tasting beer/a beer to drink any time/a beer with a pleasant

aftertaste/a smooth tasting beer.

2. Quality, which included the following scales: a good tasting beer/a high quality beer/a full bodied beer.

3. Personality, which included the following scales: a beer that is popular with your friends/a beer you would buy for your friends in a bar/a beer for someone like you.

4. Heavy, which included the following scales: a beer darker in color compared to other leading brands/a strong tasting beer/a beer with a bite/a heavy beer.

Thus if a beer had a high rating on the Drinkability Factor, it would have a high score on"a beer you can drink a lot of at one time", and it would also have a high rating on "a smooth tasting beer". Knowing how it fared on those scales, however, tells nothing about how it rated on any of the other factors, because each factor is statistically independent of the other factors.

Thus the factors have been formed because consumers viewed the products as differing on those characteristics. Such knowledge is important to the marketer, as the public is known to view foods differently from food and nutrition specialists (Worsley, 1980).

The frequency of occurrence of the various use occasions has not been gathered by Schutz and his co-workers, but intuitively, higher consumption should be related to products that are highly appropriate for occasions that occur frequently. For example, roast turkey may be highly appropriate for Thanksgiving, Christmas or other holiday meals, but, as these days occur with low frequency, consumption of roast turkey would be expected to be low. Conversely, luncheon meat may be highly appropriate for only

one occasion (lunch), but, as this occasion occurs frequently, consumption would be expected to be high.

4. Correlation/Regression Techniques

Correlation analysis and regression analysis are two common techniques used to make inferences about how changes in one variable affect another set of variables. Correlation analysis is an investigation into the strength of the relationship, whereas regression describes the nature of the relationship (Harnett and Murphy, 1985).

Correlation analysis measures how well two or more variables vary together in a linear fashion. The sample correlation coefficient, r, will have a value between zero (indicating no correlation) and plus or minus one, indicating either perfect positive or negative correlation. The value of r, when squared, indicates the proportion of variation that has been explained by the model.Multiple regression lines have the general formula:

$$y = a + b_1x_1 + b_2x_2 + \ldots b_nx_n$$

where;

y is the dependent variable

a is an estimate of the population intercept

b_1 to b_n are the estimates of the partial regression coefficients

x_1 to x_n are the explanatory variables

For the results to be meaningful, none of the independent variables can be strongly related to each other, a situation known as multicollinearity. When this occurs, it becomes difficult to interpret the separate effects of each of the explanatory variables.

H. Value of the Current Study

In terms of marketing strategy, the study relating to the review above, will be useful for several reasons:

1. It will not consider meats as generic products, but as individual items that have different characteristics in the minds of consumers. It is known that consumer perceptions may differ substantially from expert opinion (Worsley, 1980).

2. It will identify the direct competitors of individual meat cuts and other protein-based foods, which will enable promotional material to be designed to either reinforce or attempt to change these beliefs. Reinforcing presently held attitudes is much easier than attempting to change them (Park and Smith, 1990).

3. It will identify consumer perceptions of the most appropriate use occasions of the various products. Promotional materials could then be designed using this information.

4. By comparing appropriateness ratings and actual consumption, it may be possible to identify the use occasions that should result in increased consumption. This would allow a rational approach to new product development, as it would identify use occasions for which products should be developed.

5. By identifying the underlying characteristics and determining the ratings of products which are appropriate for given occasions, there should be excellent suggestions for new product development. Park and Smith (1990) note that competitors within a class of products are an excellent source of innovative marketing strategies.

III. MATERIALS AND METHODS

The current study was designed with the following specific objectives:

1. To estimate consumer perceptions of the appropriateness of a variety of protein-based foods for a broad selection of use occasions;

2. To reduce the number of use occasions, through the process of principal component factor analysis, to the minimum number necessary for meaningful interpretation of the data;

3. To determine the consumer ratings, on this reduced list of use occasions, of appropriateness of each of the foods included in the study;

4. To examine the relationship between consumer perceptions of costs and actual costs of the protein-based foods included in the study;

5. To compare consumer perceptions of some nutritional characteristics of these protein-based foods with actual nutrient content;

6. To determine the frequency with which the foods included in the study were served;

7. To examine the relationships between the frequency of serving the various foods and the remaining variables, including the appropriateness for various occasions, perceived and actual cost of the foods, and perceived and real nutrient contents of the foods, in order to better understand consumer use of protein-based foods;

8. To suggest marketing action for protein-based foods based on quantitative results.

The following hypotheses were tested:

1. Ho: The consumer evaluations of mean appropriateness ratings of foods for the various use occasions are not linearly related. That is, there would be no significant correlations between the ratings of appropriateness of a food for one use or occasion and another use or occasion, so the data should not be reduced from the original number of variables.

2. Ho: No differences exist among consumer perceptions of appropriateness of the foods included in the study for the use occasions specified.

3. Ho: Consumer perception of "an expensive, luxury food" is not linearly related to its cost per serving.

4. Ho: Consumer perception of a food "for an inexpensive meal" is not linearly related to its cost per serving.

5. Ho: Consumer perception of a food "low in calories" is not linearly related to its energy content or to its fat content.

6. Ho: Consumer perception of a food "high in protein" is not linearly related to its protein content.

7. Ho: Consumer perception of a food "low in fat" or "good for your heart" is not linearly related to its fat content.

8. Ho: Consumer perception of a food "low in salt" or "doesn't contain additives" is not linearly related to its sodium content.

9. Ho: Each of the following variables is not linearly related to the frequency of serving each of the foods included in the study:

a. its appropriateness for any use occasion

b. the frequency with which the use occasion occurs

c. cost per serving of the item

d. perception of its nutrient content

The study was designed to take place in three phases, with each successive phase being designed based on the results of the previous one.

A. Focus Groups

The first phase of the study was to hold focus group sessions, for the purposes of generating a list of protein-based foods commonly served, and a list of attributes and use occasions for which these foods were considered appropriate. Focus groups are a rich source of information (Dickens, 1992), and a suitable method for gathering preliminary impressions from consumers (Wells, 1979; Tynan and Drayton, 1989; Calder, 1977). These two lists were used as a source of terms for the design of both the preliminary and the final questionnaires.

For the present study, the source of respondents for the focus group sessions was the Young Women's Christian Association (Y.W.C.A.). The coordinator of the Y-Neighbor program was contacted, and three of the Y-Neighbor groups were selected for inclusion in the study. Y-neighbors is a program of the Y.W.C.A. designed primarily for young mothers. There are a number of groups in the city of Winnipeg. Each is relatively autonomous, but receives some guidance from the Y.W.C.A. if needed. The women meet at the home of one of the members for the program, which has been organized by the group. The groups often have invited speakers, after which refreshments are served. Children of the women are cared for in a different location from the meeting place.

At a meeting of group leaders, cooperation was requested, and 18 of the 24 groups were keen to participate. From the 18 willing groups, three were chosen by the Y.W.C.A. Program Coordinator to participate, based on their geographic location. The

groups thus selected were Stonewall Y-Neighbors, River-East Y-Neighbors, and King's Park Y-Neighbors. The Stonewall group is from a small community on the northern outskirts of Winnipeg, the River-East group is from the eastern part of the city, and the King's Park group is from the south end. In April, 1989, focus group sessions were held with these three Winnipeg area Y-Neighbor groups.

While it is recognized that these women are not representative of all consumers, they were considered to be appropriate for the task at hand. The groups were geographically separated in the area. The group members consisted primarily of young married women who stayed at home with small children, who shopped for food and who were expected to prepare most of the meals for the family. Thus they are likely to be familiar with many foods, and have experience preparing meals. By joining a group such as Y-neighbors, they show an interest in meeting people outside the home, and so are likely involved in many use occasions. The groups were a suitable size (Marlow, 1987; Templeton, 1976; Levy, 1979; Sampson, 1986). The groups had a common interest, thought by Goldman (1976) to be important. The groups were preparers of food, thus represented a segment that should give meaningful results (Axelrod, 1975).

The author arranged to attend a regularly-scheduled meeting of each of these groups at the place where the group regularly met (in churches for the first two groups and a member's home for the third group), as this relaxed atmosphere was expected to encourage informal discussion (Goldman, 1962). The groups consisted of 9-11 members, considered an appropriate size for focus groups, as it allows for interaction between members, without loss of control by the moderator (Marlow, 1987; Templeton, 1976;

Calder, 1977). Some authors feel that if several sessions are to be held, it is desirable to have the same moderator for all sessions. For this study, the experimenter acted as moderator for each focus group session. A lively discussion took place in all groups, and individual members participated willingly. The groups were paid $100 each for their participation.

In order to encourage generation of ideas, a guide (Peterson, 1975; Axelrod, 1976) consisting of a series of general topics for discussion by each focus groups' members had been prepared before the sessions were held. The same discussion guide (Appendix 1) was always used, but, as success with focus groups depends on interaction among group members (Calder, 1977), the order of the questions varied somewhat from group to group, and discussion of some topics not included in the guide took place.

All sessions were recorded on a portable tape recorder, and the tapes were then transcribed, a usual procedure for focus group sessions (Wells, 1979; Levy, 1979). The sound quality of the tapes was excellent, and there was no difficulty transcribing them. Two lists were compiled from the transcriptions of the focus group tapes, one of all products mentioned (Table 1) and one of all use occasions mentioned (Table 2).

TABLE 1. List of All Products Mentioned by Focus Groups

I. BEEF PRODUCTS

Roast beef
Rib roast
Rump roast
Sirloin tip roast
Standing rib roast
Hamburger / ground beef
Steak
Blade steak
T-bone steak
Sirloin steak
Corned beef
Stewing beef
Liver

II. PORK PRODUCTS

Spare ribs
Pork tenderloin
Pork sausages
Ham
Bacon
Pork chops
Pork roast
Crown roast

III. POULTRY PRODUCTS

Chicken
Roasting chicken
Chicken breasts / boneless chicken breasts
Chicken wings
Chicken fingers
Chicken drumsticks
Chicken livers
Roast turkey
Turkey pieces
Goose

TABLE 1. (continued)

IV. OTHER MEATS

Veal / veal scaloppine
Rack of lamb
Leg of lamb
Hot dogs / wieners / smokies / smoked sausage
Farmer sausage
Garlic sausage
Pepperoni
Salami
Luncheon meat / sandwich meat
Bologna
Liver
Venison
Meat loaf

V. FISH AND SEAFOOD

Fish and chips
Pickerel
Salmon steak
Arctic char
Canned salmon / canned tuna
Sushi
Crab
Shrimp
Lobster

VI. PASTA

Pasta
Spaghetti
Shaped noodles
Lasagna
Macaroni and cheese
Fettucini
Canned pasta
Kraft dinner
Ravioli
Japanese noodles

TABLE 1. (continued)

VII. CHEESE

Cheddar
Mozzarella
Edam
Cheese Whiz
Processed cheese
Cheese slices

VIII. MISCELLANEOUS PRODUCTS

Eggs
Quiche
Pizza
Soup
Peanut butter
Pancakes
French toast
Frozen meat pies
Diet entrées
TV dinners
Casseroles
Chili
Perogies
Cabbage rolls

TABLE 2. List of All Uses Mentioned by Focus Groups

I. COMMENTS ASSOCIATED WITH WHO WOULD EAT OR USE

Company
Kids
Small children
Teens
I
My family / we / the whole family
Picky eaters
Adventuresome people
Men
Adults
Family when husband not at home
Small group / small family
Large group / large family
Big eaters
When people come over
Everybody likes

II. COMMENTS ASSOCIATED WITH PRODUCT CHARACTERISTICS

Good to reheat
Good leftovers (plagued with leftovers)
Fun to prepare
Easy to cook
Something different / not the same old thing / adds variety / you don't get tired of it
Boneless
Soft / tender
Versatile / can fancy it up / can dress it up / can do a lot with it / can be creative with it / good to experiment with
It always works
A special treat / a lavish meal / an impressive meal
Makes a really good meal
Fills you up / sticks to your ribs / satisfying / hearty
It doesn't stuff you
A standby
Good for informal meals

TABLE 2. (continued)

III. COMMENTS RELATED TO TIME

Can be made ahead
When I don't feel like cooking
For a cop-out meal
No dishes to clean up / when I don't feel like doing dishes
Takes a long time to prepare
Don't have to plan ahead / can get it ready at the last minute
Can defrost quickly
Quick / can make it in a hurry / fast

IV. COMMENTS RELATED TO NUTRITION AND HEALTH

Low in calories / when I'm dieting / decent in calories
Good for your heart / good for cholesterol
Health food / wholesome / nutritious
High in protein
Something that's really good for me
Contains carcinogens
Low in fat / not too greasy
Too many nitrites

V. COMMENTS RELATED TO COOKING AND SERVING

Good to barbecue
Good with a sauce / barbecue sauce / ketchup
To cook in the oven
To eat with toothpicks
To cook in the microwave
Good in salad / with salad
To experiment with / try in new recipes
Good to broil
Can be warmed up in microwave
Good cooked rare / don't overcook / good not too well done
For a sit-down meal
In sandwiches
Good cold as well as hot

TABLE 2. (continued)

VI. COMMENTS RELATED TO TIMES TO SERVE PRODUCTS

Times of day

For breakfast
For lunch
For brunch
In a bag lunch
For between meal snacks
For supper

Times of the week

Sunday dinner / for a special meal
Weekdays
Sunday breakfast

Times of the year

Summer
Winter
Christmas, Easter, New Years, Anniversaries, Birthdays etc.

Other times

To order when out / at a restaurant
When you don't feel like a big meal

VII. COMMENTS RELATED TO WHAT PRODUCTS ARE USED IN

In casseroles
In new recipes
In stir-fries
In soup / with soup
In sandwiches

TABLE 2. (continued)

VIII. COMMENTS RELATED TO ECONOMY

Makes an inexpensive meal / cheap meal
Buy in bulk / keep the freezer stocked
Good to save money / don't waste money / a good buy / a bargain
Not too much waste

IX. NEGATIVE COMMENTS

Don't know if it's fresh
Hard to find
I serve less than I used to
I would rather avoid / trying to cut back
Makes you aggressive
Spoils quickly / hard to use up, so you throw it out
High in fat
An acquired taste / you have to learn to like it
Don't normally use / cook
Make it only when I have time
Hard for children to chew / gets stuck in their teeth
Too expensive
Too high in calories
Don't know if kids would eat
Boring / just regular stuff
I can't swallow it
Looks yucky
Smells bad
"Too close to the cow"
Hard to eat / too much work to eat
Too many bones
Wouldn't cook at home / not as good as in restaurants
Contains carcinogens
A lot of trouble to make
Hard to buy the right size
Too much waste
Aren't supposed to eat in months without an R
Too many nitrites
Leaves you plagued with leftovers

TABLE 2. (continued)

X. OTHER COMMENTS

We use it often
I serve more now than I used to
I would enjoy eating it more often
Makes a nice meal
I usually have it on hand
"My brain says it's bad, but my mouth loves it"
The family would eat it every day
I stock up the freezer with it
A hearty man's meal
Easy to get a size that suits us

B. Preliminary Study

The second phase of the study was to design a preliminary appropriateness questionnaire based on the information gathered from the focus groups. The list of products generated by the focus groups was compared with products investigated in the literature, to guide the choice of which products to use in the preliminary questionnaire. Many consumer studies include only products from one type of animal (i.e. pork products only or beef products only), and one of the purposes of this study was to be more representative of the entire protein-based food market. Therefore, the subset of the ten products chosen from the list to be included in the preliminary questionnaire was designed to be representative of this broad selection of food items, as several authors have noted that a fairly broad range of products can be used for similar uses (Stefflre, 1971; Myers and Tauber, 1977; Park and Smith, 1990). Specific meat cuts from animals commonly used as food in Canada, such as beef rib roast, hamburger, chicken breasts, three processed meats, bacon, corned beef and frankfurters were included, as well as such non-meat items as cottage cheese, canned tuna and peanut butter and frozen meals, which had been mentioned by the focus groups as being substitutes for meats in some situations.

In order to guide the selection of use occasions to be included in the questionnaire, the list of attributes and use occasions generated was compared with attributes and use occasions mentioned in the literature. A problem similar to that associated with products occurred when deciding upon the most desirable terminology

for attributes or use occasions. Studies on protein-based foods that evaluate several uses are rather scarce, and the wording of similar concepts differs from study to study. For the questionnaire in the current study, the subset of ten use occasions chosen from the original list represented a broad range of use occasions and product attributes, and were worded in such a way as to be meaningful for most consumers. The use occasions included "for sandwiches", "for guests", "for an inexpensive meal", "when you have little time to cook", "for breakfast", "to help lose weight", "for small children", "when you don't feel like cooking", "for men" and "something especially delicious".

These ten foods and ten use occasions were used to construct a food item-by-use matrix, with food items listed across the top, and use occasions listed down the left hand side of the questionnaire, similar to, but smaller than, the questionnaires used by other authors (Schutz and Phillips, 1976; Schutz et al., 1975a; Schutz et al., 1975b, Schutz and Ortega, 1974; Bruhn and Schutz, 1986; Mullet, 1988; Sukhumsuvun and Resurreccion, 1988; Nantachi et al., 1992). Eighteen respondents were asked to evaluate the appropriateness of each food for each use occasion on a scale where 1="never appropriate" and 7="always appropriate", and to assign numbers between one and seven to indicate various degrees of appropriateness between "never" and "always". This preliminary questionnaire was completed by a convenience sample of 18 adult respondents. In addition to providing data, the group was able to point to potential problems in the questionnaire. Results obtained from this group would also provide data for estimating the amount of variability that could be expected. The package of material given to the 18 respondents consisted of several parts:

a. A letter to potential respondents identifying the investigator and giving an overview of the study. Its purpose was to encourage respondents to participate in the study, and to give them some advice on how to fill in the questionnaire. The investigator's telephone number was included, so that any questions respondents might have could be answered quickly.

b. A page of instructions on how to fill out the questionnaire. Although it was planned to have the questionnaires for the main study hand-delivered and explained, this printed information would serve as a reminder for respondents.

c. The questionnaire. This was five pages long, and consisted of sections for recording five types of information:

i) Appropriateness ratings: Ten foods and ten use occasions were evaluated on a one-page matrix.

ii) Frequency of serving various foods: For each food, there was a space for recording the number of times a day, week, month or year it was served as well as a place to record if the food was "rarely or never" served.

iii) Frequency of use occasions: This information normally had not been gathered in the other appropriateness studies, but was expected to add to predictive ability. The form was similar to that used to record "frequency of serving various foods".

iv) Demographic information: This information would be used to see how well sample characteristics match population characteristics.

v) Name and address of respondents. For the main consumer study, this

information was expected to be needed in order to contact individuals who failed to return questionnaires, as well as to send cheques to individuals who had returned completed questionnaires. The aim was to maximize return of the questionnaires.

Respondents in this preliminary study were asked not only to complete the entire questionnaire as if it were an actual study, but also to provide other information as well, such as:

-Whether the accompanying letter and instructions were clear. Although the respondents in the comprehensive study would have questionnaires hand- delivered and explained, it was felt that easy-to-follow written instructions should also be provided.

-Whether there were any errors in the instructions.

-Whether anything that should have been included was omitted, or whether anything that was included should have been left out. It was felt essential to have instructions clear and concise.

-How long it took to fill out the questionnaire. Actual respondents would want to know how much time is involved before agreeing to participate in the study.

-Whether the questionnaire itself was clear, and whether any parts could be improved.

-Whether the questionnaire was tedious. If so, the size of the questionnaire for the actual study would have to be carefully controlled, and the format might have to be changed.

The comments of respondents were evaluated, and the questionnaire for the comprehensive study was designed with these comments in mind. The data collected were analyzed using SPSSX (Statistical Package for the Social Sciences), on the mainframe computer at the University of Manitoba. The mean appropriateness ratings

over respondents were calculated for each food for each use. The standard deviations of the individual scores for each food for each use was calculated (that is, there was a separate correlation coefficient calculated for each of the 100 food/use combinations) in order to investigate the amount of variation among individuals in their ratings, and to calculate the number of respondents necessary for the main study. Appropriateness ratings are known not to vary a great deal from consumer to consumer, and thus meaningful results may be obtained from a relatively small sample (Schutz, personal communication). Even as few as 50 respondents have given useful data (Schutz and Ortega, 1974, Schutz et al., 1975a, Schutz et al., 1975b, Schutz et al., 1977., Schutz, 1980, Bruhn and Schutz, 1986). However, it was felt desirable to establish appropriate sample size based on the type of information which could be expected from consumers evaluating only protein-based foods. Therefore, using data obtained from the preliminary questionnaire, the appropriate sample size was calculated using the formula:

$$n = \frac{z^2_{\alpha/2}\ \sigma^2}{D^2}$$

where:

n=the appropriate sample size

z=the z value associated with the desired confidence interval in a standardized normal distribution. In order to be rigorous, a 95% confidence interval was chosen. Thus $\alpha/2=.025$, and the corresponding z value is 1.96, i.e. within 1.96 standardized

deviations of the true mean.

σ^2=the calculated variance over respondents for the food/use combination

D=the maximum allowable error, that is, how different the investigator is willing to let the sample mean differ from the population mean. Again, in order to be rigorous, a value of 0.5 was used so that the sample mean was permitted to differ from the population mean by 0.5 scale points on the 7-point scale used for the study (Harnett and Murphy, 1985).

In order to continue to be extremely rigorous, the appropriate sample size was calculated using the above formula and considering the worst possible combination, that is using the food item/use combination with the largest standard deviation (2.6) obtained from the preliminary data and found to be 104. In other words, for data with this much variability, 104 respondents would be necessary to yield mean values that would differ from the actual mean by no more than 0.5 scale points with a confidence level of 95%. Thus if the products and use occasions are carefully chosen to avoid potentially confusing evaluations, the use of fewer than 104 respondents would be adequate.

C. The Consumer Study

Based on results obtained from the preliminary questionnaire, the third phase, the main consumer study, was designed. The appropriateness matrix for the main study included a subset of 47 foods and 46 uses from the lists of foods and use occasions generated by the focus groups. As in the preliminary questionnaire, the foods to be included were chosen to represent a wide variety of protein-based foods, including various meats, fish, dairy products, and plant products. Foods were printed across the top, and use occasions printed down the left hand side of the 4-page matrix. The questionnaire layout was similar to that of the preliminary questionnaire, but was much longer. The complete questionnaire is shown in Appendix 2. In addition to the matrix for recording appropriateness ratings, it had pages for recording the frequency of serving the foods included in the study, the frequency of use occasions, demographic information, and the name and address of the respondent. The questionnaire was printed on standard size pages in booklet form so pages would not be lost.

The questionnaire was delivered to 120 Winnipeg households in order to ensure that approximately 104 usable questionnaires would be returned. Cluster sampling was used to increase the efficiency of questionnaire delivery. Twenty starting addresses and 20 backup starting addresses from the 1989 Winnipeg Telephone Directory were chosen using systematic random sampling technique. These were used to create twenty clusters of six households each. Four, two-member teams of experienced interviewers delivered the questionnaires, using the addresses provided as starting points, and the specified

delivery route to create the clusters of respondents. Interviewers were provided with an explanation of the questionnaire, as well as instructions on keeping track of persons contacted and approaching potential respondents. They were also given tally sheets for recording addresses of households visited and tally sheets for recording names, addresses and telephone numbers of willing participants. A meeting was held with all interviewers before questionnaire delivery began, at which the project was discussed, instructions were given, questions were answered and all supplies were distributed.

All questionnaires were hand-delivered during the week of March 19, 1990. The questionnaire was explained by the interviewer, and respondent participation requested. After agreeing to participate, respondents were told they would be sent $25 if their completed questionnaire was received at the University of Manitoba within two weeks. According to Kanuk and Berenson (1975), indicating deadline dates hastens the rate of questionnaire return. After allowing approximately two weeks for receipt of questionnaires, two reminder letters were sent to respondents whose questionnaires had not yet been received, one April 5, 1990 and one April 24, 1990. The letters pointed out that the questionnaire had not been received, stressed the importance of returning the questionnaire, thanked the respondent, and offered to send a new questionnaire if the previously delivered one had been misplaced. The telephone number of the author was also included, so respondents could ask questions if they were having difficulties. In the first letter, respondents were merely asked to return the questionnaire as quickly as possible, but in the second letter another deadline was specified.

Care was taken to ensure maximum return of the questionnaires. The problem

of non-response can be substantial (London and Dommeyer, 1990) and many methods have been used by experimenters to attempt to increase response rate. Advance notification of respondents has been used, but has not always resulted in an increase in response, whereas follow-ups or reminders are widely used with success (Kanuk and Berenson, 1975). Including a stamped, addressed envelope is common practice. Other experimenters have used a variety of rewards or premiums such as trading stamps, postal stamps, pens, books and even turkeys. Among the least biasing and most effective reward is money (Kanuk and Berenson, 1975). For the present study, it was felt necessary to contact potential respondents in person as the questionnaire was long and complicated, and an appropriateness study on dairy products, using a similar questionnaire which had been mailed out to respondents with advance notification, resulted in a response rate of only 25% (Bruhn and Schutz, 1986).

When a questionnaire was received with the appropriateness grid incomplete, it was returned to the respondent along with a letter of explanation on how to complete the grid and a sample page of a completed questionnaire. Several methods were used to help keep track of the questionnaires. Each questionnaire had an identifying 3-digit number stamped on it when it was delivered, and persons delivering the questionnaires recorded, on the forms provided, the addresses where the questionnaires were left. In addition, all respondent names and phone numbers were obtained when questionnaires were delivered. The dates on which questionnaires were received at the University of Manitoba were tracked. The questionnaires were checked and coded, and responses were entered into files on the mainframe computer at the University of Manitoba. Data were analyzed

using Statistical Analysis System (SAS, 1985a; SAS, 1985b; SAS, 1985c), as the support services for SAS on campus are considerably better than those for SPSSX.

Mean scores were calculated across the 101 respondents for each of the 2162 (46 foods x 47 uses) food/use combinations, using the SAS "means" procedure (SAS, 1985a). Results are not included in this document, but may be obtained, if desired, by contacting the Department of Foods and Nutrition, Winnipeg, Manitoba, R3T 2N2. Correlation coefficients were calculated between the mean scores of each pair of uses using the SAS "corr" procedure (SAS, 1985a). These data are available from the same address.

Principal component factor analysis was performed on the matrix of correlation coefficients among uses using the SAS "factor" procedure and the "principal" factor extraction method (SAS 1985b). The principal component method is useful as a data reduction technique with the goals of summarizing patterns of correlations, and reducing a large number of variables to a smaller number of factors (Kim and Mueller, 1988). With principal component analysis, all variance is distributed among the components. Although SAS has a "princomp" procedure, the "principal" extraction used with the "factor" procedure is useful because it permits the extracted factors to be rotated after extraction. Principal components are useful if further analysis, such as regression analysis is desired (Kim and Mueller, 1988; Tabachnick and Fidell, 1989). Only factors with a cutoff eigenvalue of at least 1 were retained, ensuring that each factor extracted contained at least as much variance as an individual variable (Tabachnick and Fidell, 1989). This analysis resulted in the extraction of eight factors. These were rotated by the "Varimax" procedure in order to improve their interpretability. Varimax is an

orthogonal rotation technique which causes variable loadings on a factor to become larger (approaching 1) if they are large and smaller (approaching 0) if they are small. Since loadings can be considered correlations with the factor (Kim and Mueller,1988), rotation assists in factor interpretation.

The loadings were examined, and, based on these loadings, each of the factors was assigned a name by the experimenter.

Factor scores, one of the output options of the SAS "factor" procedure (SAS, 1985b) were obtained. The extracted factors are qualitative dimensions, defining the way the foods differ from each other (Stewart, 1987). These scores indicate the ratings of each of the foods on each of these qualitative dimensions, in the same way that products will have different scores on sweetness or saltiness dimensions.

Truncations of the food and use occasion names, which will be used to save space in some tables and figures are given in Appendix 3 and Appendix 4 respectively.

D. Product Information

1. Product Cost

During the week in which the questionnaires were delivered, the food items listed on the questionnaire were priced by the author at both Safeway and Super Valu, the two major supermarket chains in Winnipeg, both on Tuesday, March 20, 1990, and on Thursday, March 23, 1990 to average the price of any specials, which usually begin on Wednesday. When choosing items to price, national brands were chosen whenever possible so the products in the two stores would be identical. This was not always possible, as, for example, the two supermarkets did not carry the same brand of dairy products. Also, fresh meats are not sold branded, so in these cases, definition of the product was made specific (eg. center cut pork chops) so the items priced would be comparable. Common sizes were chosen (eg. 500g jars of peanut butter), and the unit size was recorded at the time the pricing was done. The mean price per unit was calculated from the four observations taken, two from each supermarket. The expected number of servings per unit was calculated based on standardized servings obtained from the product as purchased, and reflected the amount of waste, especially in the meat products. For example, spare ribs, which contain a large proportion of fat and bone, yield only four servings per kg, whereas veal cutlets, with little or no waste, yield 8 servings per kg (Agriculture Canada, 1983). In the references, most of the number of servings had been given as a range for meat products, recognizing that the number of

servings obtained from a particular piece of meat depends on the content of bone and fat. The values chosen for this study are mid-range of those reported. Based on the expected number of servings, obtained from a variety of sources (Agriculture Canada, 1983; Kinder et al.,1984; Agriculture Canada, 1981; Iredale and York, 1983; Health and Welfare Canada 1982; Kraft General Foods, personal communication), the average cost per serving was calculated.

