Utah State University
DigitalCommons@USU

All Graduate Theses and Dissertations | Graduate Studies

5-1988

Using Adaptive Conjoint Analysis and Market Simulations to Determine the Effect and Usefulness of Nutrition Label Information in Consumer Purchase Decisions

Constance J. Geiger
Utah State University

Follow this and additional works at: https://digitalcommons.usu.edu/etd

Part of the Comparative Nutrition Commons, Human and Clinical Nutrition Commons, and the International and Community Nutrition Commons

Recommended Citation

Geiger, Constance J., "Using Adaptive Conjoint Analysis and Market Simulations to Determine the Effect and Usefulness of Nutrition Label Information in Consumer Purchase Decisions" (1988). *All Graduate Theses and Dissertations*. 5358.
https://digitalcommons.usu.edu/etd/5358

This Dissertation is brought to you for free and open access by the Graduate Studies at DigitalCommons@USU. It has been accepted for inclusion in All Graduate Theses and Dissertations by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.

USING ADAPTIVE CONJOINT ANALYSIS AND MARKET SIMULATIONS TO DETERMINE THE EFFECT AND USEFULNESS OF NUTRITION LABEL INFORMATION IN CONSUMER PURCHASE DECISIONS

by

Constance J. Geiger

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Nutrition and Food Sciences

UTAH STATE UNIVERSITY
Logan, Utah

1988

Copyright © Constance J. Geiger 1988

All Rights Reserved

Dedicated to my husband,

Dan L. Chichester, M.D.

In memory of my mother,

Geraldine K. Geiger

ACKNOWLEDGEMENTS

Sincere thanks are extended to those who have contributed to the attainment of this degree. Many have provided support, encouragement, criticism, understanding, ideas, and sometimes