2. Energy Content

The energy content of a serving of each food was calculated using Canadian data (Health and Welfare, Canada, 1987). The values for number of servings from one kilogram of meat as purchased, which were used to calculate per serving costs, were based on the expectation that one kilogram of product would yield approximately that many 90g servings of cooked, lean meat (Agriculture Canada, 1983). The energy content of approximately this weight of cooked meat was obtained (Health and Welfare Canada, 1987). It was deemed important to use Canadian data for the calculations, as it is known that beef and pork are leaner than their U.S. counterparts (Sabry, 1989). When values for "lean only" and "lean and fat" were available, the "lean only" values were recorded. The energy values of pasta and spaghetti that were recorded are for the cooked pasta, only, but the values for "macaroni, home made" and "macaroni dinner, Kraft dinner" included the other ingredients as well. The serving sizes for the cheese products were chosen from Canada's Food Guide (Health and Welfare Canada, 1982),

and were the size of serving when the cheese was considered a meat alternate, rather than when it was considered a milk substitute. For example, 45g of cheddar is a milk substitute, but 60g is considered equivalent to one serving of meat or its alternates. Therefore, the serving size was considered to be 60g. The serving sizes of the remaining dairy products were those deemed to be equivalent to 250mL milk. Two eggs, 60mL peanut butter and 250mL cooked dried beans were considered one serving of meat alternate (Health and Welfare Canada, 1982). The frozen pizza was a box of 4, and each was assumed to be one serving. Energy content of this weight of pizza was calculated from Health and Welfare values. Standardized serving sizes for soup and pancakes were used (Shugart, Molt and Wilson, 1985). Nutrient contents of macaroni dinner, chicken rice soup and the frozen entrée were not available from the usual source of information (Health and Welfare, Canada, 1987), so values from Kraft General Foods Consumer Center (personal communication) were used for the prepared dinner, values from the United States Department of Agriculture Handbook Number 8 (U.S.D.A., 1975) were used for the soup, and the values given on the package were used for the frozen entrée.

3. Protein Content

Using the same serving sizes as were used to calculate the energy content per serving, the protein content per serving was calculated.

4. Fat Content

The fat content of the size of serving used for determining energy content was

calculated.

5. Sodium Content

The sodium content of the same size servings of each food was calculated.

As the questionnaire had contained use occasions such as "low in calories", "high in protein", "low in fat", and "low in salt" which were directly related to nutrient content, and those such as "contains no additives" and "good for your heart", which were indirectly related to it, it was possible to compare consumer perceptions of nutrient content with the calculated values for the foods in the study. Correlation coefficients were calculated between consumer perceptions of nutrition-related uses, and the actual calorie, protein, fat, and sodium contents of a serving of the foods included in the study.

E. Product Strengths and Weaknesses

Mean factor scores of the foods plotted using the factors as axes allowed foods to be viewed for similarities and differences. Plots helping to illustrate the strengths and weaknesses of groups of foods, not simply individual items, are included in this document.

F. Frequency of Serving the Foods in the Study

1. Frequency of Serving Foods

Respondents were asked how many times per day, week, month or year they served each of the foods in the study, or to indicate that they seldom or never used the food (Appendix 2). From these data, the number of times per month each respondent served each food was calculated. Subsequently, the average number of times per month each food was served along with the standard deviations across respondents were calculated using the SAS "means" procedure (SAS, 1985a).

2. Mean Appropriateness Ratings and Mean Frequency of Serving Foods

In order to better understand the relationship between the use occasion variables included in the study and the frequency of serving the various food items, correlation coefficients were calculated between the means of the appropriateness of each food for the use occasion and the frequency of serving that food using the SAS "corr" procedure (SAS, 1985a). These data were able to answer such questions as "If a food has a low mean rating for 'good leftovers', is it served less frequently than a food that has a high mean rating for this variable?" That is, a separate correlation coefficient was calculated across foods for each of the 46 use occasions in the study.

3. Individual Appropriateness Ratings and Respondents' Frequency of Serving Foods

For each food, correlation coefficients were calculated between the individual

respondent's evaluation of appropriateness for a given use occasion and how often she (or he) served that food using the SAS "corr" procedure (SAS, 1985a). This made it possible to answer, for example, such questions as "If an individual thought bacon was always appropriate for breakfast, would that person serve bacon more frequently than an individual who thought it was never appropriate for breakfast?" That is, a separate correlation coefficient was calculated for each of the 47 foods for each of the 46 uses included in the study, 2162 correlation coefficients in all.

4. Respondents' Frequency of Use Occasions and Their Frequency of Serving Foods

In order to determine whether the frequency with which some use occasions occurred impacted on the frequency of serving a food, correlation coefficients were calculated between the frequency with which the use occasion occurred and the frequency with which a given food was served using the SAS "corr" procedure (SAS, 1985a). This allowed answers to such questions as "Does an individual who serves breakfast less frequently serve bacon less frequently than a person who serves breakfast more frequently?" A separate correlation coefficient was calculated for each of the 47 foods for each of the 40 use occasions about which frequency was asked, giving 1880 correlation coefficients in all.

5. Respondents' Weighted Appropriateness Ratings (Individual Appropriateness Ratings times Respondents' Frequency of Use Occasions) and Their Frequency of Serving Foods

To approximate the approaches of Fishbein (1967) and Bass and Talarzyk (1972),

for each respondent, the frequency of occurrence each of 40 use occasions was multiplied by the respondent's perception of appropriateness of each food for each of the 40 use occasions about which frequency was asked. There are only 40 of these values because six of the appropriateness variables ("easy to buy a size that suits me", "something good to keep on hand", "you can prepare it many ways", "for a summer meal", "for a winter meal" and "doesn't spoil quickly") result in meaningless answers when respondents are asked "How often?". For each of the 47 foods, the correlation coefficient between these scores, (which correspond to the perception of appropriateness of that food for a use occasion by a respondent x the frequency of occurrence of the same use occasion for that respondent) and the frequency with which that respondent served that food were calculated using the SAS "corr" procedure (SAS, 1985a). It was hypothesized that the food would be served frequently by a respondent if the respondent felt the food item was highly appropriate for a use occasion, especially if that use occasion occurred frequently for the respondent.

6. Factor Scores and Frequency of Serving Foods

For each of the eight set of factor scores, correlation coefficients were calculated between the factor scores obtained from the appropriateness data and the frequency of serving each of the foods using the SAS "corr" procedure (SAS, 1985a). These coefficients indicated if the frequency of serving the foods was associated with any of the factors.

G. Demographic Characteristics of Respondents

For each of the demographic characteristics asked about in the questionnaire, including gender, age, marital status, household size, education level and income,the proportion of respondents in each group was calculated using the SAS "summary" procedure (SAS 1985a).

IV. RESULTS

A. Focus Groups

Table 1 consists of the 83 food items mentioned during the focus group sessions. Of these, 44 were meats, nine were fish and seafood items, ten were pasta items, six were cheese items and fourteen were miscellaneous items. No attempt was made to determine how often each product was mentioned, as this was influenced by interaction among the members of the focus group. Table 2 consists of the 124 use occasions or attributes mentioned during the same sessions. These have been organized into such logical categories as comments related to who would use or eat the product, comments associated with product characteristics, comments related to time, comments related to nutrition and health, and so on. The original wording of the various phrases is shown in the table. Again, no attempt was made to determine the number of times each was mentioned, as this information would be meaningless due to the interaction among focus group members. As can be seen, both lists of products and use occasions are extensive, and indicate that the discussions within the focus groups were lively and productive.

B. Preliminary Study

The ten foods selected for the preliminary questionnaire from the original list in Table 1 were chosen to be representative of protein-based foods commonly eaten in Canada. The 10 use occasions were selected from those in Table 2 to be included in the questionnaire to encompass a number of concepts, such as time of serving the foods, ways of serving the foods, and persons likely to eat the foods. The specific wording for the questionnaire was chosen to be clear and meaningful to most consumers.

The mean of the appropriateness scores from the 18 respondents for each of the 100 food/use occasion combinations are shown in Table 3, and ranged from 1.11 (beef rib roast for breakfast) to 6.72 (peanut butter for a small child). The standard deviations among respondents for each of the 100 cells are shown in Table 4 and ranged from 0.32 (beef rib roast for breakfast) to 2.66 (franks for sandwiches). The means varied considerably for the different food items and use occasions. No one food was considered highly appropriate for all ten of the use occasions on the questionnaire (Table 3). The pattern of mean appropriateness ratings appears to make intuitive sense. Table 3 shows that, for example, the mean appropriateness was high for tuna for sandwiches (6.6), for beef rib roast for guests (6.9) and for peanut butter for a small child (6.7). Conversely, the mean appropriateness was low for tuna for breakfast (1.33), for beef rib roast for breakfast (1.1), and for peanut butter for guests (1.6). Thus it appears that respondents were able to rate the appropriateness of the food items for the use occasions specified. The standard deviations (Table 4) were examined in order to determine

TABLE 3. Mean Appropriateness Ratings of Each Food/Use Combination (Preliminary Data, n=18)

	Tuna	Chicken Breast	Cottage Cheese	Peanut Butter	Franks	Beef Rib Roast	Hamburger	Frozen Meals	Bacon	Corned Beef
Sandwiches	6.56	5.00	1.39	6.00	3.67	6.44	3.61	1.11	5.00	6.28
Guests	3.94	6.61	3.17	1.56	2.50	6.89	4.50	1.94	4.67	4.61
Inexpensive	5.83	4.00	4.33	4.33	5.78	2.44	6.00	2.39	2.78	3.17
Little Time	5.83	4.44	5.17	4.67	5.94	2.72	5.61	5.94	3.67	4.83
Breakfast	1.33	1.39	2.89	3.61	1.61	1.11	1.44	2.61	6.17	1.78
Lose Weight	5.17	6.00	5.67	1.61	1.67	3.94	3.00	3.28	1.22	1.83
Small Child	5.00	5.22	4.72	6.72	5.50	4.06	5.89	2.83	3.67	3.00
Not Want Cook	5.11	3.44	5.44	4.94	5.67	2.39	5.28	5.72	3.50	4.83
Men	5.50	6.00	4.00	4.94	5.94	6.72	6.39	4.33	5.39	5.67
Delicious	2.89	6.06	2.56	2.50	2.17	6.61	4.56	2.89	4.78	4.177

1=Never appropriate; 7=Always appropriate

TABLE 4. Standard Deviations of Appropriateness Ratings (Preliminary Data, n=18)

	Tuna	Chicken Breast	Cottage Cheese	Peanut Butter	Franks	Beef Rib Roast	Ham burger	Frozen Meals	Bacon	Corned Beef
Sandwiches	1.42	2.30	0.70	1.91	2.66	0.92	2.50	0.32	1.87	1.328
Guests	1.70	0.61	1.82	0.98	1.62	0.32	1.89	1.39	2.09	2.09
Inexpensive	1.29	1.85	1.61	2.09	1.48	1.34	1.24	1.69	1.48	1.38
Little Time	1.62	1.82	1.79	2.33	1.06	2.56	1.72	1.80	1.97	1.76
Breakfast	0.84	0.85	1.91	2.09	1.46	0.32	1.42	1.91	1.50	1.31
Small Child	1.50	1.28	1.28	1.33	1.03	2.21	2.00	1.84	0.55	0.92
Lose Weight	2.06	2.07	1.99	0.57	2.01	1.86	1.28	1.85	1.64	1.97
Not Want Cook	1.87	2.15	1.58	2.23	1.45	2.20	1.64	1.96	2.20	1.92
Men	1.62	1.45	2.00	1.98	1.30	0.46	1.04	2.00	2.15	1.64
Delicious	1.53	1.39	1.46	1.85	1.20	0.70	1.34	1.49	1.80	1.92

whether respondents varied in their evaluations of appropriateness depending on the products and uses being evaluated. High standard deviations would suggest that respondents differed considerably in their evaluations, and that either the item or the use occasion or both presented problems for the respondents. For most item/use occasion combinations, the standard deviations were small (Table 4), as was to be expected from appropriateness data (Schutz and Ortega, 1974; Schutz et al., 1975a; Schutz et al., 1975b; Schutz et al., 1977; Schutz, 1980; Bruhn and Schutz, 1986). However, there was disagreement among respondents, signaled by high standard deviations, in some cases. This was readily apparent for the product "frankfurters" and the use occasion "for sandwiches", which had a standard deviation of 2.6, ($p \leq 0.01$) the highest for all product/use occasion cells in the matrix. Respondents indicated in their comments that they were not sure whether or not a frankfurter in a bun should be considered a sandwich. Potential difficulties such as this were carefully monitored when the consumer questionnaire was being designed.

C. The Consumer Study

The response rate for the main consumer study was 90% (Table 5), which was considered excellent (Martens et al., 1987; Bruhn and Schutz, 1986). This was to be expected, since great care was taken to promote return of the questionnaires. Of the 108 questionnaires returned, 101 were usable. The following data are based on the 101 completed, usable questionnaires returned. The status of the questionnaires is shown in Table 5.

TABLE 5. Status of the Questionnaires Delivered

Status	N	%
Delivered	120	100
Not returned	12	10
Returned	108	90
Incomplete or incorrect	7	5.8
Useful	101	84.2

1. Mean Appropriateness Scores

The mean appropriateness ratings from the 101 respondents for each of the 47 foods for each of the 46 uses were calculated using the SAS "means" procedure (SAS, 1985a). These data are not shown in this document, but may be obtained from the author for readers wishing to obtain a detailed profile of each food included in the study. Correlation coefficients were calculated using the SAS "corr" procedure (SAS, 1985a), as were the calculated significance levels of these correlation coefficients. The uses were not independent from each other, as there were many significant ($p \leq 0.01$) correlation coefficients between these means for each pair of uses. For example, a significant ($p \leq 0.001$) high correlation coefficient ($r=0.97$) exists between "for a special occasion", "for Sunday dinner", indicating that these use occasions were similar. It is these correlation coefficients which were used as a basis for performing factor analysis on the data.

2. Factor Analysis of Appropriateness Data

In order to reduce these data to a few, meaningful dimensions which still retained most of the variance in the original data set, and to clarify the relationships between use occasions, factor analysis was performed on the correlation matrix referred to above, using SAS "factor" procedure and the "principal" option (SAS, 1985b). The factors extracted can be considered to be a new set of uncorrelated variables (Tabachnick and Fidell, 1989; Kim and Mueller, 1988).

The eigenvalues of the correlation matrix are shown in Table 6. For factor

TABLE 6. Eigenvalues of the Correlation Matrix (Factors 1-22)

Factor Number	Eigenvalue	Proportion of Total Variance (Eigenvalue/46)	Cumulative Variance
1	18.51	0.40	0.40
2	7.70	0.17	0.57
3	5.59	0.12	0.69
4	3.19	0.07	0.76
5	2.13	0.05	0.81
6	1.52	0.03	0.84
7	1.22	0.03	0.87
8	1.11	0.02	0.89
9	0.80	0.02	0.91
10	0.74	0.02	0.92
11	0.56	0.01	0.94
12	0.49	0.01	0.95
13	0.46	0.01	0.96
14	0.38	0.01	0.96
15	0.34	0.01	0.97
16	0.26	0.00	0.98
17	0.17	0.00	0.98
18	0.13	0.00	0.98
19	0.13	0.00	0.99
20	0.09	0.00	0.99
21	0.08	0.00	0.99
22	0.07	0.00	0.99

Remaining factors have not been included as they account for little additional variance

analysis an eigenvalue of 1 was chosen as a cutoff point, which ensured that each factor explained at least as much variance as an individual original variable. This is a common cutoff point. As a result of this criterion, eight factors were extracted, accounting for approximately 89% of the variance, as can be seen in the same table. The eight extracted factors were rotated using the Varimax procedure, in order to facilitate their interpretation. The rotated factor matrix is shown in Table 7. Factor loadings may be considered correlation coefficients between the individual variables and the factor, and are key to factor interpretation. Examining the factor loadings in this table shows that most of the factors were, for the most part, readily interpretable. The last three factors were essentially one variable factors (Table 7).

TABLE 7. Rotated Factor Matrix of the Appropriateness Data (Rotation Method: Varimax). Values are Factor Loadings

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Special meal	0.97	0.16	-0.04	-0.03	0.02	-0.04	-0.05	-0.03
Sunday dinner	0.95	0.21	-0.04	-0.08	-0.04	0.07	-0.03	-0.10
For company	0.95	0.21	0.08	-0.04	0.09	0.03	-0.08	-0.01
Beautiful	0.89	0.34	0.13	-0.07	-0.03	-0.07	-0.02	-0.02
Sit-down meal	0.85	0.16	0.01	-0.37	-0.10	0.22	0.09	-0.14
Hearty meal	0.84	0.13	-0.02	-0.30	-0.06	0.29	0.05	-0.22
Luxury food	0.83	0.06	-0.29	0.09	0.13	-0.34	0.07	0.01
Cook in oven	0.81	0.00	-0.10	-0.06	-0.17	0.05	0.34	-0.26
Winter food	0.80	0.10	0.15	-0.39	-0.06	0.25	0.14	-0.20
Freezes well	0.76	-0.16	-0.25	-0.17	0.04	0.04	0.40	-0.07
Men like	0.74	-0.20	0.41	0.03	0.25	0.27	0.02	0.10
Different	0.74	0.11	-0.50	-0.13	-0.05	-0.25	0.02	-0.14
To barbecue	0.73	-0.16	-0.16	-0.01	0.22	0.31	0.19	-0.10
I really like	0.70	0.34	0.42	-0.07	0.35	-0.00	-0.11	0.06
Good leftovers	0.48	0.09	0.48	0.46	0.09	0.07	-0.18	-0.42
Few dishes	-0.61	-0.01	0.09	0.38	0.48	-0.36	0.09	0.04
Inexpensive	-0.74	-0.05	0.41	-0.14	-0.02	0.44	0.01	-0.09

TABLE 7. (continued)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Little waste	-0.75	0.25	0.21	0.19	0.21	-0.01	0.21	0.01
Not want cook	-0.77	-0.02	0.27	0.15	0.41	-0.22	0.15	-0.05
Eat alone	-0.80	0.11	0.25	0.20	0.36	-0.19	0.15	0.08
Quick	-0.85	-0.01	0.05	0.10	0.43	-0.09	0.13	0.12
Small meal	-0.85	-0.00	0.25	0.07	0.27	-0.02	0.19	-0.00
Good for heart	0.03	0.94	-0.09	0.02	0.02	0.03	-0.03	-0.14
Low calorie	-0.02	0.93	-0.16	0.14	0.05	-0.04	-0.01	-0.10
Low fat	0.06	0.92	-0.15	-0.16	0.05	0.06	-0.04	-0.11
Easy to digest	-0.20	0.85	0.39	0.02	-0.01	-0.10	-0.01	0.03
Low salt	0.48	0.70	-0.16	-0.19	-0.02	0.25	-0.10	0.14
Women like	0.26	0.69	0.42	0.13	0.35	-0.14	-0.10	0.06
No additives	0.49	0.69	-0.13	-0.13	-0.03	0.30	-0.23	0.18
High protein	0.40	0.59	-0.31	0.41	0.08	0.16	-0.04	0.01
When not feeling well	-0.51	0.52	0.50	0.03	0.03	-0.18	0.02	0.19
Teenagers like	-0.02	-0.16	0.88	0.01	0.30	-0.02	0.05	0.09
Everybody likes	0.31	0.02	0.86	0.10	0.34	0.07	0.03	0.07
Children like	-0.40	-0.08	0.82	0.08	0.04	0.08	0.12	0.05

TABLE 7. (continued)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Doesn't spoil	-0.13	-0.06	0.77	0.03	-0.09	-0.05	-0.00	-0.02
You keep on hand	-0.48	0.13	0.63	0.19	0.36	0.09	0.17	0.12
Turns out right	-0.19	-0.03	0.61	0.23	0.53	-0.06	0.05	-0.21
Bag lunch	-0.20	0.08	0.20	0.86	0.12	-0.10	-0.30	0.02
In bread or buns	-0.12	-0.25	0.10	0.84	0.19	0.22	-0.01	-0.04
Snacks	-0.39	0.12	0.34	0.67	0.08	-0.29	-0.17	0.15
No mess	-0.32	0.17	-0.08	0.66	0.02	-0.04	0.35	0.17
Summer food	0.08	0.14	0.27	0.16	0.82	0.08	0.02	-0.22
Can get suitable size	-0.40	0.12	0.18	0.08	0.80	0.10	-0.03	0.12
Serve many ways	0.45	-0.37	0.07	-0.06	0.19	0.61	0.06	-0.12
Microwavable	0.00	-0.24	0.24	-0.16	0.05	-0.03	0.85	-0.05
Breakfast	-0.34	-0.15	0.20	0.18	-0.11	0.05	-0.08	0.78

a. Factor 1 accounted for 40% of the variance (Table 6) and had high positive loadings on such uses as "for a special occasion", "for Sunday dinner" and "as a food for company". It had high negative loadings by such uses as "when you don't want a big meal" and "you can get it ready quickly" (Table 7). This has been interpreted as a SPECIAL OCCASION FACTOR.

b. Factor 2 accounted for 17% of the variance (Table 6) and had high positive loadings on such uses as "good for your heart", "low in calories" and "low in fat" (Table 7). It has been interpreted as a HEALTHY, NUTRITIOUS FACTOR.

c. Factor 3 accounted for 12% of the variance (Table 6) and had high positive loadings on such uses as "a food teenagers like" and "a food everybody likes" (Table 7). It has been interpreted as a WELL LIKED, COMMON FOOD FACTOR.

d. Factor 4 accounted for 7% of the variance (Table 6) and had high positive loadings on such uses as "for a bag lunch" and "to serve in bread or buns" (Table 7). It has been interpreted as a SANDWICH/LIGHT LUNCH FACTOR.

e. Factor 5 accounted for 5% of the variance (Table 6) and had high positive loadings on "for a summer meal" and "easy to get a size that suits me" (Table 7) and has been interpreted as a SUMMER FACTOR.

f. Factor 6 accounted for 3% of the variance (Table 6) and had high loadings only on "you can prepare it many ways" (Table 7). It will be referred to as a VERSATILE FACTOR.

g. Factor 7 accounted for 3% of the variance (Table 6) and had a high loading only on "to cook in a microwave oven" (Table 7). It will be referred to as a MICROWAVE FACTOR.

h. Factor 8 accounted for 2% of the variance (Table 6) and had a high loading only on "for breakfast" (Table 7). It will be referred to as a BREAKFAST FACTOR.

3. Factor Scores of Food Items

Table 8 shows the scores for each food on Factor 1, the SPECIAL OCCASION FACTOR. The highest scores on Factor 1 are for such products as beef rib roast (1.74), T-bone steak (1.65), roast turkey (1.56) and beef sirloin steak (1.50). The lowest scores are for cottage cheese (-1.55), packaged macaroni dinner (-1.41), and yoghurt (-1.33).

As seen in Table 9, the highest scoring foods on Factor 2, the HEALTHY, NUTRITIOUS FACTOR were chicken breasts (1.60), fish fillets (1.49) and fresh salmon

TABLE 8. Factor Scores for All Foods on The SPECIAL OCCASION FACTOR (Factor 1)

FOOD	SCORE ON FACTOR 1
Beef rib roast	1.74
T-bone steak	1.65
Roast turkey	1.56
Beef sirloin steak	1.50
Beef rump roast	1.48
Spare ribs	1.41
Pork loin roast	1.40
Ham (whole)	1.30
Chicken (whole)	1.23
Veal cutlets	1.12
Leg of lamb	1.01
Shrimp	0.99
Chicken breasts	0.96
Pork chops	0.96
Fresh or frozen salmon	0.82
Lamb chops	0.42
Pizza	0.35
Hamburger	0.16
Fish fillets or steaks	0.12
Bacon	0.06
Chicken fingers	0.04
Deli corned beef (sliced)	-0.11
Smoked sausage (eg Farmer sausage)	-0.21
Spaghetti	-0.26

FOOD	SCORE ON FACTOR 1
Pasta	-0.26
Cheddar cheese	-0.34
Deli ham (sliced)	-0.40
Frozen entrées	-0.46
Pork sausages	-0.51
Macaroni and cheese (homemade)	-0.57
Wieners	-0.58
Canned salmon	-0.62
Milk	-0.67
Pancakes	-0.72
Processed cheese slices	-0.78
Eggs	-0.79
Liver	-0.81
Fish sticks	-0.85
Cheese spread (eg Cheez Whiz)	-0.97
Peanut butter	-1.06
Canned baked beans	-1.18
Canned Soup	-1.27
Bologna	-1.27
Canned tuna	-1.28
Yoghurt	-1.33
Packaged macaroni dinner (eg Kraft Dinner	-1.41
Cottage cheese	-1.55

TABLE 9. Factor Scores for all Foods on The HEALTHY, NUTRITIOUS FACTOR (Factor 2)

FOOD	SCORE ON FACTOR 2
Chicken breasts	1.60
Fish fillets or steaks	1.49
Fresh or frozen salmon	1.45
Cottage cheese	1.39
Yoghurt	1.39
Milk	1.37
Chicken (whole)	1.18
Roast turkey	1.16
Canned tuna	1.11
Eggs	0.96
Canned salmon	0.87
Pasta	0.74
Canned Soup	0.72
Shrimp	0.72
Veal cutlets	0.46
Beef rump roast	0.39
Macaroni and cheese (homemade)	0.38
Liver	0.37
Spaghetti	0.33
Cheddar cheese	0.30
Fish sticks	0.29
Beef rib roast	0.18
Chicken fingers	0.15
T-bone steak	0.01

FOOD	SCORE ON FACTOR 2
Beef sirloin steak	0.00
Packaged macaroni dinner (eg Kraft Dinner)	-0.04
Processed cheese slices	-0.07
Pancakes	-0.17
Peanut butter	-0.24
Lamb chops	-0.35
Leg of lamb	-0.38
Cheese spread (eg Cheez Whiz)	-0.48
Pork loin roast	-0.59
Canned baked beans	-0.59
Frozen entrées	-0.67
Hamburger	-0.72
Pizza	-0.73
Ham (whole)	-0.74
Pork chops	-0.76
Deli corned beef (sliced)	-0.90
Deli ham (sliced)	-0.98
Spare ribs	-1.28
Wieners	-1.46
Bologna	-1.52
Smoked sausage (eg Farmer sausage)	-1.95
Bacon	-2.11
Pork sausages	-2.25

TABLE 10. Factor Scores for all Foods on The WELL LIKED, COMMON FOOD FACTOR (Factor 3)

FOOD	SCORE ON FACTOR 3
Canned soup	1.76
Spaghetti	1.46
Pasta	1.34
Roast turkey	1.14
Pizza	1.14
Chicken (whole)	1.09
Macaroni and cheese (homemade)	1.00
Pancakes	0.96
Peanut butter	0.93
Cheddar cheese	0.91
Milk	0.88
Packaged macaroni dinner (eg Kraft Dinner)	0.86
Processed cheese slices	0.83
Ham (whole)	0.76
Cheese spread (eg Cheez Whiz)	0.70
Hamburger	0.60
Beef rib roast	0.48
Chicken breasts	0.48
Chicken fingers	0.45
Beef rump roast	0.42
Bacon	0.31
Wieners	0.27
Eggs	0.25
Spare ribs	0.18

FOOD	SCORE ON FACTOR 3
Canned baked beans	-0.04
Pork loin roast	-0.05
Deli ham (sliced)	-0.09
Beef sirloin steak	-0.25
T-bone steak	-0.26
Pork chops	-0.29
Smoked sausage (eg. Farmer sausage)	-0.37
Veal cutlets	-0.47
Deli corned beef (sliced)	-0.47
Fish sticks	-0.53
Yoghurt	-0.54
Bologna	-0.62
Frozen entrées	-0.64
Canned salmon	-0.78
Pork sausages	-0.83
Canned tuna	-1.08
Shrimp	-1.17
Cottage cheese	-1.33
Fish fillets or steaks	-1.35
Fresh or frozen salmon	-1.45
Leg of lamb	-1.64
Lamb chops	-2.31
Liver	-2.66

(1.45). The lowest scoring foods were pork sausages (-2.25), bacon (-2.11), smoked sausage (-1.95) and bologna (-1.52). The highest scoring foods on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Table 10) were canned soup (1.76), spaghetti (1.46), pasta (1.34) and roast turkey (1.14). The lowest scoring food was liver (-2.66), and other low scoring foods were lamb chops (-2.31), lamb legs (-1.64) and fresh salmon (-1.45). The highest scoring foods on Factor 4, the SANDWICH/LIGHT LUNCH FACTOR (Table 11) were cheddar cheese (1.91), cheese slices (1.86), peanut butter (1.37) and bologna (1.32). The lowest scoring foods on this factor included spaghetti (-2.18), spare ribs (-1.78) and pasta (-1.76). As can be seen in Table 12, the highest scoring foods on Factor 5, the SUMMER FACTOR were T-bone steak (1.73), hamburger (1.73) and beef sirloin steak (1.62). Foods scoring low on this factor included lamb leg (-2.73), roast turkey (-2.10) and liver (-1.64). The highest scoring foods on Factor 6, the VERSATILE FACTOR (Table 13) were hamburger (2.73) and eggs (2.39). Liver and pork sausages also scored high on this factor (1.73 and 1.10 respectively). The foods scoring lowest were frozen entrées (-2.51) and yoghurt (-1.85). The highest scoring foods on Factor 7, the MICROWAVE FACTOR (Table 14) were fish sticks (2.50), frozen entrées (2.16), chicken fingers (1.79), fish fillets (1.74) and wieners (1.69). The lowest scoring foods were spare ribs (-2.07), spaghetti (-1.71), peanut butter (-1.45) and cottage cheese (-1.39). The highest scoring foods on Factor 8, the BREAKFAST FACTOR (Table 15) were eggs (2.85), milk (2.84), bacon (2.32) and pancakes (1.77). The lowest scoring foods were canned tuna (-1.44), canned beans (-1.39) and packaged macaroni dinner (-1.09).

TABLE 11. Scores of all Foods on The SANDWICH/LIGHT LUNCH FACTOR (Factor 5)

Cheddar cheese	1.91
Processed cheese slices	1.86
Peanut butter	1.37
Bologna	1.32
Canned tuna	1.32
Deli ham (sliced)	1.32
Ham (whole)	1.28
Cheese spread (eg Cheez Whiz)	1.26
Deli corned beef (sliced)	1.20
Roast turkey	1.18
Canned salmon	0.87
Beef rump roast	0.74
Beef rib roast	0.60
Chicken (whole)	0.59
Smoked sausage (eg Farmer sausage)	0.46
Pork loin roast	0.33
Chicken breasts	0.32
Chicken fingers	0.25
Eggs	0.22
Milk	0.16
Wieners	0.13
Fresh or frozen salmon	0.13
Hamburger	0.12
Cottage cheese	-0.13
Leg of lamb	-0.15

Cheddar cheese	1.91
Yoghurt	-0.18
Beef sirloin steak	-0.23
Fish sticks	-0.24
Fish fillets or steaks	-0.25
Pork sausages	-0.27
Veal cutlets	-0.33
Bacon	-0.38
T-bone steak	-0.64
Pizza	-0.65
Shrimp	-0.68
Lamb chops	-0.69
Canned baked beans	-0.71
Pork chops	-0.74
Liver	-0.80
Macaroni and cheese (homemade)	-0.82
Frozen entrées	-1.08
Packaged macaroni dinner (eg Kraft Dinner)	-1.17
Canned soup	-1.42
Pancakes	-1.65
Pasta	-1.76
Spare ribs	-1.78
Spaghetti	-2.18

TABLE 12. Scores of all Foods on The SUMMER FACTOR (Factor 5)

FOOD	SCORE ON FACTOR 5
T-bone steak	1.73
Hamburger	1.73
Beef sirloin steak	1.62
Deli corned beef (sliced)	1.55
Deli ham (sliced)	1.34
Shrimp	1.34
Canned salmon	1.18
Wieners	1.09
Chicken breasts	0.86
Spare ribs	0.79
Pizza	0.74
Pork chops	0.57
Canned tuna	0.53
Cottage cheese	0.51
Fish fillets or steaks	0.48
Smoked sausage (eg Farmer sausage)	0.42
Yoghurt	0.42
Fresh or frozen salmon	0.31
Cheddar cheese	0.29
Spaghetti	0.27
Chicken fingers	0.25
Eggs	0.05
Canned baked beans	0.17
Milk	0.01

FOOD	SCORE ON FACTOR 5
Bologna	0.01
Veal cutlets	-0.04
Pasta	-0.09
Frozen entrees	-0.10
Fish sticks	-0.25
Chicken (whole)	-0.28
Canned soup	-0.37
Processed cheese slices	-0.37
Bacon	-0.37
Beef rib roast	-0.46
Packaged macaroni dinner (eg Kraft Dinner)	-0.47
Peanut butter	-0.49
Pork loin roast	-0.70
Pork sausages	-0.74
Beef rump roast	-0.96
Macaroni and cheese (homemade)	-1.00
Pancakes	-1.15
Cheese spread (eg Cheez Whiz)	-1.16
Ham (whole)	-1.32
Lamb chops	-1.37
Liver	-1.64
Roast turkey	-2.10
Leg of lamb	-2.73

TABLE 13. Factor Score for all Foods on The VERSATILE FACTOR (Factor 6)

FOOD	SCORE ON FACTOR 6
Hamburger	2.73
Eggs	2.39
Liver	1.73
Pork sausages	1.10
Canned tuna	0.98
Chicken (whole)	0.93
Pork chops	0.87
Wieners	0.87
Fish fillets or steaks	0.76
Pasta	0.71
Smoked sausage (eg Farmer sausage)	0.67
Chicken breasts	0.67
Macaroni and cheese (homemade)	0.61
Spaghetti	0.61
Canned baked beans	0.50
Beef rump roast	0.35
Pork loin roast	0.32
Bologna	0.19
Pancakes	0.11
Canned salmon	0.09
Lamb chops	0.07
Roast turkey	0.05
Beef sirloin steak	0.03
Packaged macaroni dinner (eg Kraft Dinner)	-0.01

FOOD	SCORE ON FACTOR 6
Beef rib roast	-0.03
Peanut butter	-0.07
Processed cheese slices	-0.12
Veal cutlets	-0.15
Cheddar cheese	-0.18
Fresh or frozen salmon	-0.19
Spare ribs	-0.20
Milk	-0.26
Bacon	-0.29
Fish sticks	-0.46
Deli ham (sliced)	-0.66
T-bone steak	-0.67
Ham (whole)	-0.77
Cottage cheese	-0.79
Leg of lamb	-0.87
Cheese spread (eg Cheez Whiz)	-0.88
Pizza	-1.13
Canned soup	-1.23
Shrimp	-1.25
Deli corned beef (sliced)	-1.27
Chicken fingers	-1.47
Yoghurt	-1.85
Frozen entrees	-2.51

TABLE 14. Factor Scores of all Foods on The MICROWAVE FACTOR (Factor 7)

FOOD	SCORE ON FACTOR 7
Fish sticks	2.50
Frozen entrees	2.16
Chicken fingers	1.79
Fish fillets	1.74
Wieners	1.59
Canned soup	1.07
Chicken breasts	1.06
Fresh or frozen salmon	0.88
Bacon	0.78
Pork sausages	0.59
Smoked sausage (eg Farmer sausage)	0.57
Hamburger	0.57
Macaroni and cheese (homemade)	0.50
Veal cutlets	0.50
Eggs	0.45
Canned Baked beans	0.35
Processed cheese slices	0.33
Beef rump roast	0.21
Chicken (whole)	0.17
Packaged macaroni dinner eg Kraft Dinner)	0.14
Pizza	0.02
Cheddar cheese	0.02
Beef sirloin steak	-0.01
Cheese spread (eg Cheez Whiz)	-0.03

FOOD	SCORE ON FACTOR 7
Ham (whole)	-0.08
Pork chops	-0.11
Beef rib roast	-0.20
Milk	-0.21
Shrimp	-0.31
Lamb chops	-0.32
T-bone steak	-0.37
Roast turkey	-0.40
Leg of lamb	-0.44
Canned tuna	-0.53
Pork loin roast	-0.59
Liver	-0.67
Pasta	-0.69
Canned salmon	-0.90
Bologna	-0.99
Deli ham (sliced)	-0.99
Deli corned beef (sliced)	-1.13
Pancakes	-1.17
Yoghurt	-1.13
Cottage cheese	-1.39
Peanut butter	-1.45
Spaghetti	-1.71
Spare ribs	-2.07

TABLE 15. Scores of all Foods on The BREAKFAST FACTOR (Factor 8)

FOOD	SCORE ON FACTOR 8
Eggs	2.84
Milk	2.84
Bacon	2.32
Pancakes	1.77
Cheddar cheese	1.05
Shrimp	0.86
Peanut butter	0.85
Beef sirloin steak	0.77
Pork sausages	0.76
T-bone steak	0.71
Cheese slices	0.66
Cheese spread	0.59
Yoghurt	0.52
Pork chops	0.51
Lamb chops	0.50
Fish fillets	0.34
Frozen entrees	0.23
Veal cutlets	0.14
Deli ham (sliced)	0.07
Fresh or frozen salmon	-0.09
Liver	-0.16
Spare ribs	-0.24
Leg of lamb	-0.28
Beef rib roast	-0.28

FOOD	SCORE ON FACTOR 8
Chicken breast	-0.33
Hamburger	-0.39
Pork loin roast	-0.44
Beef rump roast	-0.44
Deli corned beef (sliced)	-0.46
Chicken fingers	-0.47
Pasta	-0.52
Fish sticks	-0.52
Whole ham	-0.64
Smoked sausage (eg Farmer sausage)	-0.65
Pizza	-0.69
Canned salmon	-0.70
Canned soup	-0.73
Cottage cheese	-0.80
Chicken (whole)	-0.84
Roast turkey	-0.90
Spaghetti	-0.91
Macaroni and cheese (homemade)	-0.93
Bologna	-0.99
Wieners	-1.01
Packaged macaroni dinner (eg Kraft Dinner)	-1.09
Canned baked beans	-1.39
Canned tuna	-1.44

D. Product Information: Actual and Perceived Cost of Foods

Average cost per serving, calculated using the unit sizes, mean prices per unit, and number of servings per unit is shown in Table 16. The most expensive item per serving of those priced was the frozen entrée ($3.99). This is to be expected, as, in addition to its convenience for the consumer, the cost is for a complete meal, not the individual foods which make up the remainder of the items in the questionnaire. The only other item on the questionnaire which costs more than three dollars per serving was shrimp ($3.70). Other relatively expensive items were veal cutlets ($2.52) and T-bone steak ($2.07). Most "cuts" of meat were fairly expensive, and, as expected, most ground meats were less so. Of those included on the questionnaire, the cheapest meats per serving were hamburger ($.26), beef liver ($.30) and bologna ($.45). Non-meat items were generally less costly than meats. The cheapest items per serving included in the questionnaire were pancakes ($.10), spaghetti ($.11) and pasta ($.09). It must be recognized that the costs shown in the table do not include sauces for the pasta or spaghetti, or any syrup for the pancakes. A more realistic cost per serving for pasta items is "macaroni and cheese, home made" ($.56).

Respondents had an understanding of the costs of food, even though they had not been asked to evaluate the cost per serving directly. The correlation coefficients between actual cost per serving and mean consumer evaluation of that food as appropriate as "an expensive (luxury) food", and "for an inexpensive meal" were +0.74 and -0.68 respectively. An examination of the plots of cost and luxury (Figure 1) and cost and

TABLE 16. Description, Servings per Unit and Cost of Foods

Item and description	Size of unit	Average price per unit ($)	Servings per unit	Source of servings per unit	Cost per serving
Beef Items					
Beef rib roast, bone-in	kg	9.67	5.5	1	1.76
Beef rump roast, boneless	kg	7.60	7.5	1	1.01
Hamburger	kg	1.94	7.5	1	0.26
T-bone steak	kg	11.39	5.5	1	2.07
Sirloin steak, boneless	kg	7.17	7.5	1	0.96
Pork Items					
Spare ribs, side	kg	4.33	4.0	1	1.08
Ham, whole, bone-in	kg	6.96	5.5	1	1.26
Bacon, sliced, Maple Leaf	500g	3.46	7.0	1	0.49
Pork chops, centre cut	kg	6.52	5.5	1	1.19
Pork loin roast, bone-in	kg	4.94	5.5	1	0.90
Pork sausages, store pack	kg	3.78	5.5	1	0.69

TABLE 16. (continued)

Item and description	Size of unit	Average price per unit ($)	Servings per unit	Source of servings per unit	Cost per serving
Poultry Products					
Chicken, whole fryer, frozen	kg	3.08	3	2	1.03
Chicken breast, backbone on	kg	9.22	5.5	2	1.68
Chicken fingers, frozen	kg	11.90	8	2	1.49
Turkey, whole, Grade A	kg	3.49	4	3	0.87
Other Fresh Meats					
Veal cutlets	kg	20.15	8	2	2.52
Lamb chops, frozen, loin	kg	8.33	5.5	1	1.51
Lamb leg, frozen, whole	kg	6.15	5.5	1	1.12
Liver, beef	kg	2.28	7.5	1	0.30

TABLE 16. (continued)

Item and description	Size of unit	Average price per unit ($)	Servings per unit	Source of servings per unit	Cost per serving
Processed Meats					
Wieners, Maple Leaf	450g	2.42	4	1	0.60
Smoked sausage, Winkler	kg	5.82	5.5	1	1.06
Deli corned beef, store pack	kg	12.90	11	1	1.17
Deli ham, store pack	kg	5.98	11	1	0.54
Bologna, store pack	kg	4.95	11	1	0.45
Fish Products					
Salmon, whole, frozen	kg	8.40	5	4	1.68
Salmon, red, canned	213g	3.08	3	5	1.02
Tuna, canned, solid light	198g	2.24	3	5	0.75
Shrimp, peeled, frozen	kg	29.62	8	2	3.70
Fish fillets, cod, High Liner	454g	3.69	5	2	0.74
Fish sticks, cod, High Liner	350g	3.29	4	2	0.82

TABLE 16. (continued)

Item and description	Size of unit	Average price per unit ($)	Servings per unit	Source of servings per unit	Cost per serving
Pasta Products					
Pasta, fettucini, Catelli	kg	1.65	18	2	0.09
Spaghetti, Catelli	kg	1.93	18	2	0.11
Macaroni, home made	250mL	N/A	1	5	0.56
Macaroni dinner, Kraft Dinner	225g	0.79	4	6	0.25
Dairy Products					
Cheddar cheese, med, Kraft	500g	5.18	8	5	0.65
Cheese spread, Kraft Cheez Whiz	500g	4.19	8	5	0.52
Cheese slices, process, Kraft	500g	4.14	8	5	0.52
Cottage cheese, 4% b.f.	500g	1.83	4	5	0.46
Yoghurt, plain	kg	2.34	6	5	0.39
Milk, 2% b.f.	2L	1.86	8	5	0.23

TABLE 16. (continued)

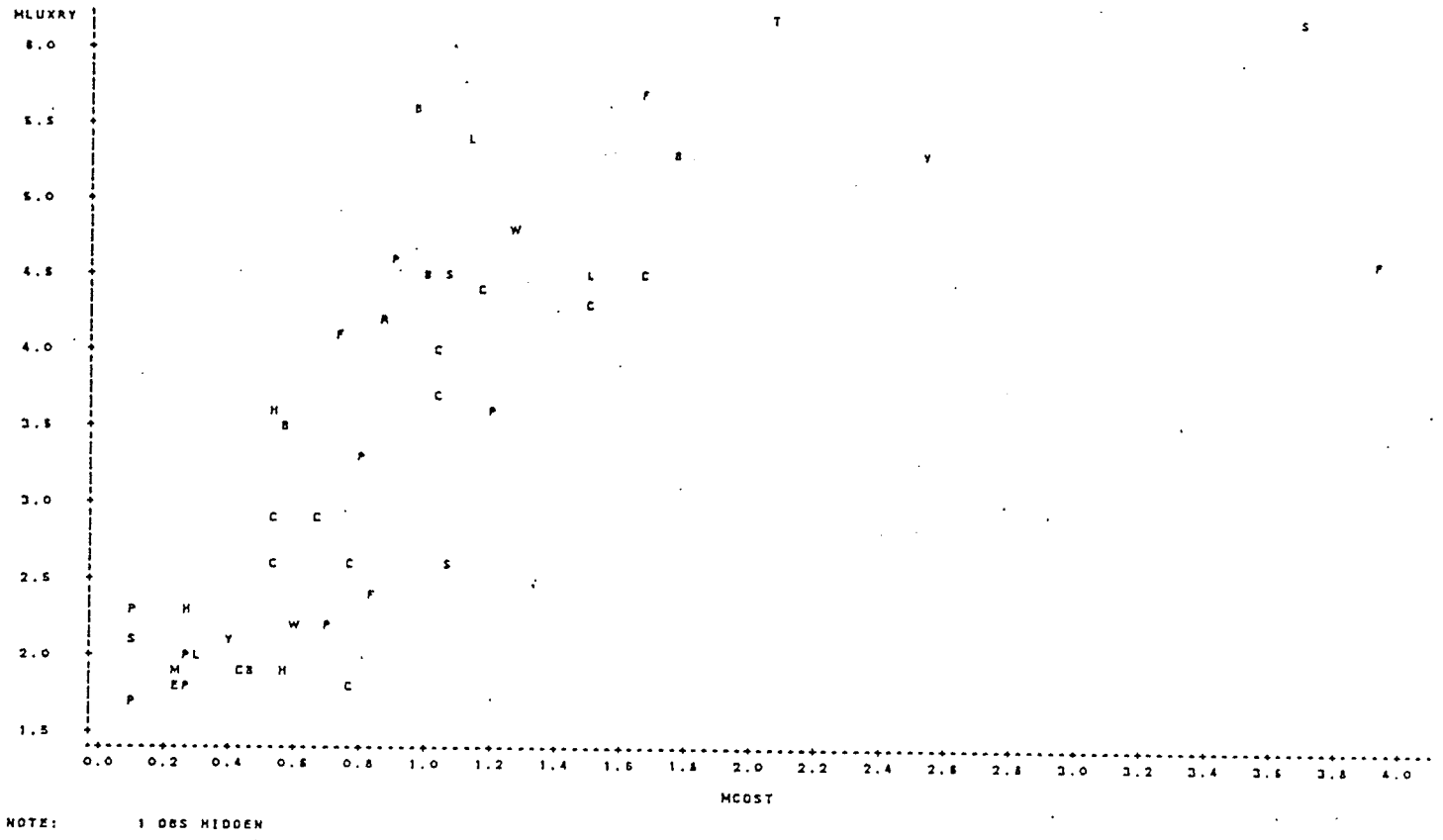
Item and description	Size of unit	Average price per unit ($)	Servings per unit	Source of servings per unit	Cost per serving
Miscellaneous Items					
Eggs, Grade A, Large	dozen	1.37	6	5	0.23
Pizza, Pillsbury Deluxe	385g	3.19	4	pkg	0.80
Canned soup, chicken rice	284mL	0.86	2	5	0.43
Peanut butter, Kraft	500g	2.24	8	5	0.28
Pancakes, Aunt Jemima Mix	kg	2.73	26	5	0.10
Canned Beans, Libby's	450mL	1.54	2	5	0.77
Frozen Entrée, Eating Smart	300g	3.99	1	pkg	3.99

Sources of Servings per Unit:

1. The All Canadian Meat Book. Fitzhenry and Whiteside in Association with Agriculture Canada.
2. Meal Management, sixth edition. F. Kinder, N.R. Green and N. Harris.
3. "Turkey for everyone". Agriculture Canada Publication 1270E
4. A Guide to Handling and Preparing Freshwater Fish. D.G. Iredale and R.K. York.
5. Canada's Food Guide Handbook (Revised). Health and Welfare Canada.
6. Kraft General Foods Consumer Centre

Note: The cost per serving of "Macaroni, home made" and "Macaroni dinner, Kraft Dinner" include the cost of all ingredients.

Figure 1. Plot of Calculated Cost Per Serving Against Mean Score for "An expensive (luxury) food"



inexpensive (Figure 2) show that, in both cases, the point for the frozen entrée, (the "F" at the extreme right hand side of the figure is an outlier, as it is extremely costly compared with the other items, but not considered either a luxury food or inexpensive. Therefore, the correlation coefficients were recalculated omitting this item. The recalculated correlation coefficients were +0.81 between cost and "an expensive (luxury) food ", and -0.74 between cost and "for an inexpensive meal". Although both are significant, the relationship is stronger between actual cost per serving and consumer evaluation of "an expensive (luxury) food". Consumers were obviously able to evaluate the costs of the various items, even though, as explained, some decisions had been made by the experimenter regarding number of servings per unit and, as well, respondents had not been asked to evaluate "cost per serving" per se.

E. Product Information: Actual and Perceived Nutritional Value of Foods

1. Energy Content

The energy content in Kilocalories per serving of the foods included in the study is shown in Table 17. Most meats, even those considered lean, contribute considerable energy to the diet. The meat with the fewest calories per serving was bacon (113 Kcals) but, as 3 slices of crisp bacon weigh only 20 grams, the energy contribution per serving was somewhat deceiving. Among low calorie meats with servings of approximately 90 grams of cooked, lean meat were ham (128 Kcals), chicken breast (142 Kcals),

Figure 2. Plot of Calculated Cost Per Serving Against Mean Score for "For an inexpensive meal"

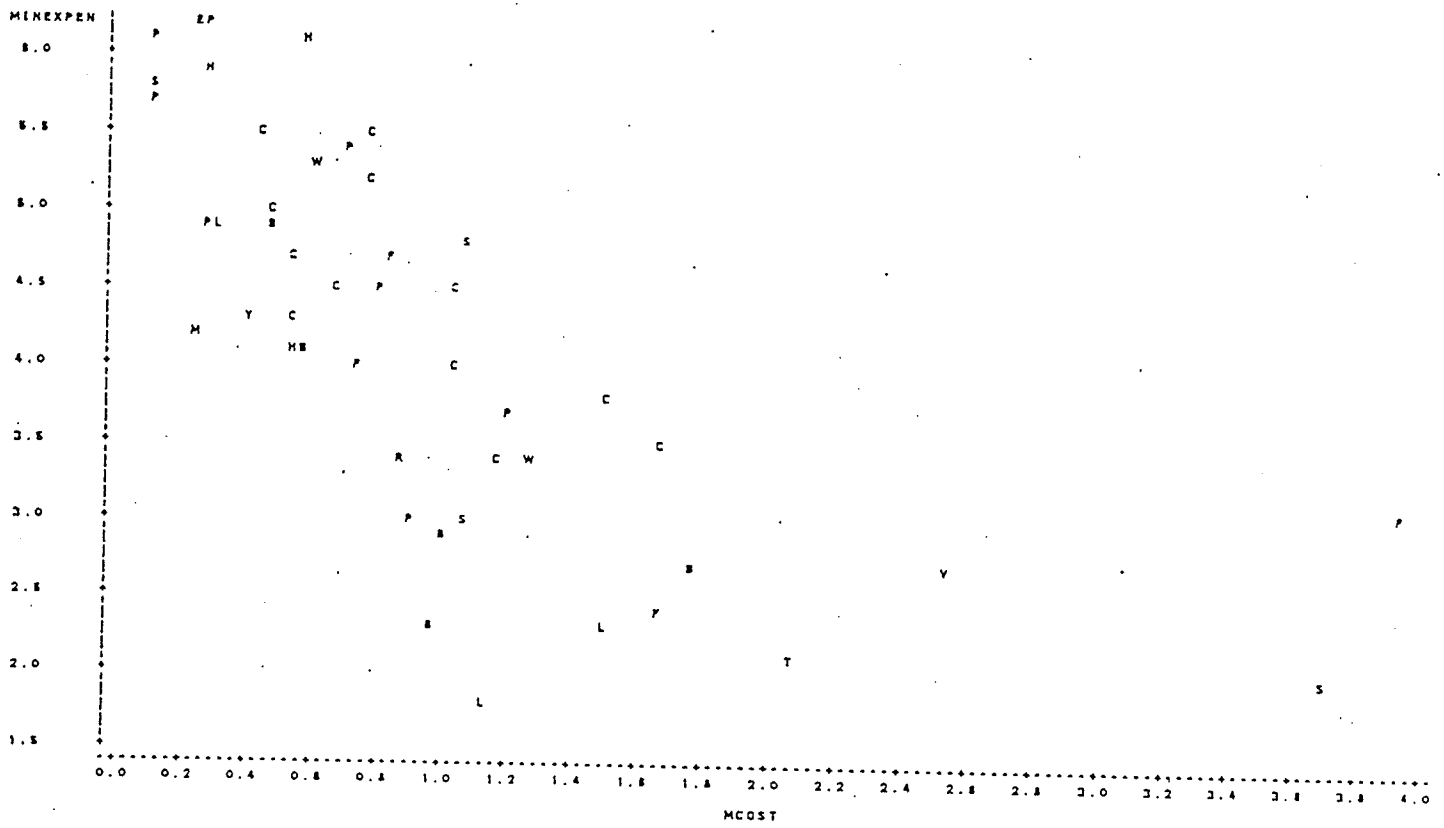


TABLE 17. Serving Sizes and Nutrient Content of Foods

Item and description	Size of serving	Energy content (Kcals)	Protein content (g)	Fat content (g)	Sodium content (mg)
Beef Items					
Beef rib roast, roasted	89g	196	26	10	64
Beef rump roast, roasted	89g	177	27	7	60
Hamburger, broiled	88g	254	21	18	73
T-bone steak	89g	196	26	10	64
Sirloin steak, broiled	88g	163	26	6	50
Pork Items					
Spare ribs, side (2 ribs)	70g	278	20	21	65
Ham, roasted	87g	128	19	5	1319
Bacon, crisp (3 slices)	20g	113	6	9	310
Pork chops, broiled (1 chop)	72g	166	23	8	56
Pork loin roast, roasted	86g	210	22	13	65
Pork sausages, (5 sausages)	90g	275	15	25	970

TABLE 17. (continued)

Item and description	Size of serving	Energy content (Kcals)	Protein content (g)	Fat content (g)	Sodium content (mg)
Poultry Products					
Chicken, roasted	92g	154	23	6	69
Chicken breast, cooked	86g	142	27	3	64
Chicken fingers, fried	90g	233	22	11	246
Turkey, light and dark meat	86g	148	25	4	61
Other Fresh Meats					
Veal cutlet, broiled	92g	215	24	12	60
Lamb chops, broiled	87g	164	25	7	60
Lamb leg, roasted	87g	162	25	6	61
Liver, beef, pan fried	86g	187	23	7	91

TABLE 17. (continued)

Item and description	Size of serving	Energy content (Kcals)	Protein content (g)	Fat content (g)	Sodium content (mg)
Processed Meats					
Wieners, (3 wieners)	111g	354	12	33	1242
Smoked sausage, cooked	90g	310	13.5	28	1007
Deli corned beef	90g	226	16	17	1021
Deli ham	90g	162	16.5	9.9	1175
Bologna	90g	280	12	24	896
Fish Products					
Salmon, broiled	92g	167	25	7	107
Salmon, canned	95g	193	21	12	70
Tuna, canned,	85g	167	24	7	680
Shrimp, cooked	90g	104	22	0	126
Fish fillets, cod, broiled	88g	150	25	5	97
Fish sticks, cod, cooked	90g	158	15	8	159

TABLE 17. (continued)

Item and description	Size of serving	Energy content (Kcals)	Protein content (g)	Fat content (g)	Sodium content (mg)
Pasta Products					
Pasta, fettucini, cooked	250mL	164	5	1	1
Spaghetti, cooked	250mL	164	5	1	1
Macaroni, home made	250mL	454	18	23	1146
Macaroni dinner, cooked	250mL	307	8	14	610
Dairy Products					
Cheddar cheese	60g	241	14.6	20	371
Cheese spread	60g	176	8	12	976
Cheese slices, process	60g	225	13.3	18.6	856
Cottage cheese, 4% b.f.	125mL	119	14.5	5	466
Yoghurt, plain	175mL	111	9.8	2.8	123
Milk, 2% b.f.	250mL	128	9	5	129

TABLE 17. (continued)

Item and description	Size of serving	Energy content (Kcals)	Protein content (g)	Fat content (g)	Sodium content (mg)
Miscellaneous Items					
Eggs, (2 eggs)	100g	158	12	12	138
Pizza, (1 small)	96g	271	11.8	13	642
Canned soup, chicken rice	250mL	50	3	1.2	955
Peanut butter	60g	380	20	32	300
Pancakes (3 pancakes)	81g	183	6	6	456
Canned Beans	250mL	328	16	7	1245
Frozen Entrée, (1 Entrée)	300g	285	18.4	5.4	690

Notes:

1 The nutrient content of meats is for the "lean only" portion
2. "Pasta" and "Macaroni" are cooked without added ingredients
3. "Macaroni, home made" and "Macaroni dinner" are as prepared with other ingredients
4. "Canned soup" is reconstituted
5. "Pancakes" are made according to package directions
6. "Frozen Entree" contains barbecued chicken, stuffed baked potato and corn and green beans
7. Source of the nutrient content: Nutrient Value of Some Common Foods, Health and Welfare Canada, 1987

broiled sirloin steak (163 Kcals), lamb leg (162 Kcals) and broiled lamb chops (164 Kcals). The meats contributing the most calories included wieners (354 Kcals), smoked sausage (310 Kcals) bologna (280 Kcals), spare ribs (278 Kcals) and pork sausages (275 Kcals).

All the fish products included in the study contribute less than 200 calories per serving to the diet, ranging from a low of 104 Kcals for cooked shrimp to a high of 193 Kcals for canned salmon.

The energy content of pasta dishes depends on how it is prepared. Plain pasta contributes only 164 Kcals, whereas home made macaroni and cheese, which contains margarine or butter, milk and cheese contributes 454 Kcals.

Plain yoghurt and 2% milk contribute relatively few calories (111 and 119 Kcals respectively), whereas cheddar cheese, a more concentrated food, contributes considerably more (241 Kcals). Also, the size of servings for cheeses was, perhaps, larger than many individuals would eat at one time, (60 grams of cheddar or process cheese), as serving size was chosen to be equal to Canada's Food Guide's serving of a meat alternate. One of the foods contributing the least energy in the study was chicken rice soup. One serving contributes only 50 Kcals.

The correlation coefficients between actual and perceived nutrient contents of the foods included in the study is shown in Table 18. From this table it may be seen that the correlation coefficient between the perceived energy level of the food (as measured by the mean appropriateness score for the use occasion "low in calories") and actual caloric content was -0.46 (significant at $p \leq .001$). While significant, this

TABLE 18. Correlation Coefficients Among Actual and Perceived Nutrient Content of 47 foods

Actual Energy Content (Kcals)	
and mean score for "Low in Calories"	-0.46
and actual fat content (grams)	0.81
Actual Protein Content (grams)	
and mean score for "High in Protein"	0.77
Actual Fat Content (grams)	
and mean score for "Low in Fat"	-0.66
Actual Sodium Content (milligrams)	
and mean score for "Low in Salt"	-0.79
and mean score for "Doesn't Contain Additives"	-0.78

All scores for perceived nutrient contents are means of 101 observations

was not as high a correlation as was expected, and may be accounted for by some of the confounding aspects of serving sizes mentioned above. An examination of Figure 3 indicates, for example, that bacon, which contains few calories because of the small serving size, is perceived to be rather inappropriate (mean score=1.96) as a food "low in calories".

2. Protein Content

Consumers proved to be perceptive of the protein content of foods. (Table 18). The correlation coefficient between the mean score for "high in protein" and actual protein content per serving was 0.77 (significant at $p \leq .001$). Figure 4 shows the plot of perceived versus actual protein content of the foods in the study.

The protein content of the meat items in the study did not vary a great deal (Table 17). Most of the lean meat items contributed between 25 and 30 grams of protein per serving, with the fattier items, like hamburger and sausage products contributing less than 20 grams. As with energy contribution, bacon contributed little protein per serving (6 grams).

Most fish products contributed between 20 and 25 grams of protein per serving, except fish sticks which contributed only 15 grams, presumably because the product contains breading and frying oil, rather than fish, only.

Pasta products contributed less than 10 grams of protein per serving, except home made macaroni and cheese, which contributed 18 grams, as a result of the milk and cheese used in preparation.

Figure 3. Plot of Calculated Energy Content Per Serving Against Mean Score for "Low in calories"

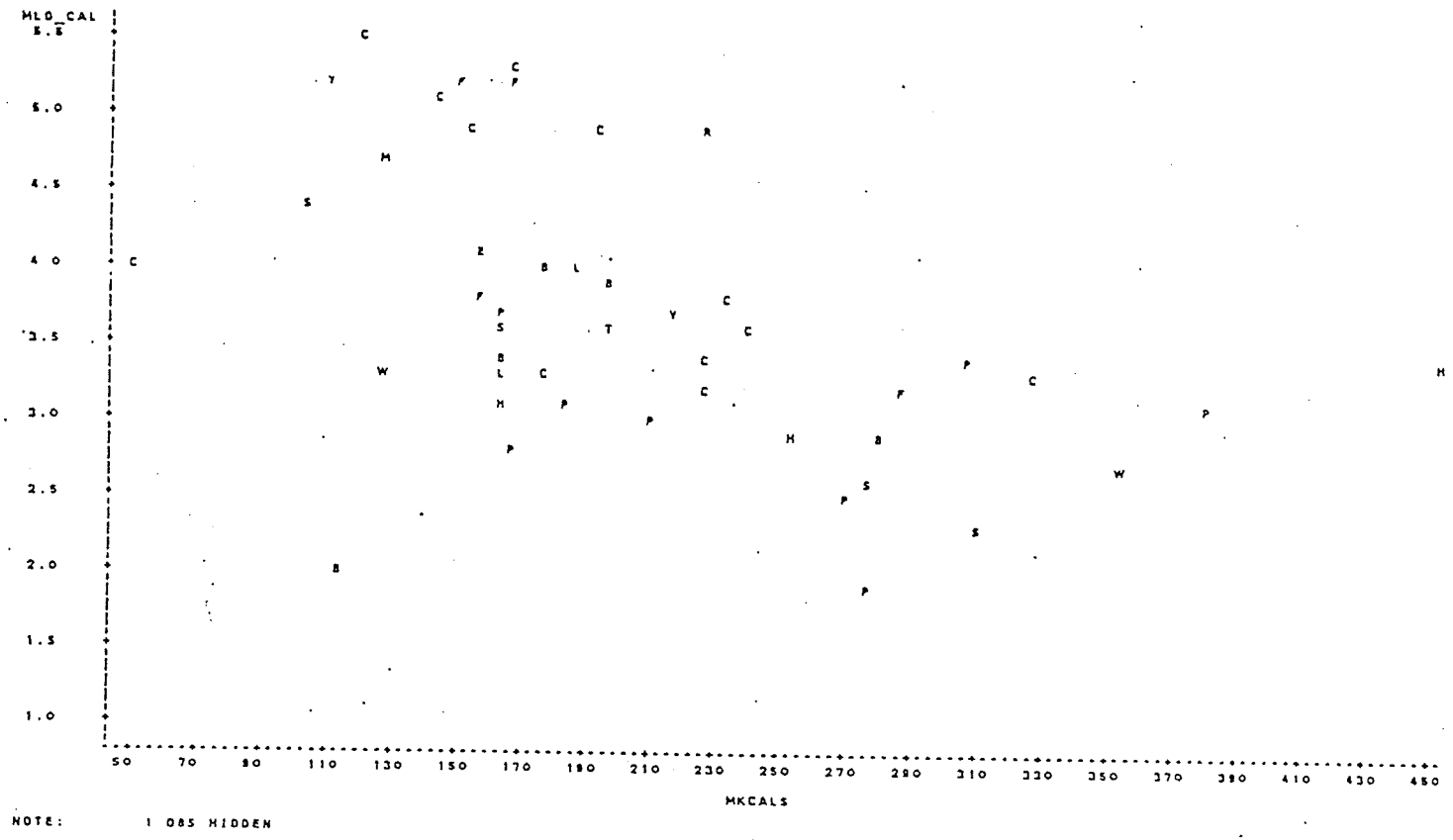
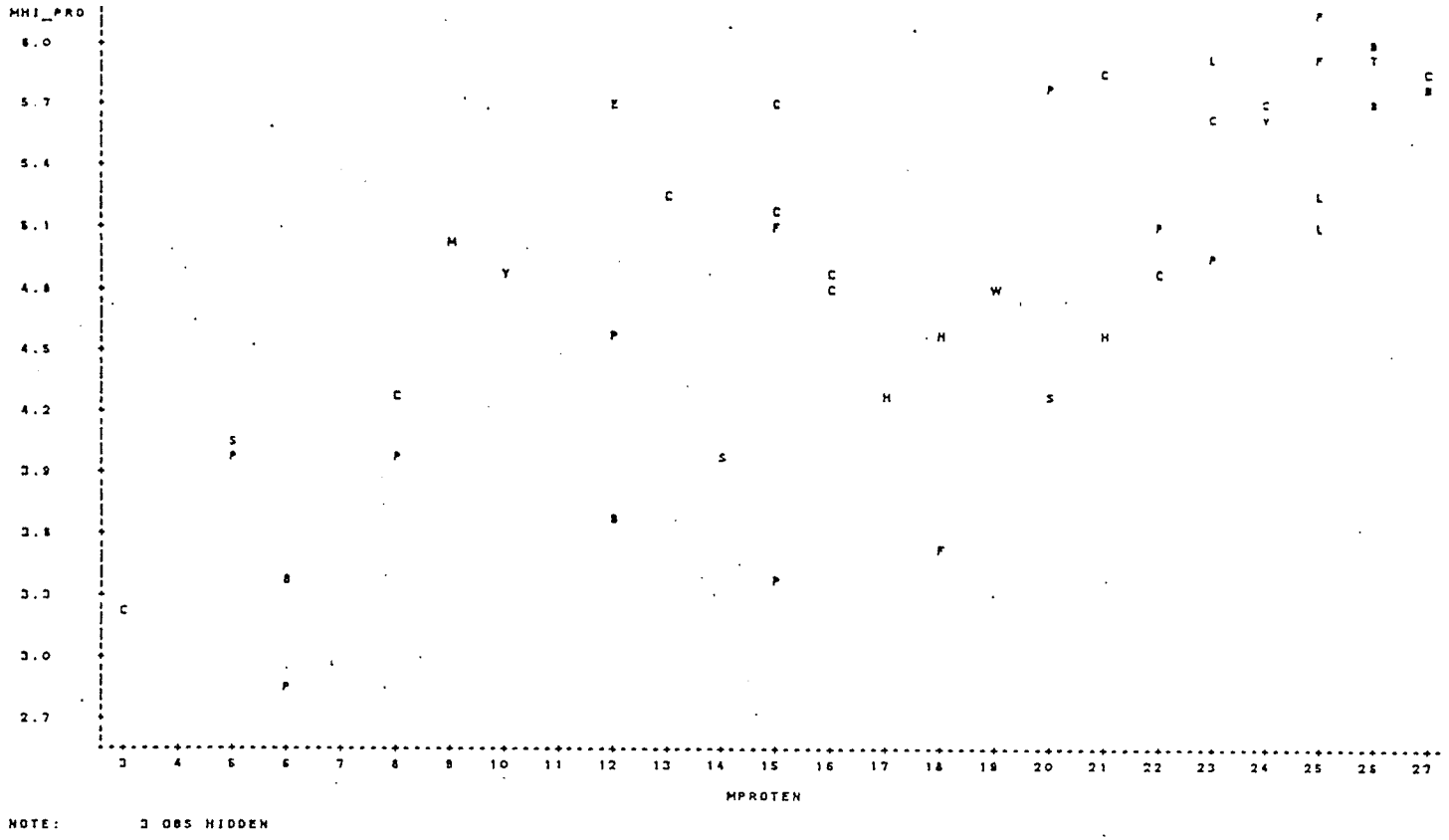


Figure 4. Plot of Calculated Protein Content Per Serving Against Mean Score for "High in protein"



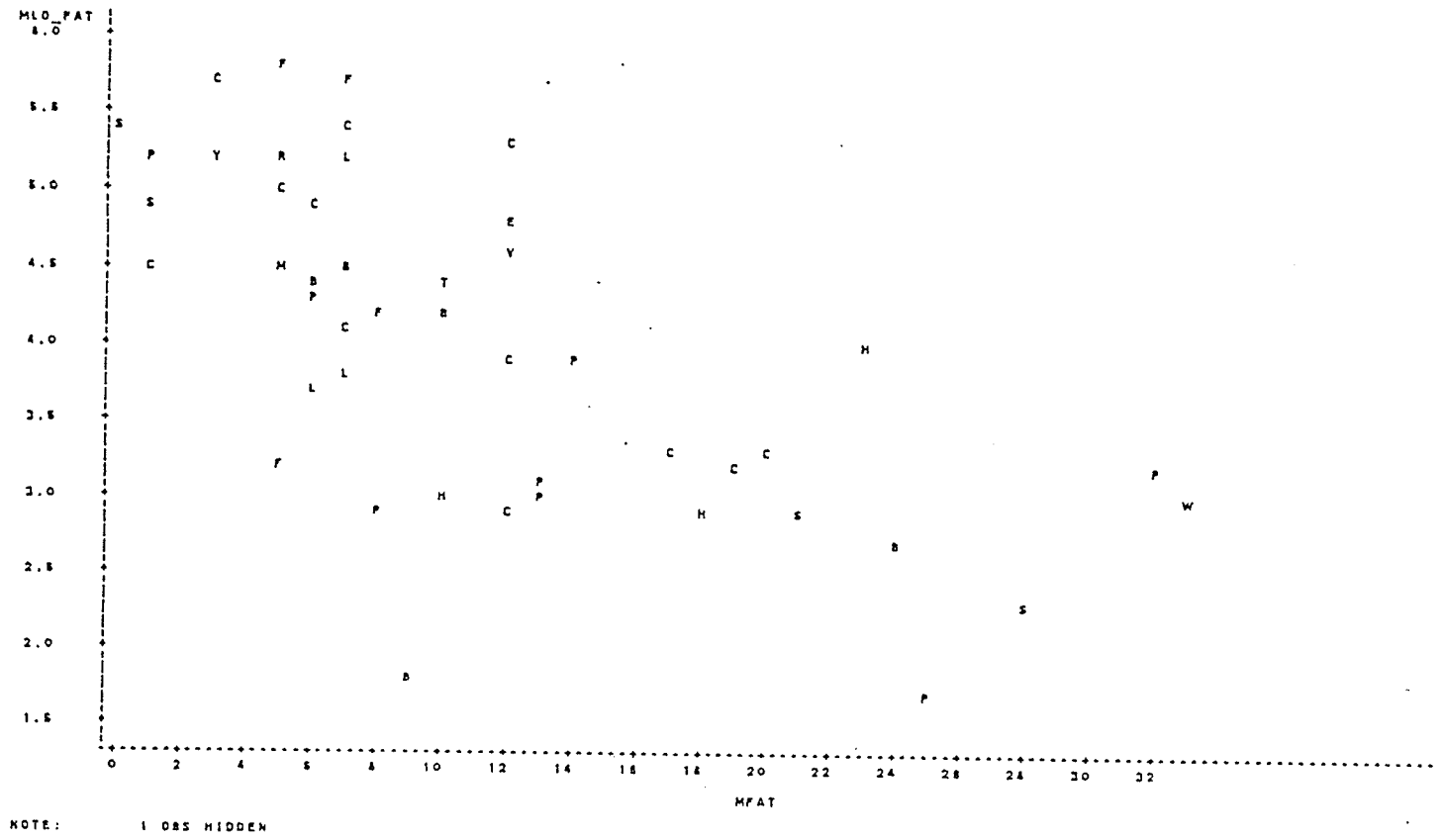
The dairy products all contributed less than 15 grams of protein per serving, with cheddar, process, and cottage cheese contributing the largest amounts. Eggs and peanut butter and canned beans, also considered meat alternates in Canada's Food Guide, contributed 12, 20 and 16 grams of protein per specified serving size. As with cheddar cheese, the serving of peanut butter (60 grams), might be larger than one would ordinarily consume in one eating episode. The frozen entrée contributed almost 20 grams of protein per serving.

3. Fat Content

Consumers were also aware of the fat content of the foods they eat (Table 18). The correlation coefficient between consumer perceptions of fat (mean appropriateness rating for "low in fat") and calculated fat content per serving was -0.66. Figure 5 shows the plot of these values. As in the energy data, bacon is an outlier, considered to be highly inappropriate as a food "low in fat". However, because of the small serving size and the fact that the calculation of fat content was done for crisp bacon, which would have removed much of the fat, a serving of three strips of crisp bacon contributes only 9 grams of fat per serving.

The fat content per serving of food is given in Table 17. Most lean meats contribute between 5 and 10 grams of fat per serving to the diet. The comminuted meat products, such as hamburger and sausage products, contribute considerably more (between 18 and 33 grams). Spare ribs, too, contribute considerable fat (21 grams). Fish products were comparable to lean meats except canned salmon, presumably because

Figure 5. Plot of Calculated Fat Content Per Serving Against Mean Score for "Low in fat"



the fatty skin would be included in the analysis.

Pasta contains almost no fat until sauces are added. For example, home made macaroni and cheese contributes 23 grams of fat, as a result of the margarine or butter, cheese and milk in the product.

Dairy products contribute varying amounts of fat per serving. Cottage cheese, yoghurt, and 2% milk contribute 5 grams or less per serving, but cheddar and process cheese contribute some 20 grams.

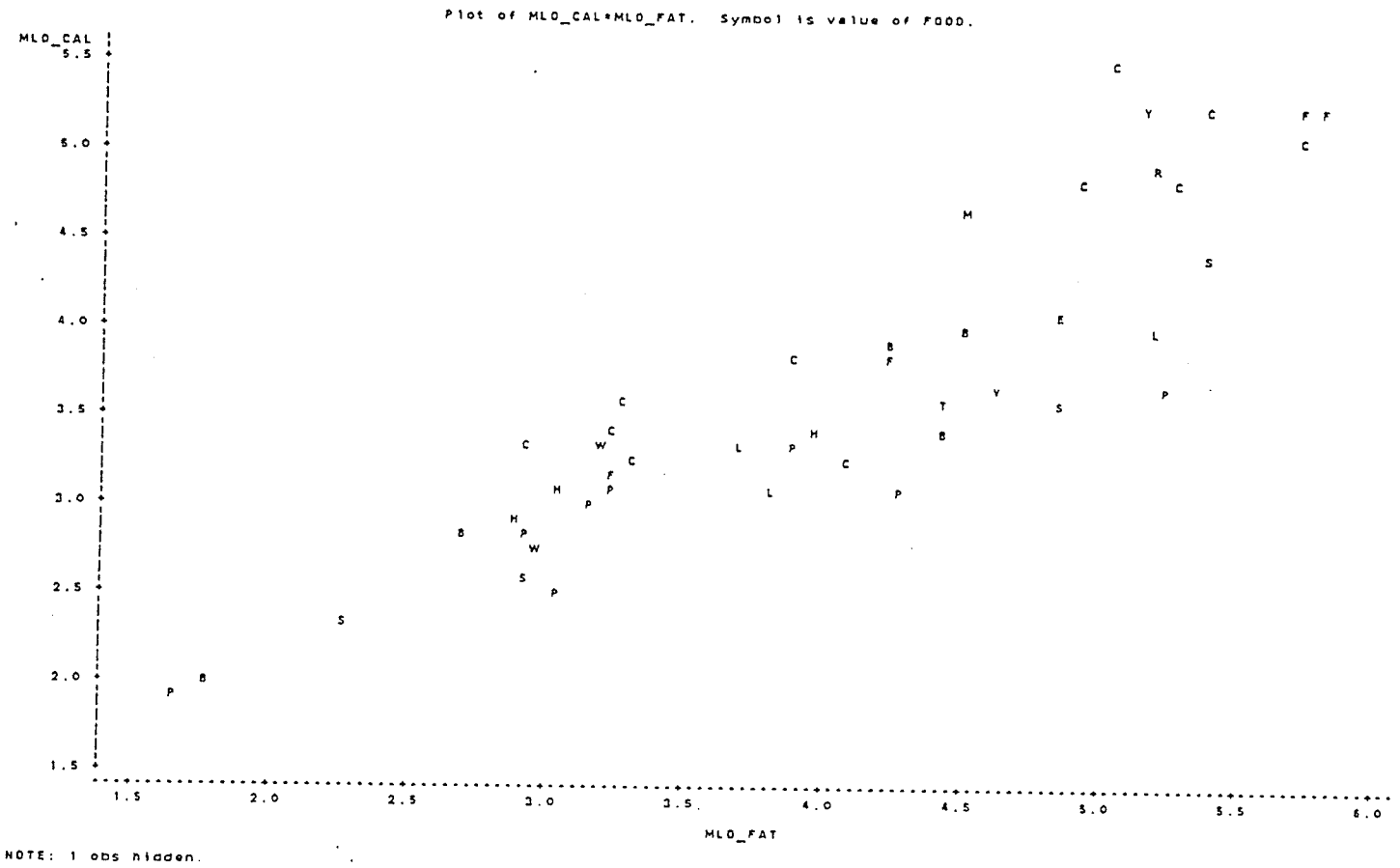
Two of the meat alternates shown in Table 17 are relatively non-fatty. Two eggs contribute only slightly more fat than a serving of lean meat (12 grams), and canned beans contribute only 7 grams. Peanut butter, however, contributes 32 grams per large (60 gram) serving.

Figure 6 is a plot of the mean score for "low in calories" against the mean score for "low in fat". The correlation coefficient was 0.90, indicating that consumer perception of the caloric content of a food is strongly associated with their perception of its fat content.

4. Sodium Content

According to Health and Welfare Canada, current sodium intake in much of the industrialized world is 3.5-4.6 grams, and could be reduced to a level between 1.8 and 2.3 grams without harming the individual (Health and Welfare Canada, 1990). Consumers demonstrated accurate perceptions of sodium content (based on mean scores for foods "low in salt") and sodium content of the foods. (Table 18). The correlation

Figure 6. Plot of Mean Score for "Low in fat" Against Mean Score for "Low in calories"



coefficient between these two variables was -0.79. The plot of these two variables is shown in Figure 7. The correlation coefficient between "low in salt" and "doesn't contain additives" was high (0.90), indicating that respondents linked the two closely (Figure 8). The study contained many processed meats, and the perception was accurate, indicated by the high correlation coefficient (-.78) between the mean score for "doesn't contain additives" and calculated sodium content. Actual sodium content per serving of the foods in the study is given in Table 9. Many of the meat items contain only between 50 and 100 milligrams of sodium per serving. However, the sodium levels jump dramatically in the processed meats, with many of these products contributing more than 1000 milligrams per serving, a high proportion of the recommended daily intake. Other foods contributing large amounts of sodium to the diet included homemade macaroni and cheese (1146 mg), cheese spread and slices (976 mg and 856 mg respectively), canned chicken rice soup (955 mg) and canned beans (1245 mg).

F. Product Information: Strengths and Weaknesses

Examination of the position of foods plotted on the various factors gives an indication of both the strengths and weaknesses of the products studied, and suggests marketing approaches which might be considered for the various products included in the study. Promotion and advertising that fit with preconceived consumer perceptions will have a greater chance of success than those that do not. Consumers can be persuaded to make minor adjustments in their patterns of living, but it is unlikely that strongly held

Figure 7. Plot of Calculated Sodium Content Per Serving Against Mean Score for "Low in salt"

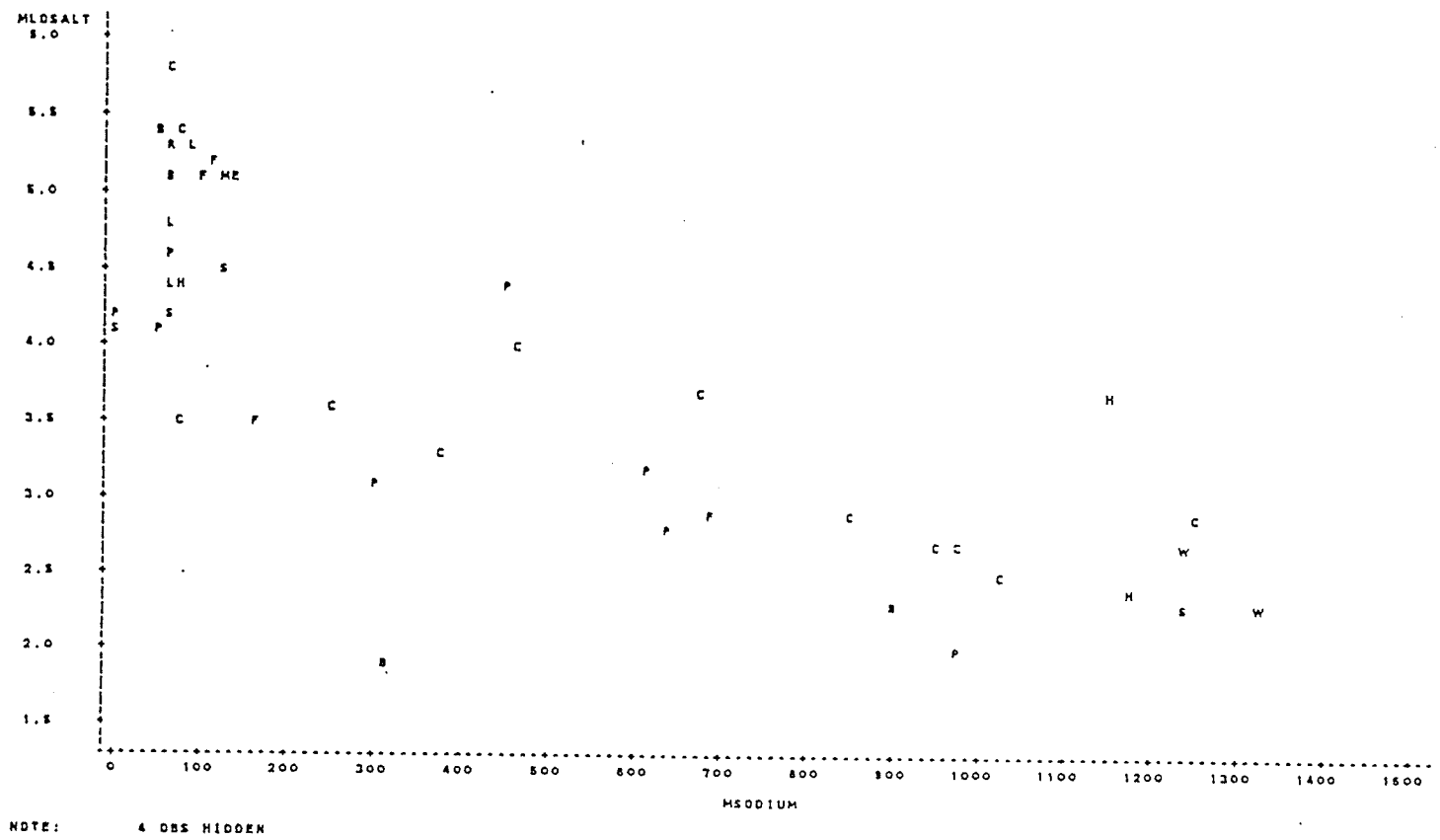
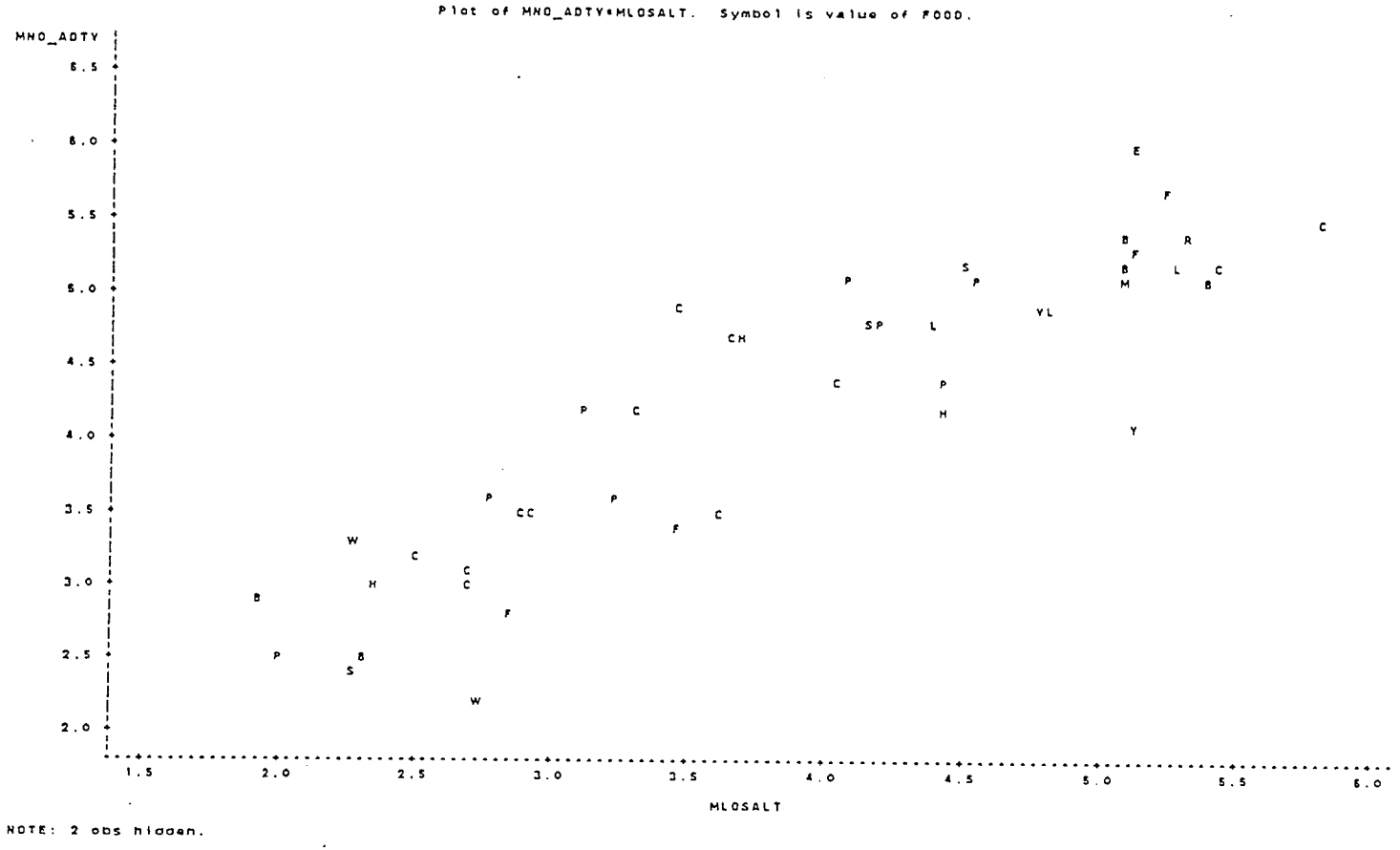


Figure 8. Plot of Mean Score for "Low in salt" Against Mean Score for "Doesn't contain additives"



opinions can be easily changed (Lefens, 1986; Park and Smith, 1990; Fabris, 1990).

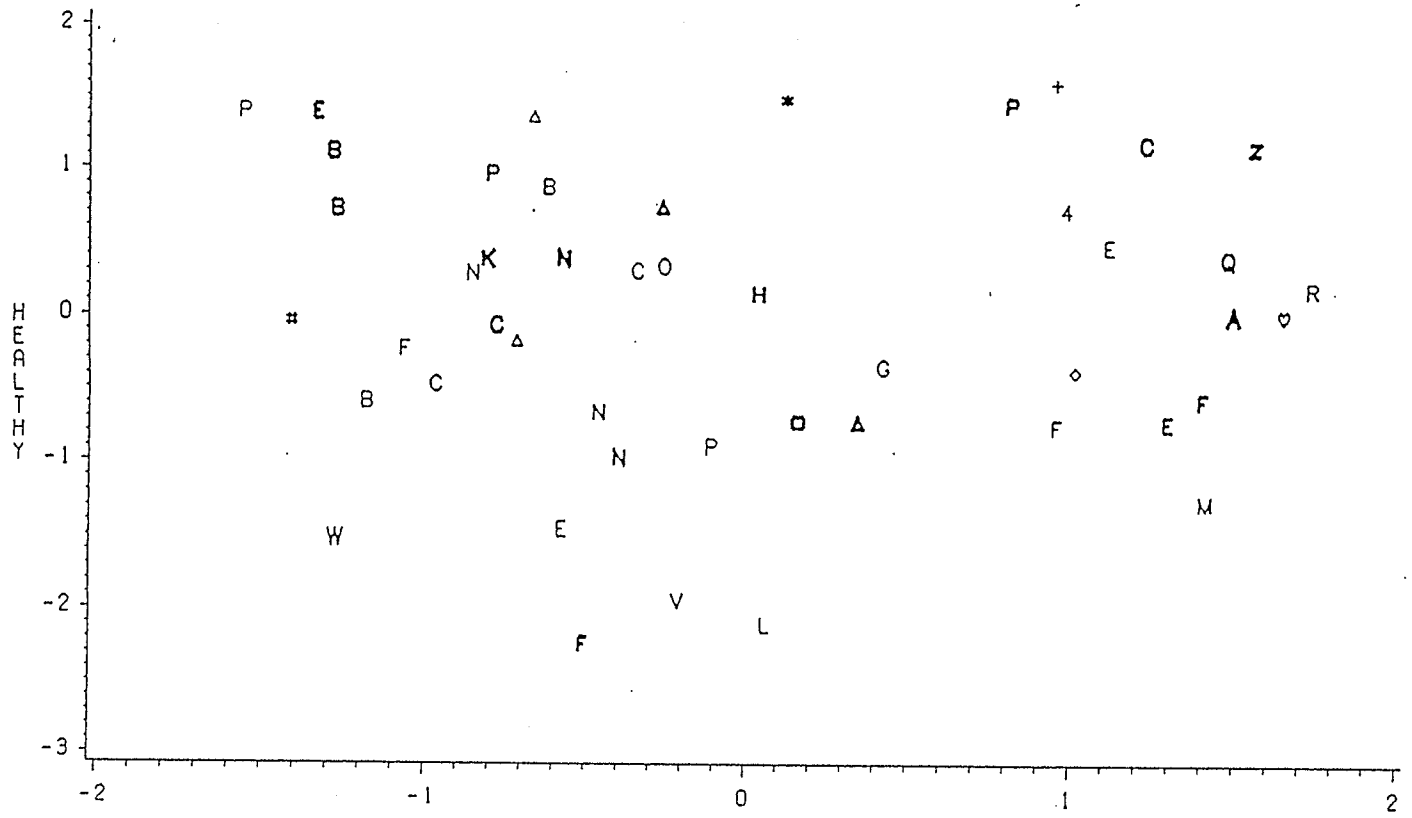
1. Beef Products

Most of the beef items included in this study were rated very high on Factor 1, the SPECIAL OCCASION FACTOR (Table 8). On a cost per serving basis they were also among the most expensive items (Table 16). Beef items were not rated as high on Factor 2, the HEALTHY, NUTRITIOUS FACTOR (Table 9) as the poultry and fish items, but they were considered superior on this factor to all the pork items evaluated (Figure 9). Note that in this and subsequent figures, the same symbol in different intensities signifies different products. It would appear that the efforts to inform consumers that beef is a healthy food should continue, although it is unlikely that consumers will see them as being superior to poultry or fish in this respect. The beef items scored fairly high on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Table 10), but not as high on this factor as chicken items, roast turkey or whole ham (Figure 10). Of the items scoring high on Factor 1, beef rib roast and beef rump roast also scored high on Factor 4, the SANDWICH/LIGHT LUNCH FACTOR (Table 11), suggesting that consumers see these meats as having more than one use in their menu (Figure 11). Of the items considered suitable for sandwiches, the beef items were well liked (Figure 12). Figure 13 shows T-bone steak and sirloin steak as well liked items that are rated high on Factor 5, THE SUMMER FOOD FACTOR (Table 12), indicating that summer promotions of these two items should be especially successful. As expected, the two beef roasts were seen more as special occasion, winter foods (Figure 14).

Hamburger was considered by respondents to be the most versatile food included

FIGURE 9

PLOT OF FOODS ON FACTORS ONE AND TWO

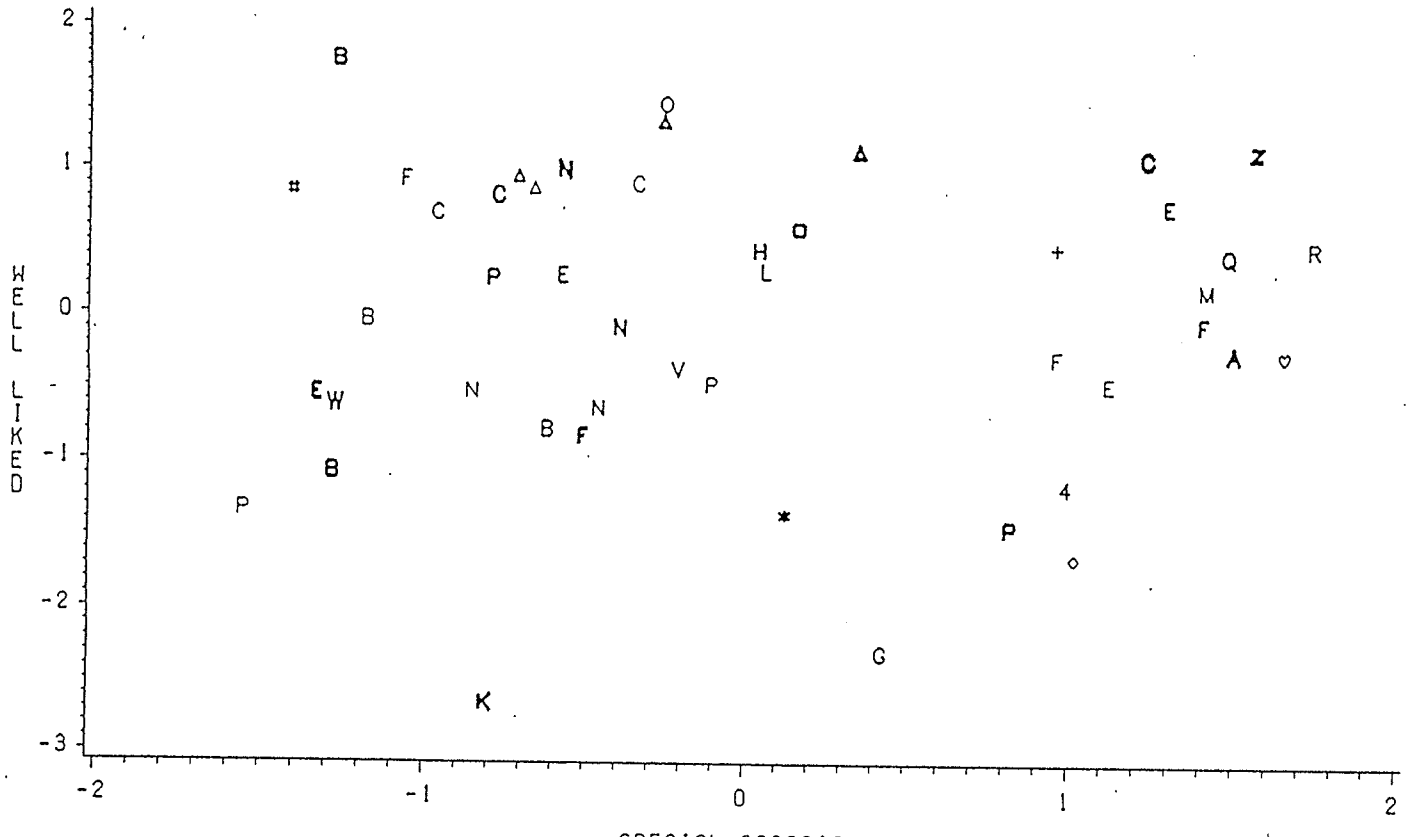


FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNOBEN	B CNOSAL	B CNOSOUP	B CNTUNA
P COTTCHS	P CRNOBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	△ MILK	△ PANC
△ PASTA	△ PIZA	# PKCHAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

FIGURE 10

PLOT OF FOODS ON FACTORS ONE AND THREE

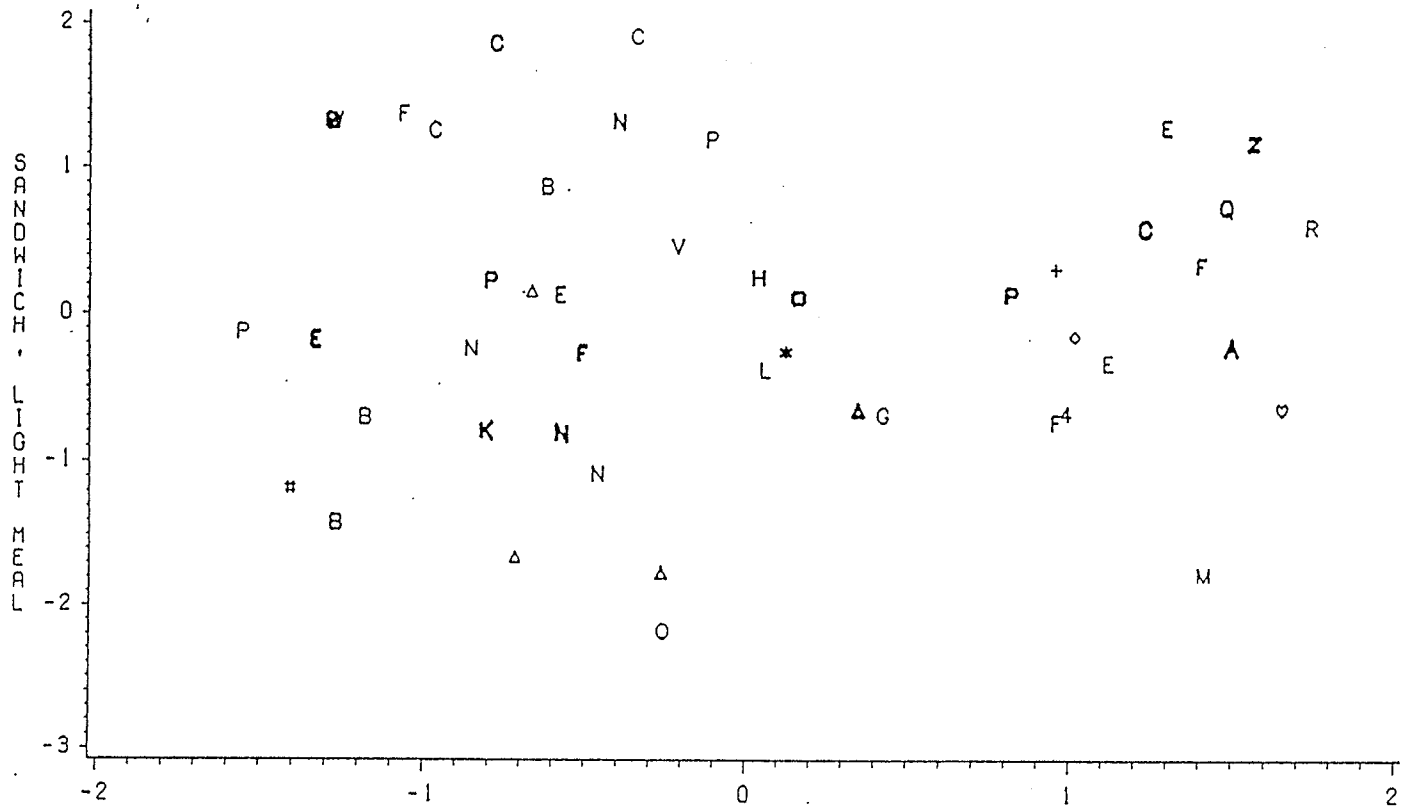


FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNOBEN	B CNDSAL	B CNOSOUP	B CNTUNA
P COTTCHS	P CRNOBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZA	# PKGMAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

FIGURE 11

PLOT OF FOODS ON FACTORS ONE AND FOUR

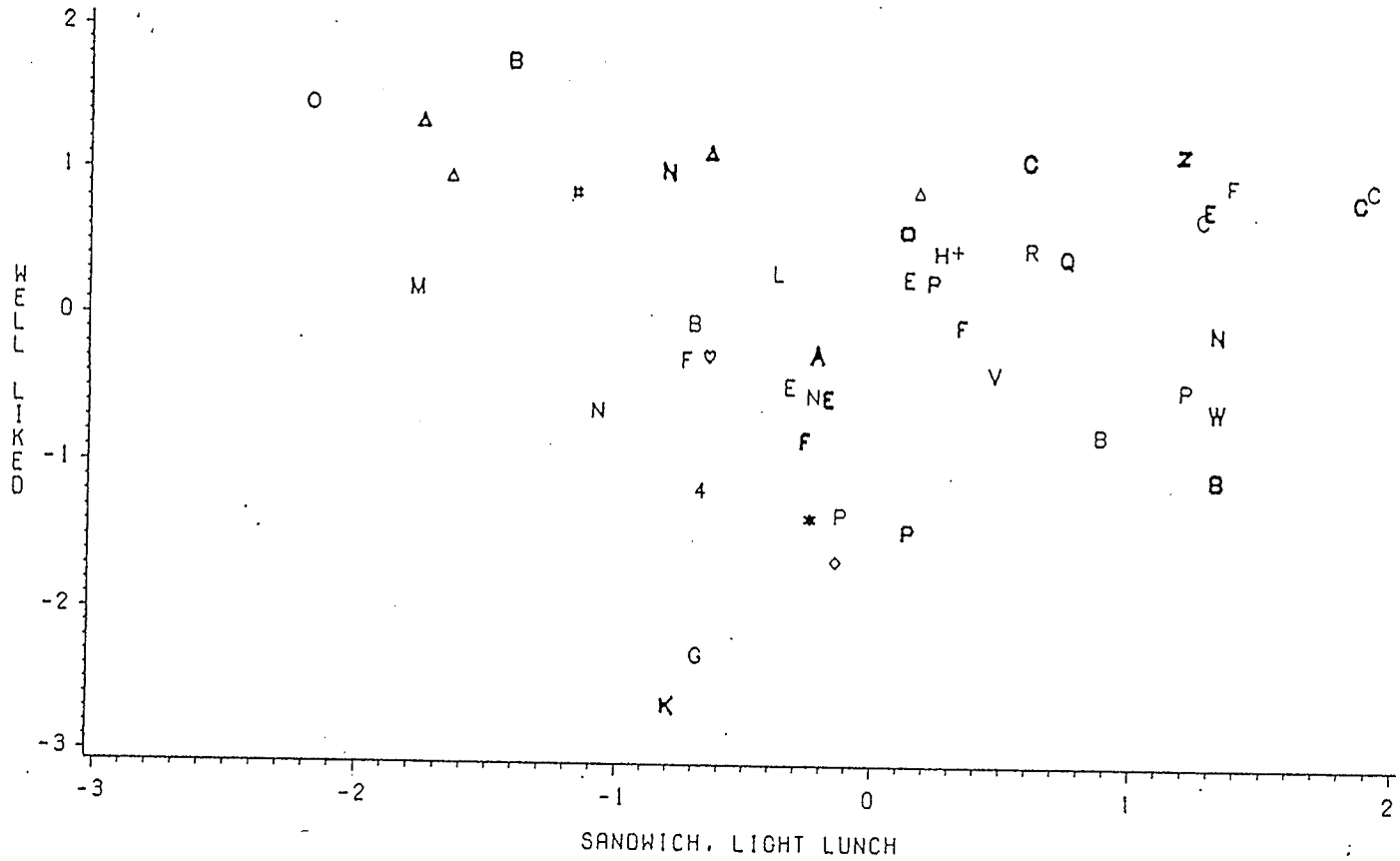


FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNDBEN	B CNDSAL	B CNDSOUP	B CNTUNA
P COTTCHS	P CRNDBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	△ MILK	△ PANC
△ PASTA	△ PIZA	# PKCMAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

FIGURE 12

PLOT OF FOODS ON FACTORS FOUR AND THREE

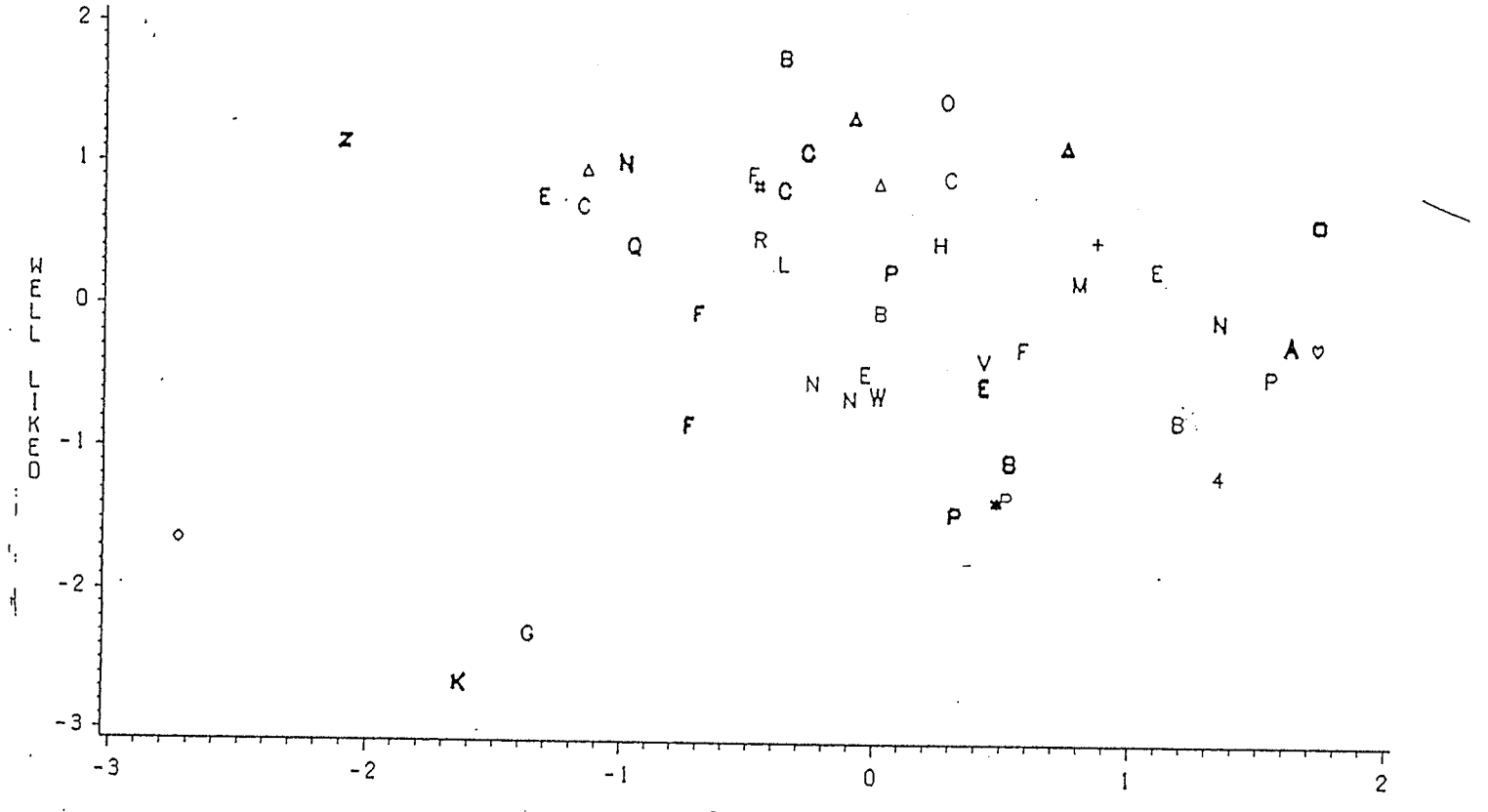


FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNOBEN	B CNOSAL	B CNOSOUP	B CNTUNA
P COTTCHS	P CRNOBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZA	# PKGMAC	F PNTBTR	F PRKCHP
F PRKRST	PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	SPRRIB	♡ TBONE	E VEALTLT	E WIEN
E WLHAM	YOGRT			

FIGURE 13

PLOT OF FOODS ON FACTORS FIVE AND THREE

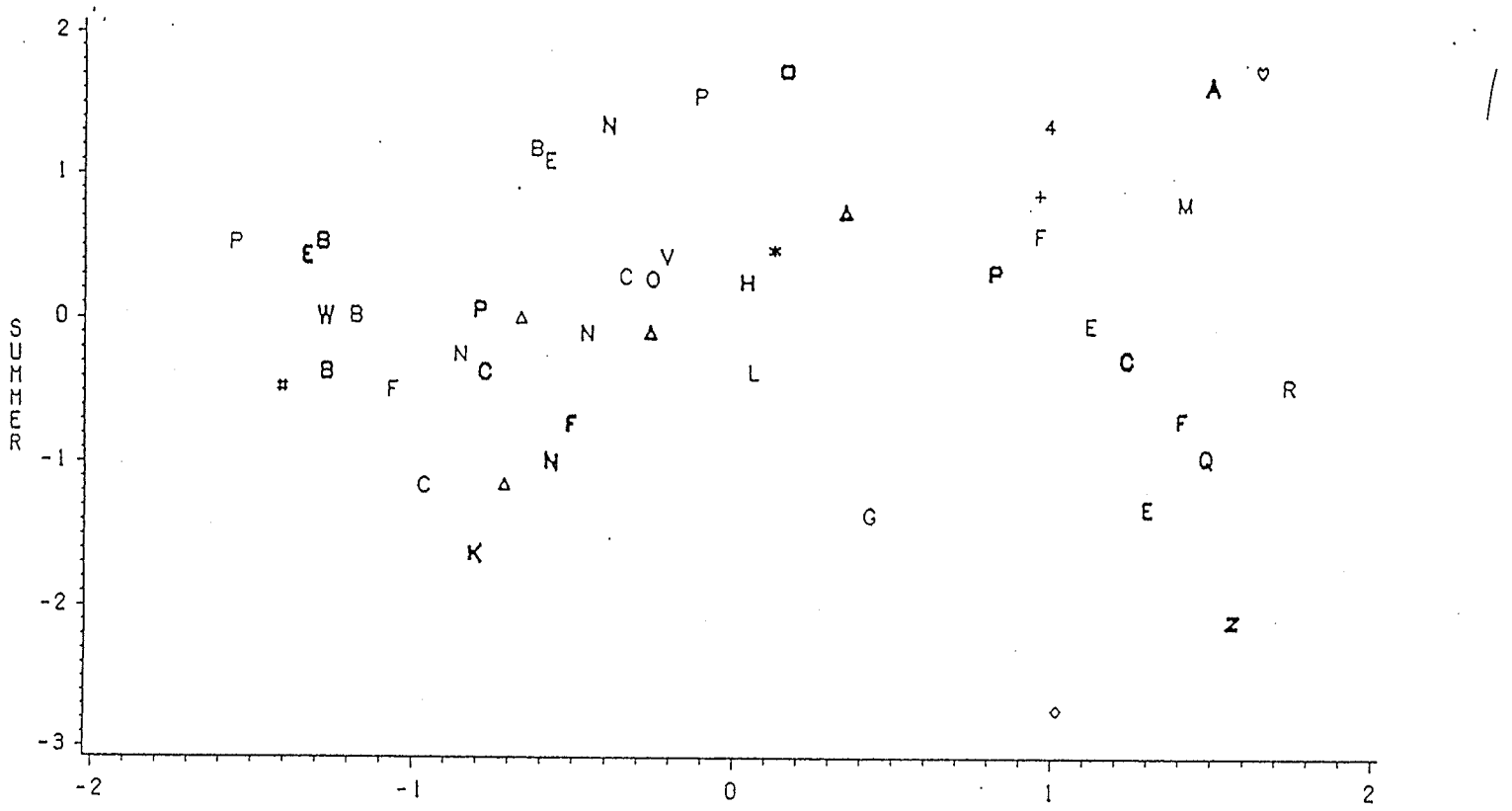


FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNOBEN	B CNOSAL	B CNOSOUP	B CNTUNA
P COTTCHS	P CRNOBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZA	# PKGMAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E WLCTLT	E WIEN
E WLHAM	E YOGRT			

FIGURE 14

PLOT OF FOODS ON FACTORS ONE AND FIVE



FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNDBEN	B CNDSAL	B CNDSOUP	B CNTUNA
P COTTCHS	P CRNDBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZA	# PKCHAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

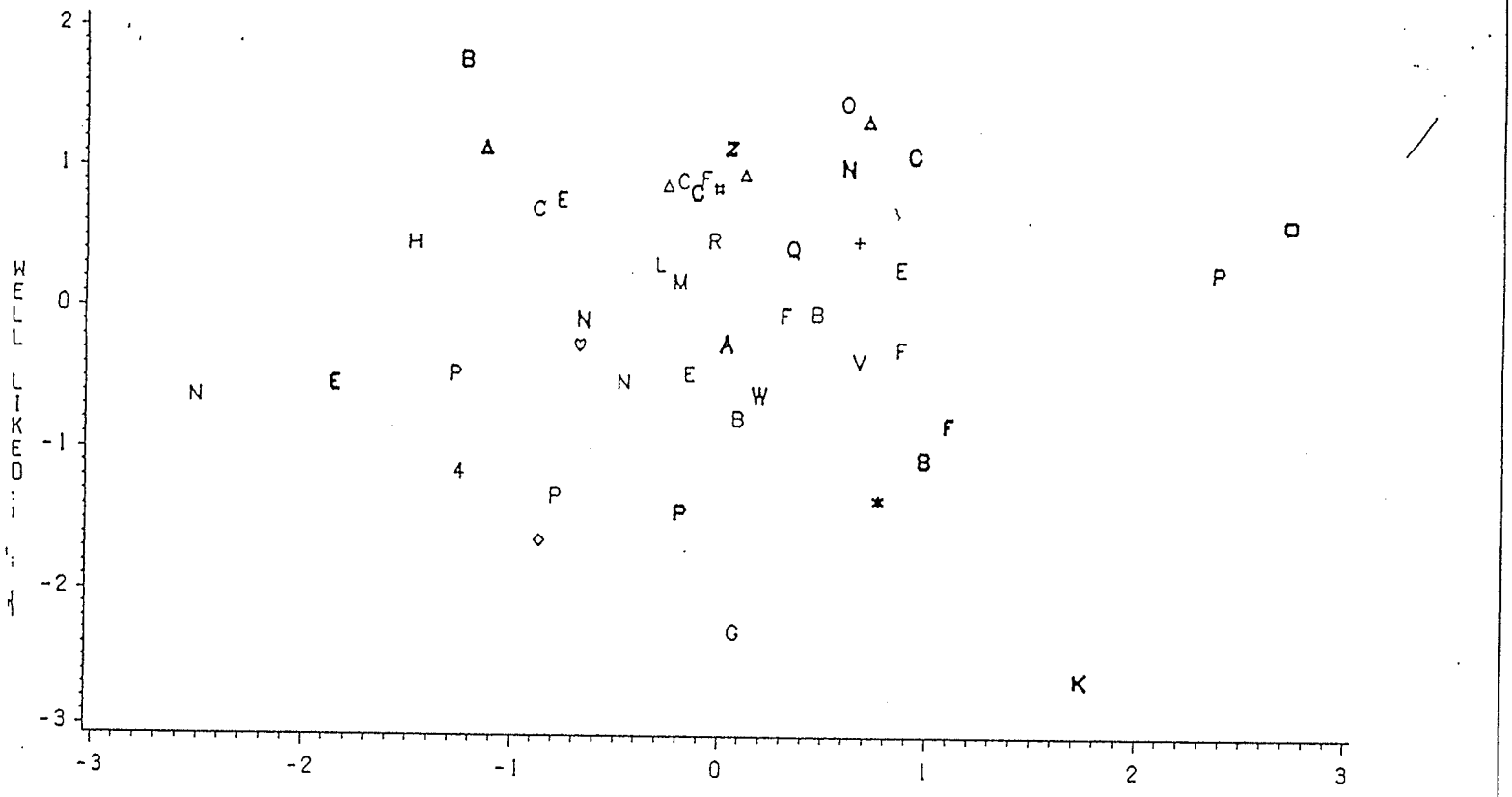
in the study, that is it had the highest rating of all foods on Factor 6, the VERSATILE FACTOR (Table 13). Hamburger has another strength, in that it also was rated high on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Table 10). No other meat is in competition with hamburger on these two parameters (Figure 15). Hamburger is also a well-liked summer food item (Figure 13), approximately equal to T-bone steak on Factor 5 (Table 12), but scoring even higher on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Table 10). The same table indicates that beef liver was the most disliked food in the study.

2. Pork Products

The least healthy foods included in the study as perceived by respondents, who gave them the lowest scores on Factor 2, the HEALTHY, NUTRITIOUS FACTOR (Table 9), were pork items, including pork sausages, bacon, smoked sausage, bologna, wieners, spare ribs and deli ham. Pork loin roast was considered the most healthy of all the pork items, but even it was in the bottom third of the list of all foods included in the study. Pork loin roast, chops, whole ham and spare ribs all received high scores on Factor 1, the SPECIAL OCCASION FACTOR (Table 8), but, as can be seen in Figure 9, these items were considered the least healthy of all the meats suitable for this purpose. These data suggest that, even with the efforts to promote pork as a lean, healthy meat, consumers have yet to be convinced. The very low scores on Factor 2, the HEALTHY, NUTRITIOUS FACTOR (Table 9) suggest that convincing them will be a long and

FIGURE 15

PLOT OF FOODS ON FACTORS SIX AND THREE



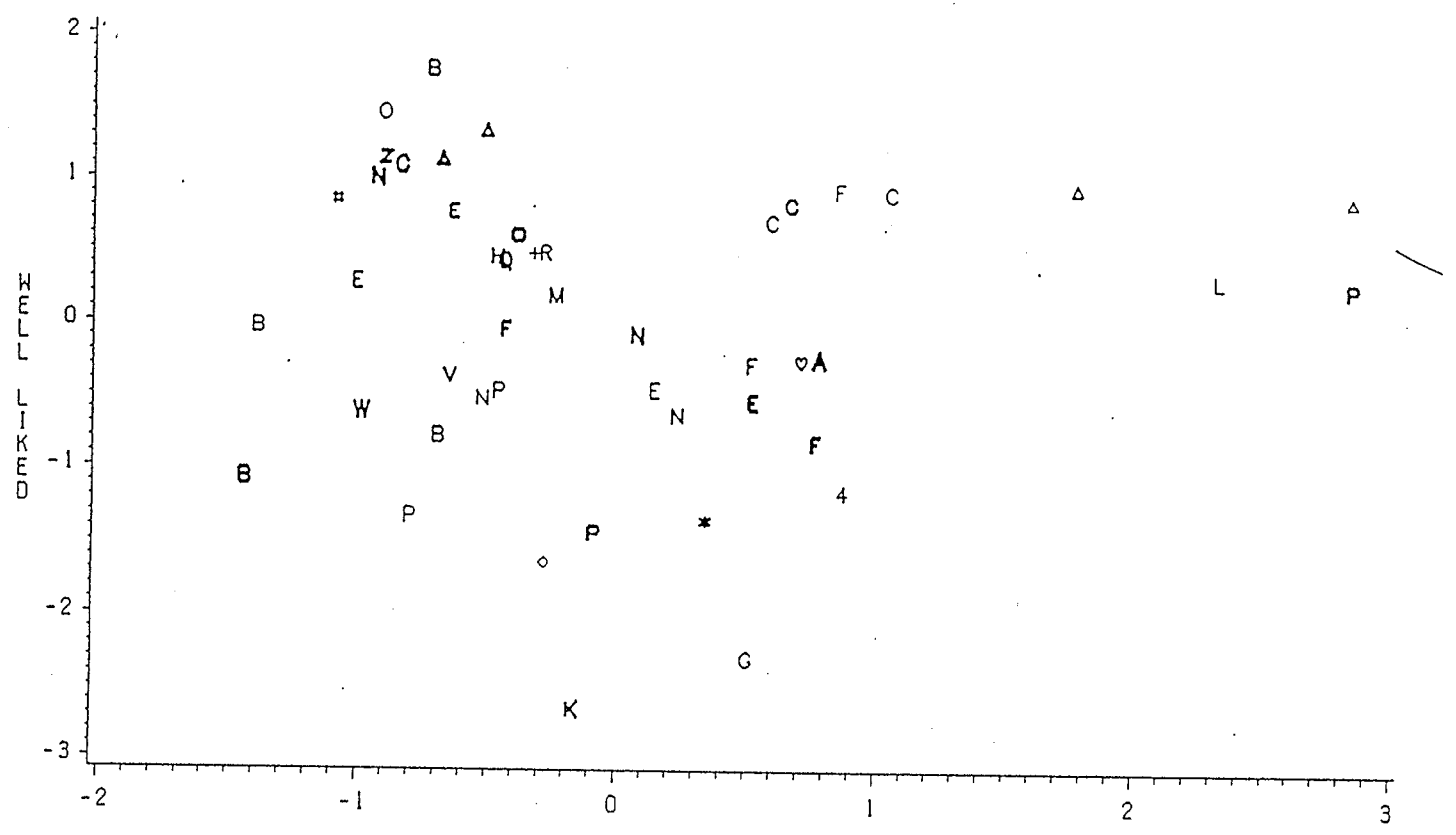
FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNOBEN	B CNDSAL	B CNDSOUP	B CNTUNA
P COTTCHS	P CRNDBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZZ	# PKGMAC	F PNTBTR	F PRKCHP
F PRKRST	F PRZSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPZRIB	♡ TOONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

expensive process. The data in this study suggest that consumers have fairly good perception of the nutritional characteristics (Table 18) and the nutrient contents of the pork products shown in Table 17 indicate that some of them are high in fat, sodium and energy content. There are several positive aspects of pork, and it is suggested that these be promoted, as the study indicates they would meet with much less consumer resistance. Of the special occasion foods, the pork items, especially whole ham, also scored high on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Figure 10). Figure 11 shows that, of the foods rating high on Factor 1, the SPECIAL OCCASION FACTOR, whole ham rated high on Factor 4, the SANDWICH/LIGHT LUNCH FACTOR also indicated it as being especially suitable for sandwiches (Table 11). This suggests that consumers view whole ham as serving more than one use in their menus. Figure 12 shows that while deli ham scored as high on Factor 4 (the SANDWICH/LIGHT LUNCH FACTOR), indicating it was as appropriate for sandwiches, it was not as well liked as whole ham. Both spare ribs and pork chops rated high on Factor 5, the SUMMER FOOD FACTOR (Table 12), and on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Table 10), showing they were fairly well liked summer foods (Figure 13). This suggests that consumers might be convinced to use more of these products for this purpose. The same figure shows that whole ham was second only to turkey in being a well liked, winter food (that is, both scored low on Factor 5, the SUMMER FACTOR and high on Factor 3, the WELL LIKED, COMMON FOOD FACTOR). As expected, bacon was considered a highly appropriate, well liked food for breakfast (Figure 16), along with eggs, milk and pancakes. All these foods obtained

FIGURE 16

PLOT OF FOODS ON FACTORS EIGHT AND THREE



FOOD

L	BACN	R	BFRIBRS	Q	BFRMPTS	A	BFSIRST	W	BOLOG
C	CHEDCHS	C	CHESSPR	C	CHSSL	C	CHWHOL	+	CHXBR
H	CHXFIN	B	CNOBEN	B	CNOSAL	B	CNOSOUP	B	CNTUNA
P	COTTCHS	P	CRNOBF	P	EGG	P	FRSAL	*	FSHFIL
N	FSHSTK	N	FZENTR	N	HAMDEL	N	HMAC	O	HMBRGR
G	LAMBCHP	K	LIVER	◇	LMBLEG	△	MILK	△	PANC
△	PASTA	△	PIZA	#	PKGMAC	F	PNTBTR	F	PRKCHP
F	PRKRST	F	PRKSAUS	Z	RSTTRK	4	SHRIMP	V	SMKSAUS
O	SPAG	M	SPRRIB	♡	TBONE	E	VLCTLT	E	WIEN
E	WLHAM	E	YOGRT						

fairly high ratings both on Factor 3, the WELL LIKED, COMMON FOOD FACTOR and on Factor 8, the BREAKFAST FACTOR (Table 18).

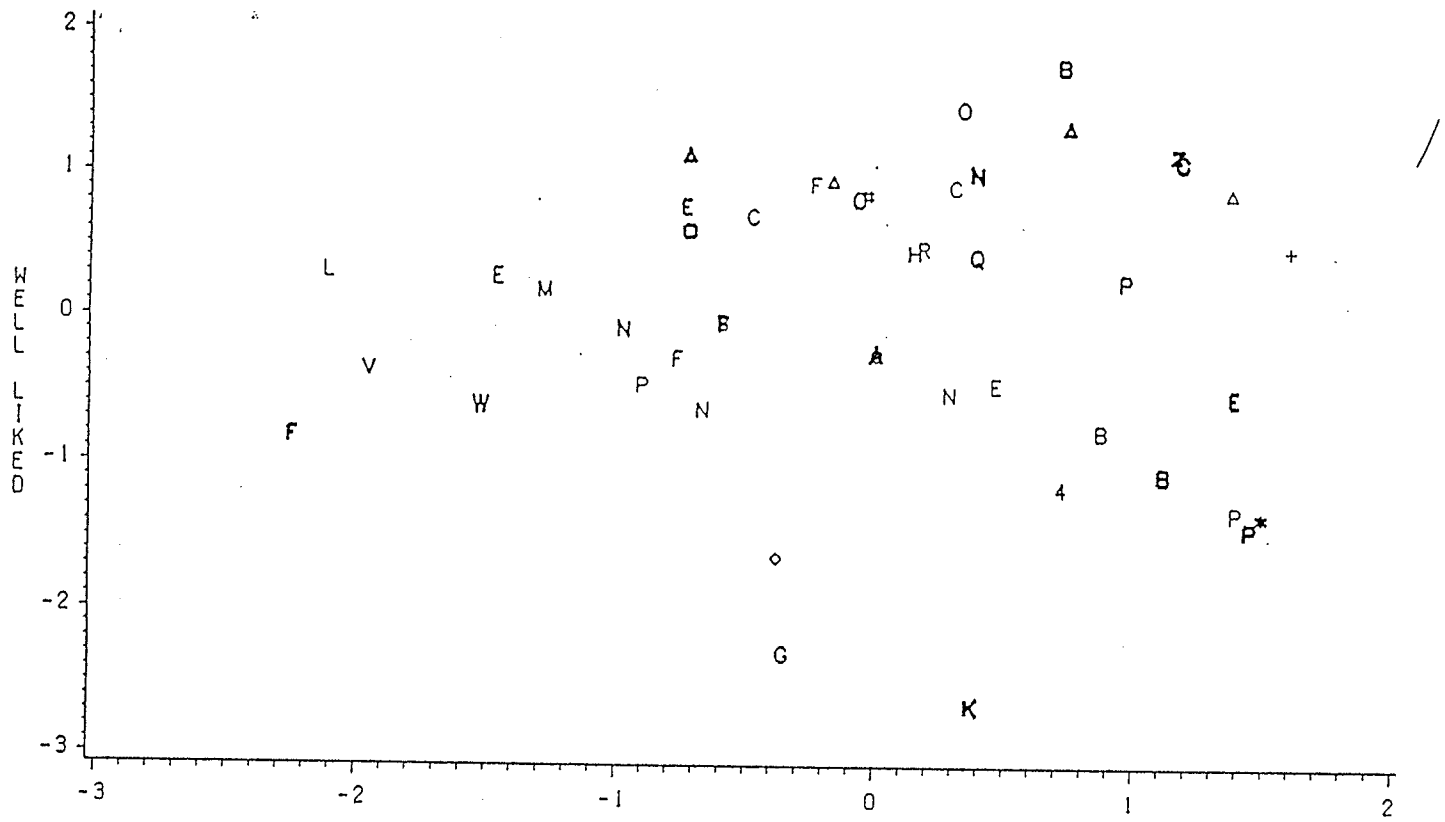
3. Poultry Products

Poultry items had more positive aspects than any other class of products included in the study. Roast turkey was one of the highest scoring foods on Factor 1, (Table 8), although both whole chicken and chicken breasts also scored high on this factor. All poultry items scored high on Factor 2, (Table 9), the HEALTHY NUTRITIOUS FACTOR. Of the special occasion foods, the three poultry items were considered the most healthy of all the meats (Figure 9). Of the special occasion foods, they were among the best liked (Figure 10), that is they scored high on Factor 3, (Table 10) as well as Factor 1. Whole chicken and roast turkey had the highest scores on this factor of all the special occasion items. In addition to special occasions, both whole chicken and roast turkey are also highly appropriate for sandwiches (Figure 11), with high scores on both Factor 1, and Factor 4, the SANDWICH/LIGHT LUNCH FACTOR, indicating that they are perceived by consumers as having several uses. They are among the best liked (scoring highest on Factor 3) of the foods scoring high on Factor 4, the SANDWICH/LIGHT LUNCH FACTOR (Figure 12). Table 12 shows that roast turkey was considered a winter food, that is it had a low score on Factor 5, the SUMMER FOOD FACTOR. Whole chicken had a much more moderate score on this factor, showing its suitability for both seasons.

All the poultry products are found in the upper, right-hand quadrant of Figure 17,

FIGURE 17

PLOT OF FOODS ON FACTORS TWO AND THREE



FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNDBEN	B CNDSAL	B CNDSOUP	B CNTUNA
P COTTCHS	P CRNDBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZA	# PKGMAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

showing that respondents considered them both healthy (scoring high on Factor 2) and well liked (scoring high on Factor 3). This was not true for any other class of foods included in the study! Figure 13 shows that, of the winter foods (scoring low on Factor 5), roast turkey was the best liked (scoring high on Factor 3).

There were no poultry items showing weaknesses on any of the factors.

4. Other Meats

Although leg of lamb and lamb chops were considered special occasion foods (Table 8), Figure 10 shows why they are not often used in Canada. On Factor 3, the WELL LIKED, COMMON FOOD FACTOR, both had low scores (Table 10). Only liver had a lower score on this variable. Veal cutlets were considered a special occasion food (Table 8), were only moderately well liked, scored rather low on all other factors, but were extremely expensive (Table 16).

5. Fish and Seafood

Fish fillets and fresh or frozen salmon scored only slightly lower than chicken breasts on Factor 2, the HEALTHY, NUTRITIOUS FACTOR (Table 9), but Figure 17 shows that these items are not nearly as well liked as the poultry items. Even shrimp, which was extremely expensive (Table 16), was not particularly well liked. Both shrimp and fresh or frozen salmon were considered special occasion foods (had high scores on Factor 1), but were less liked (had lower scores on Factor 3) than all meats except the lamb items (Figure 10). Both were considered special occasion summer foods (Figure

15). Canned salmon and canned tuna were considered highly appropriate for sandwiches (scored high on Factor 4), but were not as well liked as many of the other foods for this purpose (Figure 12). Figure 18 shows that the strength of the fish and seafood items is their perceived healthy aspect, rather than the amount they are liked. Therefore, stressing the healthful aspects of these foods would appear to be a suitable marketing strategy. Fish sticks and fillets are considered suitable for microwave cooking (Table 10). A marketing strategy stressing this may also be appropriate.

6. Dairy Products

Although dairy foods are generally thought of as healthy, consumer perceptions of these foods on Factor 2 (the HEALTHY, NUTRITIOUS FACTOR) varied considerably depending on the food (Table 9). The highest scoring dairy foods on this factor were cottage cheese, yoghurt and milk, whereas cheese spread and cheese slices were lowest. Examining the sodium and fat contents of these products (Table 17), these appear rational decisions. Cheddar cheese scored between these two groups on that factor (Table 9). Although considered healthy, neither cottage cheese nor yoghurt scored high on Factor 3, the WELL LIKED, COMMON FOOD FACTOR, showing that they were not particularly well liked (Figure 17). On the other hand, the other cheese items and milk scored high on Factor 2, the HEALTHY, NUTRITIOUS FACTOR. Thus it would be reasonable to stress the healthful aspect of yoghurt and cottage cheese, and the hedonic aspects of the other dairy foods, if one wished to reinforce current perceptions, or to attempt to add other perceived attributes to yoghurt and cottage cheese by stressing

their hedonic characteristics. Too, it would seem useful to improve their marketability by improving the hedonic characteristics through the new product development process. Cheddar cheese and cheese slices were the two highest scoring foods on Factor 4, the SANDWICH/LIGHT LUNCH FACTOR (Table 11). These items, along with cheese spread and milk were also well liked (Figure 9).

7. Pasta Items

Appropriateness of the pasta items varied depending on whether they were specified to be considered with or without sauces. (Pasta and spaghetti were listed without sauces, and macaroni and cheese, home made, and packaged macaroni dinner were with sauces). None of these items was suitable as a special occasion food, and packaged macaroni dinner was one of the least suitable foods for this use (scored extremely low on Factor 1), as can be seen in Table 8. All pasta items scored high on Factor 3, showing they were well liked, and, with the exception of packaged macaroni dinner, were considered moderately healthy (Figure 17). Development of newer varieties of pasta and sauces may change perceptions of these foods in the future, especially in light of the emphasis on complex carbohydrates in the diets of Canadians.

8. Other Items

Most of the other foods in the study had one or two outstanding characteristics, but will not be discussed in the same detail as the above classes of items.

EGGS were considered an extremely versatile food, with only hamburger scoring higher on Factor 6 (Table 13). They also scored high on Factor 2, the HEALTHY, NUTRITIOUS FACTOR, (Table 9) indicating that they were perceived as being reasonably healthy. As expected, they scored very high on Factor 8, the BREAKFAST FACTOR (Table 15), but were not liked as well as pancakes, milk or bacon for this use (Figure 16).

PIZZA was a well liked food (Table 10).

CANNED SOUP was the highest scoring food on Factor 3, the WELL LIKED, COMMON FOOD FACTOR (Table 10). It was also considered to be fairly healthy (Figure 17), and a suitable food for microwave preparation (Table 14).

PEANUT BUTTER was another well liked, common food (Table 10), and one of the highest scoring foods on Factor 4, the SANDWICH/LIGHT LUNCH FACTOR (Figure 12). It was not considered to be especially healthy (Figure 17). The fat and energy content of this product was high (Table 17).

PANCAKES were the least expensive food included in the study, with a per serving cost of only $.11. They were considered a well liked, common food (Table 10), but not an especially healthy one (Figure 17). They were the best liked of the items considered appropriate for breakfast (Figure 16).

CANNED BEANS was the only food that did not score high on any of the extracted factors.

FROZEN ENTRÉES were the most expensive of all the items rated, (Table 16), but were a complete meal, unlike all other items in the study. Although not very well liked (Table 10), they were considered very suitable for microwave preparation (Table 14 and Figure 18).

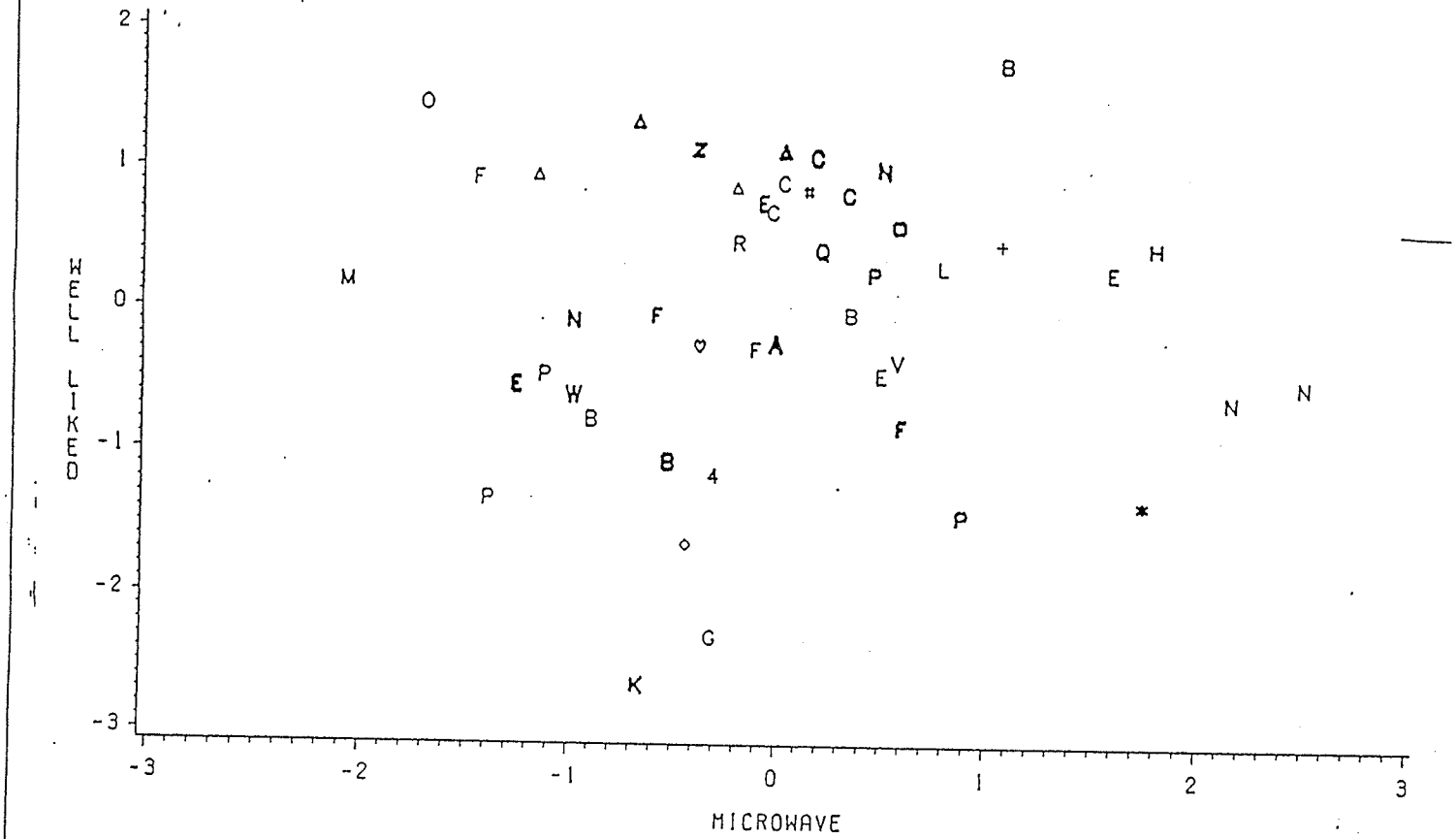
G. Frequency of Serving Foods in the Study

1. Mean Reported Frequency With Which Each Food was Served

Respondents were asked on the questionnaires how often they served each food in a day, week, month or year, or to indicate that they seldom or never served the product. Results were transformed into the number of times per month, using a value of "0" for the "seldom or never" category and means are shown in Table 19.

FIGURE 18

PLOT OF FOODS ON FACTORS SEVEN AND THREE



FOOD

L BACN	R BFRIBRS	Q BFRMPTS	A BFSIRST	W BOLOG
C CHEDCHS	C CHESSPR	C CHSSL	C CHWHOL	+ CHXBR
H CHXFIN	B CNOBEN	B CNDSAL	B CNDSOUP	B CNTUNA
P COTTCHS	P CRNDBF	P EGG	P FRSAL	* FSHFIL
N FSHSTK	N FZENTR	N HAMDEL	N HMAC	O HMBRGR
G LAMBCHP	K LIVER	◇ LMBLEG	Δ MILK	Δ PANC
Δ PASTA	Δ PIZA	# PKGMAC	F PNTBTR	F PRKCHP
F PRKRST	F PRKSAUS	Z RSTTRK	4 SHRIMP	V SMKSAUS
O SPAG	M SPRRIB	♡ TBONE	E VLCTLT	E WIEN
E WLHAM	E YOGRT			

TABLE 19. Mean Frequency With Which Foods in the Study Were Served

Food	Mean Number of Times Per Month Served ± Standard Deviation (n=101)
Lamb chops	0.3 ± 0.8
Smoked sausage (eg Farmer sausage)	1.3 ± 1.5
Roast turkey	0.6 ± 1.6
Fish sticks	1.2 ± 1.6
Chicken breasts	3.7 ± 2.9
Pasta	7.8 ± 12.4
Ham (whole)	0.4 ± 0.7
Chicken fingers	1.2 ± 1.8
Cottage cheese	4.9 ± 6.5
Packaged macaroni dinner (eg Kraft Dinner)	3.4 ± 4.8
Chicken (whole)	1.9 ± 2.2
Cheese spread (eg Cheez Whiz)	7.5 ± 9.6
Canned tuna	4.0 ± 7.3
Pork sausages	1.3 ± 1.5
Fish fillets or steaks	3.5 ± 4.2
Leg of lamb	0.0 ± 0.1
Cheddar cheese	15.6 ± 14.5
Sirloin steak	2.1 ± 2.5
Pancakes	2.6 ± 4.3
Fresh or frozen salmon	1.1 ± 2.3
Bologna	2.2 ± 4.6
Deli ham (sliced)	5.2 ± 6.4
Spare ribs	1.1 ± 1.1

Food	Mean Number of Times Per Month Served ± Standard Deviation (n=101)
Bacon	4.6 ± 5.9
Hamburger	7.0 ± 7.0
Processed cheese slices	8.7 ± 9.6
Peanut butter	14.7 ± 14.5
Pizza	2.5 ± 2.1
Veal cutlets	0.9 ± 1.6
Beef rump roast	1.2 ± 1.6
Eggs	9.2 ± 6.9
Macaroni and cheese (homemade)	2.1 ± 3.5
Pork chops	2.4 ± 2.1
Spaghetti	3.5 ± 3.5
Milk	67.8 ± 50.0
Shrimp	0.8 ± 1.1
Liver	0.6 ± 0.8
Frozen entrées	1.5 ± 3.9
Canned baked beans	1.8 ± 2.1
Yoghurt	7.8 ± 11.5
Pork loin roast	0.8 ± 1.5
Deli corned beef (sliced)	3.2 ± 9.9
Canned soup	7.4 ± 8.1
Beef rib roast	1.1 ± 1.3
Canned salmon	2.6 ± 3.2
T-bone steak	1.3 ± 2.0
Wieners	2.2 ± 2.3

There was a great deal of variability in the data, with standard deviations exceeding the mean in many cases. Milk was served, on average, more than twice daily, and was the only food served more often than once a day. Other frequently served foods were cheddar cheese ($\bar{x}$=15.6 times per month) and peanut butter ($\bar{x}$=14.7 times per month). Among the least frequently served foods were lamb chops ($\bar{x}$=0.3 times per month) and roast leg of lamb ($\bar{x}$=0.01 times per month).

2. Mean Appropriateness Ratings and the Mean Frequency of Serving Each Food

The calculated correlation coefficients between the mean appropriateness ratings for each use occasion and the mean frequencies of serving the food are given in Table 20. Frequency of serving the foods was negatively correlated with the variables "Something a little different", "Makes a good, hearty meal", and "To cook in the oven". Frequency of serving the foods was positively correlated with the appropriateness variables "When you don't feel well", "Something good to keep on hand", "For breakfast" and "For between meal snacks".

The variables "Something a little different" and "Something good to keep on hand" deal with the issue of familiar versus seldom used foods, in that one suggests NOT everyday items, and the other suggests common, everyday foods. The variables "Makes a good, hearty meal" and "To cook in the oven" suggest old-fashioned foods that require long preparation times and result in large, heavy meals, both of which consumers prepare less often (Fidanza, 1989). These foods are very different from the foods appropriate "For between meal snacks" and "Easy to buy a size that suits me", which would likely

TABLE 20. Correlation Coefficients Between Mean Appropriateness Ratings and Mean Frequency of Serving Foods (n=101)

Appropriateness Variable	Correlation Coefficient with Mean Frequency of Serving Foods
A food teenagers like	0.25
To cook in a microwave oven	-0.12
An expensive (luxury) food	-0.31
Something a little different	**-0.47**
Freezes well	-0.36
Low in salt	0.08
Makes a good, hearty meal	**-0.40**
Good to barbecue	-0.28
It always turns out right	0.15
A food men like	-0.06
For a special occasion	-0.25
Easy to buy a size that suits me	**0.37**
Low in fat	0.04
You can get it ready quickly	0.31
To serve in bread or buns	-0.03
For Sunday dinner	-0.20
To cook in the oven	**-0.38**
When I want something I really like	0.04
When you don't feel like cooking	0.25
High in protein	0.02
When you don't feel well	**0.55**
For a bag lunch	0.25
Something good to keep on hand	**0.46**

Appropriateness Variable	Correlation Coefficient with Mean Frequency of Serving Foods
Doesn't contain additives	0.07
You can prepare it many ways	0.06
For breakfast	**0.51**
For an inexpensive meal	0.15
Not messy to eat	0.25
A food small children like	0.37
When you don't want a big meal	0.21
Good for your heart	0.21
Not much waste	0.30
Good leftovers	-0.05
For a summer meal	0.01
Something everybody likes	0.18
For a sit-down meal	-0.29
Doesn't dirty many dishes	0.32
As a food for company	-0.14
For a winter meal	-0.27
Doesn't spoil quickly	0.13
Easy to digest	0.34
Looks beautiful	-0.31
For between meal snacks	**0.51**
Low in calories	0.17
For when you eat alone	0.37
A food women like	0.18

Correlation coefficients that have been highlighted are significant at $p \leq 0.01$

be typical of today's lighter, more convenient items (Sills-Levy, 1989). The variables "When you don't feel well" and "For breakfast" suggest the comfort foods and cultural superfoods first described by Jelliffe (1967), and mentioned by Schutz et al. (1975b).

3. Individual Appropriateness Ratings and Respondents' Frequency of Serving Foods

While mean appropriateness ratings were not, for the most part, highly correlated with the frequency of serving the foods in the study, it was hypothesized that the individual assessments of appropriateness would be more strongly related to the individual's frequency of serving foods. The calculated correlation coefficients are not shown, but the levels of significance have been summarized in Tables 21-23.

None of the appropriateness variables correlated with the frequency of serving for more than a very few foods. Few of the correlation coefficients were significant at $p \leq 0.01$. Of those that were significant, many arose as anomalies in the data, and were associated with either very high (≥ 6.0) or very low (≤ 2.0) mean appropriateness scores, along with significant negative correlation coefficients for the former, and significant positive correlations in the latter. The appropriateness variable "Good to barbecue" was especially plagued with these significant, but confounding correlation coefficients.

4. Respondents' Frequency of Use Occasions and Their Frequency of Serving Foods

The correlation coefficients between the frequency with which use occasions occur for individuals and the frequency with which they serve the foods in the study for each food are not shown because, again, only a very few of the correlation coefficients were

TABLE 21. Correlation Coefficients Between Individual Appropriateness Ratings and Frequency of Serving Each Food Significant at $p \leq .01$. (For Appropriatenes Variables TEENS--SUNDAY)

FOOD	TEENS	MICRO	LUXRY	DIFRNT	FREEZES	LOSALT	HEARTY	BARBQ	TURN_OUT	MEN	SPECIAL	SUIT_SIZ	LO_FAT	QUICK	IN_BREAD	SUNDAY
Bacn	0	0	0	0	0	0	+	0	0	0	0	0	+	0	0	0
Bfribrs	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
Bfrmprs	0	0	0	0	0	0	0	0	0	0	−	0	0	0	0	0
Bfsirst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolog	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Chedchs	+	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Chesspr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chssl	0	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+
Chwhol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chxbr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0
Chxfin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cndben	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cndsal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cndsoup	+	0	0	0	0	+	0	0	0	+	0	0	0	0	0	0
Cntuna	0	0	0	0	+	0	0	+	0	0	0	0	0	−	−	0
Cottchs	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0
Crndbf	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egg	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0
Frsal	0	0	0	0	0	0	0	0	0	0	0	0	0	−	0	0
Fshfil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fshstk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fzentr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamdel	0	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0
Hmac	0	0	0	0	0	0	0	+	0	0	+	0	0	0	+	0
Hmbrgr	−	0	0	0	0	0	0	−	−	−	+	−	0	0	0	0

TABLE 21. (continued)

	TEENS	MICRO	LUXRY	DIFRNT	FREEZES	LOSALT	HEARTY	BARBQ	TURN_OUT	MEN	SPECIAL	SUIT_SIZ	LO_FAT	QUICK	IN_BREAD	SUNDAY
Lambchp	+	0	0	0	0	0	0	0	+	+	0	0	0	0	0	0
Liver	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0
Lmbleg	0	0	0	0	0	+	0	0	+	0	0	0	0	0	0	0
Milk	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Panc	0	+	+	0	0	0	0	+	0	0	+	0	0	0	+	0
Pasta	0	0	0	0	0	0	0	+	0	0	0	0	0	0	+	0
Piza	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Pkgmac	0	0	0	0	0	0	0	+	0	0	+	0	0	0	+	0
Pntbtr	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	+
Prkchp	+	0	0	0	+	0	0	+	0	0	0	0	0	0	0	+
Prkrst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prksaus	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0
Rsttrk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrimp	+	+	0	0	0	0	0	0	+	0	0	0	0	0	0	0
Smksaus	0	0	0	0	0	0	0	0	+	+	0	+	0	0	+	0
Spag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sprrib	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	0
Tbone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vlctlt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wien	0	0	0	0	+	0	0	0	0	+	0	0	0	0	0	0
Wlham	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0
Yogrt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 22. Correlation Coefficients Between Individual Appropriateness Ratings and Frequency of Serving Each Food Significant at $p \leq .01$. (For Appropriateness Variables IN_OVEN--LTL_WAST)

	IN_OVEN	I_LIKE	NO_WANT	HI_PRO	NOT_WEL	BAG_LUNC	ON_HAND	NO_ADTV	MNY_WAYS	BKFST	INEXPENS	NO_MESS	CHILD	SML_MEAL	HEART	LTL_WAST
Bacn	0	0	0	+	0	0	+	0	0	0	0	0	0	0	0	0
Bfribrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bfrmprs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bfsirst	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolog	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chedchs	+	+	0	0	0	0	0	0	+	0	0	0	+	0	0	0
Chesspr	0	+	0	0	0	0	+	0	0	+	0	0	0	0	0	0
Chssl	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0
Chwhol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0
Chxbr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chxfin	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Cndben	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cndsal	0	+	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Cndsoup	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cntuna	+	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Cottchs	0	+	+	0	0	0	0	0	0	0	0	+	0	0	0	0
Crndbf	0	0	0	−	0	0	0	0	0	0	0	0	0	0	0	0
Egg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frsal	0	0	0	0	+	0	+	0	0	0	+	0	0	0	0	0
Fshfil	0	0	+	−	0	+	+	+	0	+	0	0	+	0	0	0
Fshstk	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0
Fzentr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamdel	0	+	0	0	0	0	+	0	+	+	0	0	0	0	0	0
Hmac	0	0	0	0	0	0	0	0	0	0	−	0	0	0	0	0
Hmbrgr	0	0	0	0	0	0	0	0	−	+	−	0	−	−	0	−

TABLE 22. (continued)

	IN_OVEN	I_LIKE	NO_WANT	HI_PRO	NOT_WELL	BAG_LUNC	ON_HAND	NO_ADTV	MNY_WAYS	BKFST	INEXPENS	NO_MESS	CHILD	SML_MEAL	HEART	LTL_WAST
Lambchp	0	+	+	0	0	0	+	0	0	0	0	0	0	0	0	0
Liver	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lmbleg	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Milk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Panc	+	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0
Pasta	0	0	0	0	0	+	0	0	0	+	0	0	0	0	0	
Piza	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pkgmac	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pntbtr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prkchp	0	+	0	0	0	0	+	0	+	0	0	0	0	0	0	0
Prkrst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prksaus	0	+	0	0	0	0	+	0	0	0	0	0	0	0	0	0
Rsttrk		0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Shrimp	0	0	+	0	0	+	+	0	0	+	+	0	+	+	0	0
Smksaus	0	+	+	0	0	0	+	0	0	0	0	0	0	0	0	0
Spag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sprrib	0	+	+	0	0	0	+	0	0	0	0	0	0	0	0	0
Tbone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0
Vlctlt	0	0	0	0	0	0	+	0	0	0	0	0	0	+	0	0
Wien	0	+	+	0	0	0	+	0	0	0	+	0	0	0	0	0
Wlham	0	0	+	0	0	0	+	0	0	0	0	0	0	0	0	0
Yogrt	0	+	0	0	0	+	0	0	+	0	0	0	0	0	0	0

TABLE 23. Correlation Coefficients Between Individual Appropriateness Ratings and Frequency of Serving Each Food Significant at $p \leq 0.01$. (For Appropriateness Variables LEFTOVER__WOMEN)

	LEFTOVER	SUMMER	EVRYBODY	SIT_DOWN	NO_DISHS	COMPANY	WINTER	NO_SPOIL	DIGEST	BEAUTY	SNACKS	LO_CAL	EAT_LONE	WOMEN
Bacn	0	0	0	0	0	0	0	0	+	0	+	0	0	0
Bfribrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bfrmprs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bfsirst	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolog	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chedchs	0	0	0	0	0	0	0	0	0	0	0	0	0	+
Chesspr	0	0	0	0	0	0	0	0	0	0	0	0	0	+
Chssl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chwhol	0	0	0	0	0	0	0	0	0	0	0	0	+	0
Chxbr	0	0	0	0	0	0	0	0	0	0	0	0	+	0
Chfin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cndben	0	0	0	0	0	0	0	0	0	0	+	0	0	0
Cndsal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cndsoup	0	0	0	0	0	0	0	0	0	0	0	0	0	+
Cntuna	0	0	0	0	0	0	0	0	0	0	0	0	0	−
Cottchs	0	0	+	0	0	0	0	0	0	0	0	0	0	0
Crndbf	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frsal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fshfil	0	0	0	0	0	0	0	0	0	0	+	0	0	0
Fshstk	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fzentr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamdel	0	0	0	0	0	0	+	0	0	0	0	0	0	+
Hmac	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hmbrgr	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 23. (continued)

	LEFTOVER	SUMMER	EVRYBODY	SIT_DOWN	NO_DISHS	COMPANY	WINTER	NO_SPOIL	DIGEST	BEAUTY	SNACKS	LO_CAL	EAT_LONE	WOMEN
Lambchp	0	+	+	0	0	0	0	0	0	0	0	0	+	0
Liver	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lmbleg	0	+	+	0	0	0	0	0	0	0	0	0	0	+
Milk	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Panc	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pasta	0	0	_	0	0	0	0	0	0	0	0	0	0	0
Piza	+	0	+	+	0	0	0	0	0	0	0	0	+	0
Pkgmac	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pntbtr	0	0	0	0	0	0	0	0	0	0	0	0	0	+
Prkchp	0	0	+	0	0	0	0	0	+	0	0	0	0	+
Prkrst	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prksaus	0	0	+	0	0	0	0	+	0	+	0	0	0	0
Rsttrk	0	0	_	_	0	_	0	0	0	0	0	0	0	0
Shrimp	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Smksaus	0	0	+	0	0	0	0	0	0	0	0	0	0	0
Spag	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sprrib	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tbone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vlctlt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wien	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wlham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yogrt	0	0	0	0	0	0	0	0	0	0	0	0	0	0

significant at $p \leq 0.01$.

5. Respondents' Weighted Appropriateness Ratings (Individual Appropriateness Ratings times Respondents' Frequency of Use Occasions) and Their Frequency of Serving Foods

It was hypothesized that this value would be highly correlated with an individual's frequency of serving a food, as this calculated value represented both the perceived appropriateness for an occasion as well as how frequently that occasion occurred to the respondent. The correlation coefficients are not shown, as, again, very few of them were significant.

6. Factor Scores and Frequency of Serving Foods

The correlation coefficients between correlation coefficients and frequency of serving foods was low, as shown in Table 24, with only the correlation coefficient between the BREAKFAST FACTOR score and the frequency of serving significant at $p \leq 0.01$. Scores on three of the factors, Factor 3, Factor 2 and Factor 1 (the WELL LIKED, COMMON FOOD FACTOR, the HEALTHY, NUTRITIOUS FACTOR, and the SPECIAL OCCASION FACTOR were significant at $p \leq 0.10$. Regression analysis using SAS "rsquare" procedure (SAS, 1985b) of the frequency of serving foods as the dependent variable and the factor scores as the independent variables resulted in the the equation:

Fserve = 4.88 + 5.09(BREAKFAST FACTOR) + 2.58(WELL LIKED, COMMON FOOD FACTOR) + 2.42(HEALTHY, NUTRITIOUS FACTOR) - 2.63(SPECIAL

TABLE 3. Correlation Coefficients Between Factor Scores and Frequency of Serving Foods

FACTOR NUMBER	FACTOR NAME ASSIGNED	CORRELATION COEFF. WITH FSERVE
1	SPECIAL OCCASION	-0.26
2	HEALTHFUL, NUTRITIOUS	+O.24
3	WELL LIKED, COMMON FOOD	+0.24
4	SANDWICH/LIGHT LUNCH	+0.12
5	SUMMER	+0.04
6	VERSATILE	-0.02
7	MICROWAVE	-0.08
8	BREAKFAST	+0.51

OCCASION FACTOR, with an R-square of 0.48 and an adjusted R-square of 0.37.

Thus, neither the factors nor the use occasions proved extremely useful in determining the frequency with which foods in the study were served.

H. Demographic Characteristics

Several of the demographic characteristics of the survey sample are given in Table 25. Of the 101 respondents, 90 were female and only 11 male, as is to be expected, as the interviewers asked to speak with the person who prepared most of the meals in the household. Almost seventy-five percent of respondents were married or living with someone, whereas, of the others, approximately equal percentages were single (9.1%), separated or divorced (7.1%) or widowed (9.1%). Eighty-nine percent of the respondents had high school or more education. Thirty percent were high school graduates, thirty three percent had some schooling beyond high school, sixteen percent reported they were university graduates, and ten percent had had some post graduate training. When questioned about income, the highest percent of respondents of those who answered the question (42.5%) said they had a household income of $45,000 or more. Twenty-five percent of respondents answering the question said they had gross household incomes less than $30,000. Twenty-one of the 101 respondents either did not indicate their income or said they did not know what it was (Table 25).

TABLE 25. Characteristics of Respondents

	Count	Percent (of those responding)
Total	101	100
Sex		
Male	11	10.9
Female	90	89.1
Marital Status		
Single, never married	9	9.1
Currently married or living with someone	74	74.7
Separated or divorced	7	7.1
Widowed	9	9.1
No response	2	N/A
Education		
Less than high school graduate	11	11.0
High school graduate	30	30.0
Some schooling beyond high school	33	33.0
University graduate	16	16.0
Post graduate training	10	10.0
No response	1	N/A
Household's Gross Income		
Income less than $15,000	11	13.7
$15,000-$29,999	14	17.5
$30,000-$44,999	21	26.2
$45,000 or more	34	42.5
Don't know	5	N/A
No response	16	N/A

Twelve (11.9%) of the households were single persons living alone. Twenty-six (25.7%) had two members, 28 (27.7%) had three members, 26 (25.7%) had four members, and only 9 (8.9%) contained 5 or more. The mean age of respondents was 46 ± 15.5 years. The age of the oldest respondent was 91 years, and that of the youngest was 19 years. Of the households surveyed, 23 (22.7%) contained at least one person over 60 years of age and 20 (19.8%) contained at least one child younger than 5 years of age.

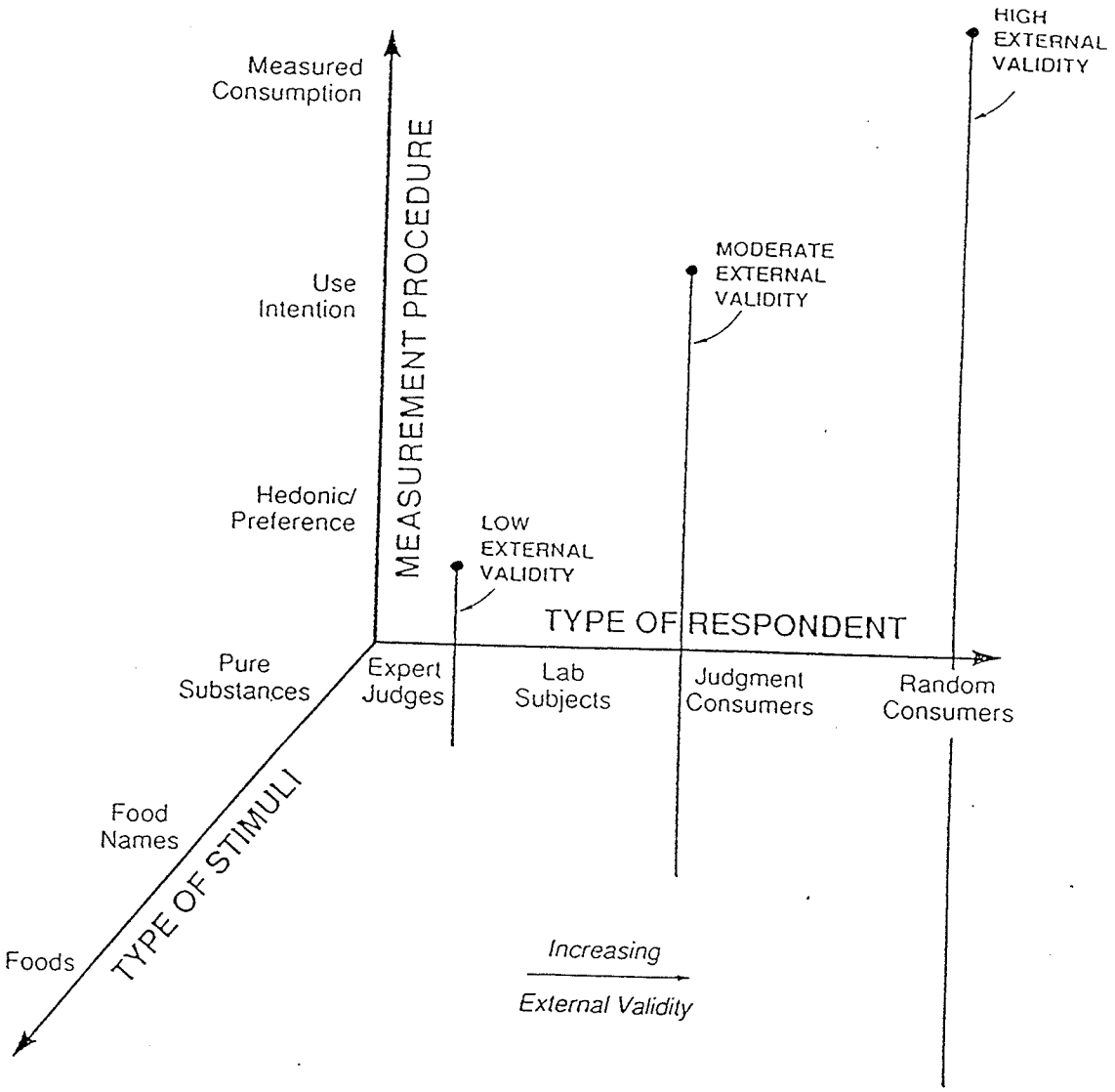
V. DISCUSSION

A. Validity of the Study

The purposes of the focus groups in this study were to generate information that would be helpful in designing a questionnaire, to provide background information on the protein-based food category of products and to generate hypotheses about this category of products. All three of these were seen by Bellenger et al. (1976) as appropriate uses of focus groups. There appeared to be synergism among group members, as described by some authors (Bellenger et al., 1976; Calder, 1977), as the discussions led to broadly-based lists of both products (Table 1) and uses occasions (Table 2). There was no attempt to project the data to the general population, as this would have been inappropriate (Bellenger et al., 1976; Calder, 1977). The size of the groups was as suggested in previous studies (Marlow, 1987; Templeton, 1976; Sampson, 1986; Levy, 1979). The groups all had experience preparing food, which was essential for the discussion (Goldman, 1962; Bellenger et al., 1976). As the groups met in their usual surroundings, the physical accommodations led to relaxed discussion (Goldman, 1962). Although a discussion guide was prepared before the focus groups took place (Peterson, 1975; Axelrod, 1976), the order in which the topics were discussed was flexible (Bellenger et al., 1979). The same moderator, the author, led all sessions.

Schutz (1988) used the diagram in Figure 19 as a method for evaluating the external validity of studies involving food stimuli related to food acceptance. In such

Figure 19. Three Dimensions On Which to Measure External Validity (Schutz, 1988)



studies, the three major dimensions are the type of respondent, the type of stimuli and the measurement procedure. Expert judges are at the lowest level of external validity in predicting food acceptance as measured by consumption, since their evaluations may differ considerably from consumer opinion. Better than the ratings of expert judges are trained panelists, a judgement sample of consumers. Best is a random group of consumers, as were used in the present study.

Pure substances, such as sugar or salt solutions would be at the lowest external validity level for the second dimension, the type of food stimuli. Better are the food names, and best are the foods, themselves. The present study used food names.

At the low end of the validity spectrum for the measurement procedure dimension are affect judgements, such as pleasantness or unpleasantness, hedonic scores, or paired preference tests. Better are action scales and appropriateness for use scales. The best way to evaluate food acceptance is to measure actual consumption of the product. This method, however, requires a captive group of subjects, such as residence students, and a method of weighing both the amount of food served and the amount of plate waste.

The current study examined the possibility of using appropriateness as a marketing tool, both to better understand consumer perceptions of protein-based foods, as well as to use these perceptions to attempt to predict the frequency of using the various foods in the study. Results will be discussed based on the postulated hypotheses along with the contribution that appropriate perceptions point to for food marketing.

The number of respondents necessary to give reliable results was calculated from results obtained in a pilot study, using a condensed, but similar questionnaire to that of

the consumer study. Based on calculations using rigorous restrictions, it was calculated that slightly more than 100 respondents were required. While the standard deviations for the main study might differ from those in the preliminary study, it was unlikely that they would be higher, as care was taken to avoid potentially confusing food/use combinations. Further evidence for the sufficiency of the sample size was found in the data collected. One hundred respondents is a larger group than was used in similar studies (Schutz et al., 1975b; Bruhn and Schutz, 1986; Schutz and Ortega, 1974; Myers and Tauber, 1977). It was apparent that sufficient respondents were used for this study, as the data from two randomly selected 50-member subgroups of these respondents resulted in essentially identical factor analyses, both in terms of the numbers of factors extracted by the minimum eigenvalue criterion, and in the identification of the factors. These results give even further credence to the earlier studies which used fewer respondents. It is not known how few respondents are essential to produce stable factor patterns from appropriateness data.

The use of a preliminary questionnaire similar to the one to be used in the main study was useful. Several wording improvements were made based on the results of the pilot study, in order to ensure that the wording would be understandable to consumers. Also in order to ensure consumers filled out the questionnaires properly, they were hand-delivered and explained.

There is evidence, too, for having confidence in the internal validity of this study. Correlation coefficients between consumer perceptions of cost and nutrient content of the foods were significant ($p \leq 0.01$), indicating that consumers had, in fact, been paying

attention to the questionnaire, and were actually evaluating the foods in the study.

1. Null Hypothesis 1

Ho: The mean consumer evaluations of appropriateness ratings of foods for the various use occasions are not linearly related, so should not be reduced from the original number of variables.

Outcome: Rejected

The correlation coefficients between the means of each pair of use occasions were calculated over the foods using SAS "corr"procedure (SAS, 1985a). Many were significantly ($p \leq 0.01$) correlated, indicating that the variables were not independent. For example, the correlation coefficient between "for a special occasion" and "for Sunday dinner" had a correlation coefficient of +0.97, indicating that if a food scored high on one of these variables, it also scored high on the other. Therefore, factor analysis, which is based on correlation coefficients among data, is a suitable method of analysis. Stewart (1987) states that if the correlation coefficients are low throughout a matrix, it indicates that the data set may not be suitable for factor analysis (Stewart, 1989) since the method is based on obtaining similar patterns of responses. A further indication of appropriate data for factor analysis is the presence of moderate to large communality estimates (Stewart, 1987). They were present in the current data set.

2. Null Hypothesis 2

Ho: No differences exist among consumer perceptions of appropriateness of the foods included in the study for the use occasions specified.

Outcome: Rejected

Table 3 shows the mean scores for the preliminary study, and indicates that the appropriateness scores for the different foods vary considerably. The mean scores for the foods in the main study were subjected to analysis of variance using SAS "anova" procedure (SAS, 1985), and, based on the F-value, these foods differed significantly from each other ($p \leq 0.01$) considerably in their appropriateness for different use occasions. These data are not reported in this document, because the purpose was to reduce this large number of variables. However, the significant differences in foods for different use occasions are is in agreement with all the previous studies on appropriateness (Schutz, 1988; Schutz et al., 1975b; Martens et al., 1987; Bruhn and Schutz, 1986; Schutz et al., 1977; Schutz and Ortega, 1974; Schutz and Phillips, 1976; Schutz et al., 1975a; Schutz, 1986; Schutz, 1980; Mullet, 1988).

The factor analysis was extremely successful in two respects. The eight factors extracted a great deal of the total variance in the data (89%). Furthermore, the factors were "clean", meaning that, for the most part, the variables loaded highly on one factor only (Table 6). Variables which load highly on more than one factor are troublesome, and are sometimes discarded (Perreault and Barksdale,1979; Stewart, 1987).

The use of the scores of the foods on the various factors made it simple to

compare foods, using the attributes of importance to consumers, as it was much more efficient to examine the foods on the eight extracted factors than to examine them on the original variables. Because each of the factors is independent of all the others, factor scores are excellent choices of data for further analyses, such as multiple regression, as they avoid the problem of multicollinearity (Harnett and Murphy, 1985).

Plotting the foods on the various factors (Figures 10-18) using SAS/GRAPH "gplot" procedure (SAS, 1985c) permitted rapid assessment of the strengths and weaknesses of the foods in the study, and careful examination of the plots suggests a number of possible marketing strategies for the various foods included in the study.

B. Consumer Perceptions of The Cost of Foods in the Study

1. Null Hypothesis 3

Ho: Consumer perception of "an expensive, (luxury) food" is not linearly related to its cost per serving.

Outcome: Rejected

The correlation coefficient between these two variables was +0.74, significant at $p \leq 0.01$, indicating that respondents were aware of the cost of the foods included in the study, even though they had not been asked to consider the calculated cost per serving. The mean score for the frozen entrée was an outlier, as it was much more expensive than perceived (Figure 1). Possibly it was not perceived as expensive because it was a complete meal, not just one item. Omitting this item from the data set increased

the correlation coefficient to +0.81.

2. Null Hypothesis 4

Ho: Consumer perception of a food "for an inexpensive meal" is not linearly related to its cost per serving.

Outcome: Rejected

The correlation coefficient between these two variables was -0.68, indicating again that respondents' were aware of cost. This appropriateness variable is negatively correlated because a high score indicates it is inexpensive, whereas a high score for "an expensive (luxury) food" indicates that it is expensive. Again, removing the frozen entrée improves the correlation coefficient, this time to -0.74.

C. Consumer Perceptions of Nutrient Content of Foods

1. Null Hypothesis 5

Ho: Consumer perception of a food "low in calories" is not linearly related to its energy content or to its fat content.

Outcome: Rejected

The correlation coefficient between the appropriateness variable "low in calories" and actual caloric content was -0.46, significant at $p \leq 0.01$. Caloric content was highly related to calculated fat content in the minds of consumers, as the correlation coefficient

between "low in calories" and calculated fat content was -0.66. For protein foods at least, consumers correctly associate perceived fat content with perceived energy content, as there was an extremely high correlation coefficient between scores for "low in fat" and "low in calories" (0.90). Armstrong et al. (1991) studied a variety of behaviors used by consumers to reduce their dietary fat intake. It appears that consumers take such steps as purchasing lean, whole muscle deli meats in order to reduce their fat intake, although Schutz et al. (1988) found that freshness and flavor were more important to consumers than the nutrients in these types of products.

2. Null Hypothesis 6

Ho: Consumer perception of a food "high in protein" is not linearly related to its protein content.

Outcome: Rejected

As the study used protein-based foods, it was expected that protein content would not vary substantially for foods, and that consumers would have difficulty assessing the actual protein content. This appeared not to be so, as the correlation coefficient between "high in protein" and calculated protein content was $+0.77$, significant at $p \leq .01$.

3. Null Hypothesis 7

Ho: Consumer perception of a food "low in fat" or a food "good for your heart" is not linearly related to its fat content.

Outcome: Rejected

Consumers were aware of fat contents of foods, as evidenced by the correlation coefficient between the appropriateness variable "low in fat" and calculated fat content of -0.66, significant at $p \leq 0.01$. Consumers related the appropriateness variable "good for your heart" with fat content somewhat, as correlation coefficient between these two variables was -0.56, significant at $p \leq 0.01$. Obviously consumers perceive other characteristics than fat content to affect coronary health as well.

4. Null Hypothesis 8

Ho: Consumer perception of a food "low in salt", or "doesn't contain additives" is not linearly related to its sodium content.

Outcome: Rejected

Consumers were also aware of salt content in the foods, as evidenced by the significant correlation coefficient ($r=-0.79$) between consumer perception of the appropriateness variable "low in salt" and the calculated per serving sodium content. The study included a high number of processed meats, which are known by consumers to be high in salt. The sodium content of unprocessed meats is low, making the task for respondents relatively simple. It is unlikely that consumers would have been as accurate in their assessment of sodium content if the study had not contained these items. Nevertheless, the study results show that consumers can perceive foods high in sodium. The role of processed meats is stressed, because consumers' perceptions of "contains no additives" is also strongly correlated ($r=-0.78$). Consumers perceive sodium content related to health, as the correlation coefficient between "good for your heart" and

calculated sodium content was -0.49.

The food industry is aware of consumer perceptions, and is developing lower fat, sodium, and energy-contributing foods. Altschul (1989) noted that in 1989, of the 7,866 new products featuring nutritional modifications into the U.S. in 1987, 432 featured low or reduced calories or other dietary claims, 159 featured lowered fat, 120 had decreased sugar and 55 featured added fiber.

D. Consumer Use of Protein Based Foods

1. Null Hypothesis 9

Ho: Each of the following variables a. through e. is not linearly related to the frequency of serving each of the foods included in the study:

a. its appropriateness for any use occasion

Outcome: Rejected for 8 appropriateness variables

Accepted for remaining 38 appropriateness variables

Frequency of use was highest for common, ordinary items (Table 20), that is those with low scores for "something a little different" and high scores for "something good to keep on hand". The appropriateness variables "for between meal snacks" and "easy to buy a size that suits me", suggesting light, convenient items were positively associated with high frequency of use, whereas items with high scores on "makes a good, hearty meal" and "to cook in the oven", that is more solid, stodgy items were associated

with low frequency of use. The variables "when you don't feel well" and "for breakfast" were also associated with high frequency of use. These findings are in agreement with other authors, who refer to the consumers' preferences for convenient, easy-to-prepare products (Robbins, 1988; Gerber, 1989; Davey, 1987; Johannsen et al., 1989).

It is to be expected that mean appropriateness scores would not correlate highly with frequency of use of the foods. Appropriateness scores are known to be similar for all respondents, that is have low standard deviations, whereas the frequency of serving foods is a more individual characteristic.

b. the frequency with which the use occasion occurs

Outcome: Accepted for most variables

Although it was hoped that there would be high correlation coefficients between some of these variables, it is was readily apparent that this was not so. None of the appropriateness variables had significant correlation coefficients with more than a few foods. The data in Tables 21-23 indicate how few of the correlation coefficients were significant. Of those that were significant, many arose as anomalies in the data, and were associated with either very high ($\geq$ 6.0) or very low ($\leq$ 2.0) mean appropriateness scores, along with significant negative correlation coefficients for the former, and significant positive correlations in the latter. Thus, for example, hamburger received a high score for "Teens" ($\bar{x}$=6.8), but frequency of serving was negatively correlated with this variable (Table 20). The appropriateness scores were obviously clustered at the top of the scale, with a few outliers who thought hamburger was inappropriate for teens.

The "frequency of serving" hamburger was low for these outliers, so a significant negative correlation coefficient resulted. Conversely, canned tuna received a low score for "freezes well" ($\bar{x}=1.3$), indicating that appropriateness scores were clustered near the low end of the scale, with a few outliers who thought that tuna "freezes well". The frequency of serving was high for these outliers, so a significant positive correlation coefficient resulted (Table 20). The appropriateness variable "Good to barbecue" was especially plagued with these significant, but confounding correlation coefficients.

c. a weighted appropriateness score (appropriateness for a specific use occasion x the frequency with which the use occasion occurs).

Outcome: Accepted for most variables

It had been hypothesized that this variable would correlate with frequency of serving food, as it assessed not only appropriateness, but also the frequency with which the occasion occurred for the individual. It was thought that consumers would serve a food frequently if it was highly appropriate for a given occasion, and if that occasion occurred frequently. This did not happen. Schutz (1988), citing to his own work and that of other authors (Lau et al., 1979; Pilgrim and Kamen, 1963; Kamenetzky et al., 1957; Sidel et al., 1979), pointed out that, in many instances, preference is a poor predictor of food acceptance as measured by consumption. It would appear that most of the information contained in this variable is already contained in the appropriateness variables themselves, so weighting did not improve their ability to predict use.

d. its scores on any factor

Outcome: Rejected for 4 factors

Accepted for 4 factors

The correlation coefficients between frequency of serving foods was highly ($p \leq 0.01$) significantly correlated with only one factor, Factor 8, the BREAKFAST FACTOR. Three of the factors had moderate correlations (significant at $p \leq 0.10$; the WELL LIKED, COMMON FOOD FACTOR, the HEALTHY, NUTRITIOUS FACTOR, and the SPECIAL OCCASION FACTOR. Regression analysis of these scores resulted in the equation:

Fserve= 4.88 + 5.09 (BREAKFAST FACTOR) + 2.58(WELL LIKED, COMMON FOOD FACTOR +2.42(HEALTHY, NUTRITIOUS FACTOR - 2.63 (SPECIAL OCCASION FACTOR), with an R-square of 0.48 and an adjusted R-square of 0.37.

It is known that breakfast is a "set" meal for most people, with little variation from day to day (Kinder et al., 1984), so food appropriate for this occasion would be consumed often.

The WELL LIKED, COMMON FOOD FACTOR is the factor most closely resembling hedonic ratings, as it was associated with variables which contained the word the concept of being liked (Table 10). There is evidence that preference influences consumption (Meiselman, 1988), but the relationship is not one of simple "cause and effect" (Fishbein and Ajzen, 1975; Shepherd, 1988; Lau et al., 1979; Pilgrim and Kamen, 1963; Sidel et al., 1972; Abernethy, 1984).

The HEALTHY, NUTRITIOUS FACTOR is closely related to the food perceptions and characteristics studied by a number of authors (Shepherd, 1988; Grotowski and Sims, 1978; Eppright et al., 1970; Perron and Endres, 1985; Werblow et al., 1978; Shepherd and Stockley, 1985; Sapp, 1991). Like hedonic ratings, nutritional characteristics have a rather "fuzzy" relationship with consumption. Sapp (1991) found that nutritional knowledge was related to neither behavioral intention nor attitudes in a study of beef eating. Shepherd (1988) believes that perceived nutritional characteristics may work in only a very general way, through a person's beliefs and affects.

The negative correlation coefficient between the frequency of serving foods and the SPECIAL OCCASION FACTOR may indicate the influence of habit on food consumption. While not usually evaluated, habit is known to play a major role in food consumption (Shepherd, 1988).

Thus frequency of serving these protein-based foods is related most strongly related with only four types of consumer perceptions. A marketer would be advised to consider each of these factors when attempting to increase the consumption of his product. Thus none of the appropriateness variables or factors was completely successful in explaining the frequency with which the foods in the study were served. Simonson (1990) offered one explanation. His explanation was that consumers must predict their preference (what they choose to eat) at the time of consumption (his term for the time when the food would be purchased). That is, the decision of what to eat is separated in time from the decision to purchase. This is a complicated decision for the

consumer, especially if there are no superior alternatives. The decision is easier if the item is to be eaten immediately: in this instance the item most preferred would be chosen. This is in agreement with McAlister (1982) who states "If consumers make multiple choices that will be consumed over time, preferences are a rather weak predictor of choice, even when satiation does not influence the utilities of the alternatives". Schutz (1988) also described the difficulties of understanding consumer preference.

The frequency of serving food data present difficulties, also. The most frequently served food in the study was milk, which was served more than twice per day. All other foods were served less frequently than once per day. Thus milk is obviously an outlier, and a number of methods, including excluding milk or expressing the frequency of serving data as logarithms would likely improve the relationship. However, the major relationships are evident, even with the problems existing in these data.

d. cost per serving of the food

Outcome: Accepted

Although respondents were aware of the cost of foods in the study, the cost per serving was only weakly negatively correlated with the frequency of serving the various foods ($r=-0.27$). This correlation coefficient would explain only approximately 7% of the frequency of serving the foods in the study.

e. perception of its nutrient content

Consumers have been making changes in their diets, partly due to their concerns

about health (Hunt and Robbins, 1989). Nevertheless, the frequency of serving the foods in this study was not highly correlated with any nutritional characteristics of the foods, although there was a correlation between the HEALTHY, NUTRITIOUS FACTOR and frequency of serving the foods. This adds credence to Shepherd's hypothesis that perceived nutritional benefits or harms act only through a person's beliefs and affects to influence food consumption.

E. Characteristics of Respondents

The demographic characteristics of the respondents were collected only to assess whether or not the survey sample compared reasonably with the Winnipeg and Canadian populations, although the demographics of a population can have profound effects on the types of foods purchased by consumers (Johannsen et al., 1989). The sample contained a high proportion of females (Table 24), understandable when the information is related to food preparation in the home. Approximately 75% of respondents in this study were married or living with someone, while approximately a total of 25% were single, separated, divorced or widowed. The average household size in this study was 2.9 persons, close to the national average. According to Statistics Canada (1986), the Canadian average household size was 2.8 persons in 1986. The number of single-person households in the study was approximately 12%, lower than national figures. In 1986, 21% of all Canadian households were single-person ones. Single Canadians, too, have characteristic food-spending patterns (Robbins, 1988).

The gross incomes of the households in the study is shown in Table 24. The proportion of households reporting low incomes is significant below Manitoba figures, and those reporting high incomes significantly above Canadian figures (The calculated chi-square value with 3 degrees of freedom was 17.88), when compared with Statistics Canada Figures. Of the respondents reporting their income level, only 13.7% reported incomes of less than $15,000, whereas Statistics Canada (1986) states that 20.7% of households have incomes this low. Similarly, only 17.5% of respondents in the study said they had income levels between $15,000 and $29,999, whereas Statistics Canada numbers show 29.2% of the population with this income level. Conversely, 26.2% and 42.5% of respondents said their income levels were between $30,000 and $44,999 or $45,000 or more, while Statistics Canada indicates that 24.2% and 26.0% have incomes in these categories. In this study, 21% of households did not report their income level, a fact which may have distorted the figures. The mean age of the survey sample, 46 years, was above the Canadian mean (31.6 years), as only persons who prepared food were interviewed. The youngest respondent was 19 years of age. Twelve of the respondents (12.2% of those who responded to this question) were over 65, compared with 10% of the Canadian population, but, again, no children were included in the survey sample. It is known that a population containing more elderly Canadians in the future will require different foods from what we now consume (Davey, 1987; Johannsen, 1989; and Gerber, 1989). Only 20% of the survey sample had children under the age of 5 in the household.

VI. CONCLUSIONS

The study was extremely successful in some respects, in that it was able to use information obtained using the focus group method from consumers, design a questionnaire based on those results, pre-test the questionnaire and obtain sufficient information to estimate the required number of respondents for the final study, motivate approximately 90% of respondents to complete and return what was a large and tedious questionnaire, analyze the data in such a way as to understand the differences in consumer perceptions of protein-based foods for a wide variety of use occasions, and estimate consumer knowledge with respect to cost and nutritional characteristics of the foods in the study. It was hoped that appropriateness ratings would be a good tool for predicting frequency of serving the foods, but this was not the case.

1. The market of products evaluated in this study was broad, and included both animal and plant products. The focus groups also indicated a wide variety of use occasions when protein-based foods could be served.

2. Consumers can distinguish between the appropriateness of these foods for a wide variety of use occasions. Examination of the mean appropriateness scores for various use occasions provides the marketer with a method of understanding consumer perceptions of foods on many dimensions. Marketing strategy options could then include, for example, reinforcing already held perceptions of appropriateness, adding new perceptions to those already existing, modifying products to make them more appropriate

for other use occasions, or developing products for markets where an opportunity exists.

3. It is possible to identify competing products using factor analysis of the correlation coefficients among mean scores of the appropriateness variables. The scores on these factors for individual foods are then suitable values for further analyses, such as multiple regression.

4. It is the exception rather than the rule (for only 8 of 46 variables) to be able to predict frequency of use from appropriateness ratings.

5. Consumers are quite knowledgeable concerning the sodium, energy, fat, and protein levels of protein-based foods.

6. Of the eight factors extracted from these data, those most strongly related to frequency of serving were the BREAKFAST FACTOR, the WELL LIKED, COMMON FOOD FACTOR, the HEALTHY NUTRITIOUS FACTOR, and the SPECIAL OCCASION FACTOR. The calculated multiple regression equation was:

Fserve = 4.88 + 5.09(BREAKFAST FACTOR) + 2.58(WELL LIKED, COMMON FOOD FACTOR) + 2.42(HEALTHY, NUTRITIOUS FACTOR) - 2.63(SPECIAL OCCASION FACTOR).

There are several possible food marketing implications to the study. Consumers use relatively few dimensions when evaluating protein-based foods.

In this study, only eight factors were identified, and one can determine the strengths and weaknesses of the foods on these dimensions. When perception differs markedly from fact, as in the case of the fat content of some pork items, it is to be expected that changing consumer opinions will be a long and expensive process.

If marketers are looking for less expensive ways to promote their products, it would be advisable to emphasize consumer perceptions that already exist. Most products have characteristics in which they excel, and promotional efforts based on these perceptions should be successful. Additionally, new characteristics could be stressed as, for example, yoghurt and cottage cheese. Already considered nutritious, a marketer might choose to stress their hedonic characteristics.

Of the factors identified as affecting frequency of serving, the one most with the highest regression coefficient was the BREAKFAST FACTOR. Stressing the suitability of foods for this meal, or developing products designed for breakfast use, might result in increased consumption of these products. However, breakfast is known to be the meal with the least variety desired by consumers (Kinder et al., 1984), so new products aimed at this target may be slow to be accepted.

The marketer is interested in formulating products that will be served frequently by the consumer. Based on the results of this study, it would appear that only few characteristics impact substantially on frequency of serving the products. One such characteristic is convenience. This study reinforces what many food companies realize; that marketing products that store well, that come in appropriate sizes for the consumer, and that can be readily prepared for such occasions as snacks or breakfast are the types of products likely to be served frequently. Conversely, those products which require long preparation, even though they may be well liked, will be served less often. Also of interest is the fact that the types of foods that are "comfort foods", that are served for

breakfast or when not feeling well, are served frequently.

A useful follow-up study would be to use the underlying factors identified by the factor analysis to obtain profiles of a more extensive sample of foods from a larger, more diverse sample of respondents. It was necessary to hand-deliver the questionnaire in the current study because it was so long and complicated for respondents, thus limiting possible sample size. A mail survey would be appropriate for a condensed group of variables.

The problems apparent in the distribution of the frequency of serving data suggest that the data should be further examined after correcting for the distribution difficulties. Milk is obviously an outlier, and should be removed. Transforming the frequency of serving data to log data should result in clarifying the relationships.

The respondents in the study appeared to be knowledgeable of the nutrient content of the protein-based foods in the study. It is not known if this is a result of the characteristics of the respondents or of the products. Would respondents appear as knowledgeable if a broader-based group of foods were used? How would nutrition professionals perceive the appropriateness of the foods in the study?

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VIII. APPENDICES

Appendix 1. Discussion Guide For Focus Groups

INTRODUCE SELF

INTRODUCE PROJECT

That it is my thesis topic
That this is the first step
That I am trying to get a feel for the area
Discussion will include how and why consumers view and use different foods
That there are no right or wrong answers

SET GUIDELINES FOR THE SESSION

A tape recorder will be used, because I can't listen and write at the same time
Speak up so tape will pick up your comments
Have only one person at a time speaking
Feel free to disagree-different opinions are valuable

HAVE GROUP INTRODUCE THEMSELVES AND DESCRIBE THEIR FAMILIES

How many children, ages?
Do children come home for lunch?
Does husband come home for lunch?
How many people for most meals?
Favourite types of meals
Least favourite types of meals
Most challenging meals

OPENING QUESTION:

"If you found out that your supermarket was going to streamline the variety of meat, poultry and fish products available, which items would you miss the most? Why?"

ADDITIONAL QUESTIONS:

What do you use these products for? In what sorts of dishes?

Other product-related questions:

What would you substitute if your favourites were not available?
Are there any products you especially like, but do not buy?
What are some other products you often use? Why?
Personal favourites?
Family favourites?

Questions related to substitutes for meats:

If, for some reason, you had to serve meat at fewer meals, how much would it affect the meals you serve?

Could you easily find substitutes? What?

What sort of occasions would it be relatively easy to substitute other products for meats?

When would it be difficult?

When would it be impossible?

Are there meats you associate with:

Specific occasions
Specific people
Specific places
Specific times (of day/week/month/year)
Specific reasons to eat it

What other occasions would you use these products for?

WRAP-UP

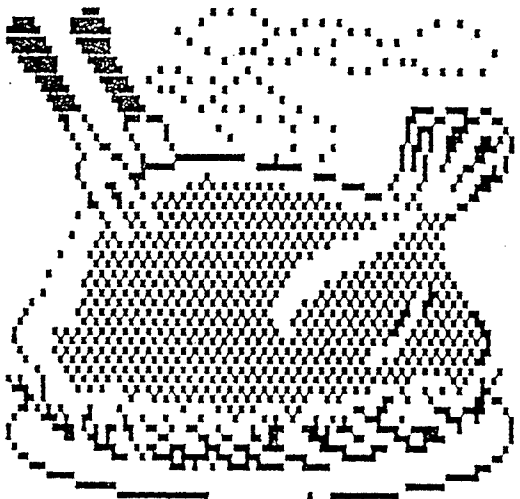
"You've all been sitting here listening as I have. If you had the assignment of summarizing what the group as a whole felt about meats and their substitutes, what do you think you would say?"

-THANK THE GROUP

Ask if they would like a copy of results.

Appendix 2. Consumer Questionnaire, Main Study

FOOD APPROPRIATENESS AND USE
A SURVEY OF CONSUMER OPINIONS



Karen Shaykewich
Food Science Department
University of Manitoba
Winnipeg, MB. R3T 2N2
March, 1990

March, 1990

Dear Consumer,

My name is Karen Shaykewich and I am in the Food Science Department, University of Manitoba. I am interested in how consumers view different foods, and have designed the following questionnaire to see how people view a variety of food products.

THANK YOU for agreeing to give me your opinions. I hope you will find the questions interesting to answer. Your household is one of a small number of Winnipeg families that has been selected at random and invited to participate in this study. Welcome aboard!

Food is a subject that concerns us all. We choose to eat the items we do eat for many reasons, including our cultural backgrounds, how hungry we are, what we ate as a child, and personal preferences. One of the reasons we choose a particular food at a given time is that various foods are considered to be more suitable for some occasions than others. For example, many people would consider corn flakes as being very appropriate for breakfast, but not appropriate for the main meal of the day. Similarly, celery sticks are more appropriate than ice cream sundaes for someone who is trying to lose weight.

The first part of the following questionnaire asks how you feel about the appropriateness of various foods for different occasions. There are no right or wrong answers. What I am interested in is how YOU feel about these foods. The remaining parts of the questionnaire ask about foods you ACTUALLY use, and how often the various use occasions occur for YOU and your family. You are also asked a few questions about your family.

The questionnaire is fairly long, so to avoid fatigue, please fill it out in several sessions, rather than trying to fill it all out at once. Although the questionnaire has already been explained to you, I have included a few reminders I hope you will find helpful. If you have any questions while you are filling out the questionnaire, feel free to telephone me at during office hours, or at if I am not in the office. PLEASE MAIL THE QUESTIONNAIRE IN THE STAMPED, ADDRESSED ENVELOPE WITHIN ONE WEEK.

THANK YOU AGAIN FOR YOUR COOPERATION. IT IS VERY MUCH APPRECIATED.

Yours sincerely,

Karen Shaykewich
Food Science Department
University of Manitoba
Winnipeg, MB
R3T 2N2

INSTRUCTIONS

SECTION 1. APPROPRIATENESS RATINGS

Foods differ in their characteristics, and will vary in how appropriate they are for specific uses or occasions. Some of these uses/occasions are related to times of the day or characteristics of the product, whereas others are related to people who might choose to eat the food. Across the top of the page are listed a number of foods, and down the left-hand side are listed some food characteristics, some possible occasions when various foods might be used, and some people who might use the food.

Please rate how appropriate YOU think each food is for each use. To do this, start with the first food listed (lamb chops), and rate its appropriateness for each use by writing a number from 1 to 7 in each of the boxes below the food. A rating of 1 indicates that the food is "never appropriate" for that use, and a rating of 7 indicates that the food is "always appropriate" for that use. Use any whole number between 1 and 7. (That is, use 4, NOT 4.5). The higher the number, the more appropriate the food is for that occasion. DO NOT USE 0!

Always work DOWN the column, rating the food for ALL uses/occasions before going on to the next product. It is important to rate all the foods, WHETHER OR NOT YOU USE THEM YOURSELF. If you are completely unfamiliar with the item, circle the food name and rate it anyway. Answer carefully, but remember there are no right or wrong answers.

SECTION 2. FREQUENCY OF SERVING VARIOUS FOODS

This section asks you to estimate how often YOU serve the various food items listed. In this section, be sure to use only ONE space for each food item. Use the column that is most appropriate for your situation. See the example on the questionnaire. There are no right or wrong answers, but please be sure you evaluate each food listed. There is a space at the right hand side to indicate if you rarely or never use the food.

SECTION 3. FREQUENCY OF USE OCCASIONS

This section asks you how often the various occasions occur in your life. Some may occur fairly often, whereas others may not occur at all. Be sure to use only ONE space for each occasion. See the example on the questionnaire. There are no right or wrong answers, but please be sure you evaluate each of the occasions listed, even if it never occurs in your life.

SECTION 4. ABOUT YOU AND YOUR FAMILY

This section asks you some details about you and your family. The information you and other consumers provide will be used ONLY to classify the other information. You may be assured the information given will be kept confidential. If you are uncomfortable answering any question, just leave it out.

SECTION 5. YOUR NAME AND ADDRESS

There is space in this section to indicate your name, address and telephone number. After your questionnaire has been checked for completeness, this information will be used to send you a cheque for $25.00 as a token of thanks for your participation.

There is also a place to indicate if you would like to be sent a copy of the results.

SECTION 1. APPROPRIATENESS RATINGS SCALE: 1 = Never appropriate to 7 = Always appropriate

	Lamb chops	Smoked sausage (eg Farmer sausage)	Roast turkey	Fish sticks	Chicken breasts	Pasta	Ham (whole)	Chicken fingers	Cottage cheese	Packaged macaroni dinner (eg Kraft Dinner)	Chicken (whole)	Cheese spread (eg Cheez Whiz)	Canned tuna
01. A food teenagers like													
02. To cook in a microwave oven													
03. An expensive (luxury) food													
04. Something a little different													
05. Freezes well													
06. Low in salt													
07. Makes a good, hearty, meal													
08. Good to barbecue													
09. It always turns out right													
10. A food men like													
11. For a special occasion													
12. Easy to buy a size that suits me													
13. Low in fat													
14. You can get it ready quickly													
15. To serve in bread or buns													
16. For Sunday dinner													
17. To cook in the oven													
18. When I want something I really like													
19. When you don't feel like cooking													
20. High in protein													
21. When you don't feel well													
22. For a bag lunch													
23. Something good to keep on hand													
24. Doesn't contain additives													
25. You can prepare it many ways													
26. For breakfast													
27. For an inexpensive meal													
28. Not messy to eat													
29. A food small children like													
30. When you don't want a big meal													
31. Good for your heart													
32. Not much waste													
33. Good leftovers													
34. For a summer meal													
35. Something everybody likes													
36. For a sit-down meal													
37. Doesn't dirty many dishes													
38. As a food for company													
39. For a winter meal													
40. Doesn't spoil quickly													
41. Easy to digest													
42. Looks beautiful													
43. For between meal snacks													
44. Low in calories													
45. For when you eat alone													
46. A food women like													

SECTION 1. APPROPRIATENESS RATINGS SCALE: 1 = Never appropriate to 7 = Always appropriate

	Pork sausages	Fish fillets or steaks	Leg of lamb	Cheddar cheese	Sirloin steak	Pancakes	Fresh or frozen salmon	Bologna	Deli ham (sliced)	Spare ribs	Bacon	Hamburger
01. A food teenagers like												
02. To cook in a microwave oven												
03. An expensive (luxury) food												
04. Something a little different												
05. Freezes well												
06. Low in salt												
07. Makes a good, hearty, meal												
08. Good to barbecue												
09. It always turns out right												
10. A food men like												
11. For a special occasion												
12. Easy to buy a size that suits me												
13. Low in fat												
14. You can get it ready quickly												
15. To serve in bread or buns												
16. For Sunday dinner												
17. To cook in the oven												
18. When I want something I really like												
19. When you don't feel like cooking												
20. High in protein												
21. When you don't feel well												
22. For a bag lunch												
23. Something good to keep on hand												
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25. You can prepare it many ways												
26. For breakfast												
27. For an inexpensive meal												
28. Not messy to eat												
29. A food small children like												
30. When you don't want a big meal												
31. Good for your heart												
32. Not much waste												
33. Good leftovers												
34. For a summer meal												
35. Something everybody likes												
36. For a sit-down meal												
37. Doesn't dirty many dishes												
38. As a food for company												
39. For a winter meal												
40. Doesn't spoil quickly												
41. Easy to digest												
42. Looks beautiful												
43. For between meal snacks												
44. Low in calories												
45. For when you eat alone												
46. A food women like												

SECTION 1. APPROPRIATENESS RATINGS SCALE: 1 = Never appropriate to 7 = Always appropriate

	Processed cheese slices	Peanut butter	Pizza	Veal cutlets	Beef rump roast	Eggs	Macaroni and cheese (homemade)	Pork chops	Spaghetti	Milk	Shrimp
01. A food teenagers like											
02. To cook in a microwave oven											
03. An expensive (luxury) food											
04. Something a little different											
05. Freezes well											
06. Low in salt											
07. Makes a good, hearty, meal											
08. Good to barbecue											
09. It always turns out right											
10. A food men like											
11. For a special occasion											
12. Easy to buy a size that suits me											
13. Low in fat											
14. You can get it ready quickly											
15. To serve in bread or buns											
16. For Sunday dinner											
17. To cook in the oven											
18. When I want something I really like											
19. When you don't feel like cooking											
20. High in protein											
21. When you don't feel well											
22. For a bag lunch											
23. Something good to keep on hand											
24. Doesn't contain additives											
25. You can prepare it many ways											
26. For breakfast											
27. For an inexpensive meal											
28. Not messy to eat											
29. A food small children like											
30. When you don't want a big meal											
31. Good for your heart											
32. Not much waste											
33. Good leftovers											
34. For a summer meal											
35. Something everybody likes											
36. For a sit-down meal											
37. Doesn't dirty many dishes											
38. As a food for company											
39. For a winter meal											
40. Doesn't spoil quickly											
41. Easy to digest											
42. Looks beautiful											
43. For between meal snacks											
44. Low in calories											
45. For when you eat alone											
46. A food women like											

SECTION 1. APPROPRIATENESS RATINGS SCALE: 1 = Never appropriate to 7 = Always appropriate

	Liver	Frozen entrees	Canned baked beans	Yoghurt	Pork loin roast	Deli corned beef (sliced)	Canned soup	Beef rib roast	Canned salmon	T-bone steak	Wieners
01. A food teenagers like											
02. To cook in a microwave oven											
03. An expensive (luxury) food											
04. Something a little different											
05. Freezes well											
06. Low in salt											
07. Makes a good, hearty, meal											
08. Good to barbecue											
09. It always turns out right											
10. A food men like											
11. For a special occasion											
12. Easy to buy a size that suits me											
13. Low in fat											
14. You can get it ready quickly											
15. To serve in bread or buns											
16. For Sunday dinner											
17. To cook in the oven											
18. When I want something I *really* like											
19. When you don't feel like cooking											
20. High in protein											
21. When you don't feel well											
22. For a bag lunch											
23. Something good to keep on hand											
24. Doesn't contain additives											
25. You can prepare it many ways											
26. For breakfast											
27. For an inexpensive meal											
28. Not messy to eat											
29. A food small children like											
30. When you don't want a big meal											
31. Good for your heart											
32. Not much waste											
33. Good leftovers											
34. For a summer meal											
35. Something everybody likes											
36. For a sit-down meal											
37. Doesn't dirty many dishes											
38. As a food for company											
39. For a winter meal											
40. Doesn't spoil quickly											
41. Easy to digest											
42. Looks beautiful											
43. For between meal snacks											
44. Low in calories											
45. For when you eat alone											
46. A food women like											

SECTION 2. FREQUENCY OF SERVING VARIOUS FOODS

Please indicate how often you normally serve the following food items. Use whichever column is most appropriate for your situation for each food, but be sure to use ONLY ONE SPACE for each food. If, for example, you serve potatoes about four times a week, wild rice about twice a year, and orange juice once a day, the easiest way to fill out the questionnaire is shown in the following example. Put a check mark in the last column if you rarely or never serve the food.

	How many times a DAY or	How many times a WEEK or	How many times a MONTH or	How many times a YEAR or	Rarely or Never
Potatoes		4			
Wild rice				2	
Orange juice	1				
Lamb chops					
Smoked sausage (eg Farmer sausage)					
Roast turkey					
Fish sticks					
Chicken breasts					
Pasta					
Ham (whole)					
Chicken fingers					
Cottage cheese					
Packaged macaroni dinner (eg Kraft Dinner)					
Chicken (whole)					
Cheese spread (eg Cheez Whiz)					
Canned tuna					
Pork sausages					
Fish fillets or steaks					
Leg of lamb					
Cheddar cheese					
Sirloin steak					
Pancakes					
Fresh or frozen salmon					
Bologna					
Deli ham (sliced)					
Spare ribs					
Bacon					
Hamburger					

SECTION 2. FREQUENCY OF SERVING VARIOUS FOODS (continued)

Please indicate how often you normally serve the following food items. Use whichever column is most appropriate for your situation for each food, but be sure to use ONLY ONE SPACE for each food. If, for example, you serve potatoes about four times a week, wild rice about twice a year, and orange juice once a day, the easiest way to fill out the questionnaire is shown in the following example. Put a check mark in the last column if you rarely or never serve the food.

	How many times a DAY or	How many times a WEEK or	How many times a MONTH or	How many times a YEAR or	Rarely or Never
Processed cheese slices					
Peanut butter					
Pizza					
Veal cutlets					
Beef rump roast					
Eggs					
Macaroni and cheese (homemade)					
Pork chops					
Spaghetti					
Milk					
Shrimp					
Liver					
Frozen entrees					
Canned baked beans					
Yoghurt					
Pork loin roast					
Deli corned beef (sliced)					
Canned soup					
Beef rib roast					
Canned salmon					
T-bone steak					
Wieners					

SECTION 3. FREQUENCY OF USE OCCASIONS

Please indicate how often the following occasions happen to you. For each occasion, use the column that is most appropriate for your situation, but be sure to fill in ONLY ONE SPACE for each use occasion. If, for example,you eat in a restaurant about three times a month, make Christmas dinner every year, and drink orange juice twice a day, you would answer the questions as shown in the example. Put a check mark in the last column if the occasion rarely or never happens to you.

	How many times a DAY or	How many times a WEEK or	How many times a MONTH or	How many times a YEAR or	Rarely or Never
You eat in a restaurant			3		
You make Christmas dinner				1	
You drink orange juice	2				
You prepare food for teenagers					
You cook in a microwave oven					
You make an expensive (luxury) food					
You want something a little different					
You want something that freezes well					
You want a food low in salt					
You cook a good, hearty meal					
You cook on a barbecue					
You want something that will turn out right					
You prepare food a man will be eating					
You make food for a special occasion					
You want food low in fat					
You want food you can get ready quickly					
You serve products in bread or buns					
You serve Sunday dinner					
You cook food in an oven					
You cook something you really like					
You don't feel like cooking					
You want a food high in protein					
You don't feel well					

SECTION 3. FREQUENCY OF USE OCCASIONS (continued)

Please indicate how often the following occasions happen to you. For each occasion, use the column that is most appropriate for your situation, but be sure to fill in ONLY ONE SPACE for each use occasion. If, for example,you eat in a restaurant about three times a month, make Christmas dinner every year, and drink orange juice twice a day, you would answer the questions as shown in the example. Put a check mark in the last column if the occasion rarely or never happens to you.

	How many times a DAY or	How many times a WEEK or	How many times a MONTH or	How many times a YEAR or	Rarely or Never
You prepare a bag lunch					
You want food without additives					
You serve breakfast					
You want an inexpensive meal					
You want something not messy to eat					
You prepare food for small children					
You don't want a big meal					
You want food good for your heart					
You want food without much waste					
You plan to use leftovers					
You want something everybody likes					
You serve a sit-down meal					
You don't want many dirty dishes					
You serve food to company					
You want a food that is easy to digest.					
You want a food that looks beautiful					
You serve between-meal snacks					
You want food low in calories					
You eat alone					
You prepare food a woman will be eating					

SECTION 4. ABOUT YOU AND YOUR FAMILY

This information will be used only to classify the answers given by you and others. If, however, you come to any question you prefer not to answer, simply skip it and go on to the next question. Be assured that the information will be held in the strictest confidence.

1. What is your gender? (Circle one)

   1. Male 2. Female

2. What was your age on your last birthday? ____ years

3. What is your marital status? (Circle one)

   1. Single, never married
   2. Currently married or living with someone
   3. Separated or divorced
   4. Widowed

4. INCLUDING YOURSELF, how many people are in your household? ____

5. How many children YOUNGER than 5 years old are in your household? ____

6. How many children BETWEEN 5 and 15 years of age? ____

7. INCLUDING YOURSELF, how many people 16 years or OLDER are in your household? ____

8. INCLUDING YOURSELF, how may people OVER 60 years of age are in your household? ____

9. What is the highest level of schooling you have completed? (Circle one)

   1. Less than high school graduate
   2. High school graduate
   3. Some schooling beyond high school
   4. University graduate
   5. Post graduate training

10. What was your household's gross (before taxes) 1989 annual income? (Circle one)

    1. Less than $15,000
    2. $15,000 - $29,999
    3. $30,000 - $44,999
    4. $45,000 or more
    5. Don't know

SECTION 5. YOUR NAME AND ADDRESS

Please complete the following section so we can send you a cheque for $25.00 as a token of thanks for your participation. If you would like a copy of the results of the study, please indicate your wishes by placing a check mark in the appropriate place.

Name_____

Address_____

Postal Code_____

Telephone_____

Signature_____

Would you like to be sent a copy of the results of this study?

Yes ____ No ____

Appendix 3. Truncated Names of Foods Used in the Study (in alphabetical order of the truncated food names)

Food Name as Described in the Questionnaire	Food Name Truncated to $\leq$ 8 Characters (See Tables 9-18)
Bacon	Bacn
Beef rib roast	Bfribrs
Beef rump roast	Bfrmprs
Beef sirloin steak	Bfsirst
Bologna	Bolog
Cheddar cheese	Chedchs
Cheese spread (eg. Cheez Whiz)	Chesspr
Processed cheese slices	Chssl
Chicken (whole)	Chwhol
Chicken breasts	Chxbr
Chicken fingers	Chxfin
Canned beans	Cndben
Canned salmon	Cndsal
Canned soup	Cndsoup
Canned tuna	Cntuna
Cottage cheese	Cottchs
Deli corned beef (sliced)	Crndbf
Eggs	Egg
Fresh or frozen salmon	Frsal
Fish fillets or steaks	Fshfil
Fish sticks	Fshstk
Frozen entrées	Fzentr
Deli ham (sliced)	Hamdel

Food Name as Described in the Questionnaire	Food Name Truncated to ≤ 8 Characters (See Tables 9-18)
Macaroni and cheese (homemade)	Hmac
Hamburger	Hmbrgr
Lamb chops	Lambchp
Liver	Liver
Leg of lamb	Lmbleg
Milk	Milk
Pancakes	Panc
Pasta	Pasta
Pizza	Piza
Packaged macaroni dinner (eg. Kraft Dinner)	Pkgmac
Peanut butter	Pntbtr
Pork chops	Prkchp
Pork loin roast	Prkrst
Pork sausages	Prksaus
Roast turkey	Rsttrk
Shrimp	Shrimp
Smoked sausage (eg Farmer sausage)	Smksaus
Spaghetti	Spag
Spare ribs	Sprrib
T-bone steak	Tbone
Veal cutlet	Vlctlt
Wieners	Wien
Ham (whole)	Wlham
Yoghurt	Yogrt

Appendix 4. Truncated Names of Use Occasions Specified in the Study (in the order in which they appear in the questionnaire)

Names of Use Occasions as They Appear in the Questionnaire	Use Occasion Names Truncated to $\leq$ 8 Characters (See Tables 21-23 and Appendix 3)
A food teenagers like	Teens
To cook in a microwave oven	Micro
An expensive (luxury) food	Luxry
Something a little different	Difrnt
Freezes well	Freezes
Low in salt	Losalt
Makes a good, hearty meal	Hearty
Good to barbecue	Barbq
It always turns out right	Turn_out
A food men like	Men
For a special occasion	Special
Easy to buy a size that suits me	Suit_siz
Low in fat	Lo_fat
You can get it ready quickly	Quick
To serve in bread or buns	In_bread
For Sunday dinner	Sunday
To cook in the oven	In_oven
When I want something I really like	I_like
When you don't feel like cooking	No_want
High in protein	Hi_pro
When you don't feel well	Not_well
For a bag lunch	Bag_lunc
Something good to keep on hand	On_hand

Names of Use Occasions as They Appear in the Questionnaire	Use Occasion Names Truncated to ≤ 8 Characters (See Tables 21-23 and Appendix 3)
Doesn't contain additives	No_adtv
You can prepare it many ways	Mny_ways
For breakfast	Bkfst
For an inexpensive meal	Inexpens
Not messy to eat	No_mess
A food small children like	Child
When you don't want a big meal	Sml_meal
Good for your heart	Heart
Not much waste	Ltl_wast
Good leftovers	Leftover
For a summer meal	Summer
Something everybody likes	Evrybody
For a sit-down meal	Sit_down
Doesn't dirty many dishes	No_dishs
As a food for company	Company
For a winter meal	Winter
Doesn't spoil quickly	No_spoil
Easy to digest	Digest
Looks beautiful	Beauty
For between meal snacks	Snacks
Low in calories	Lo_cal
For when you eat alone	Eat_lone
A food women like	Women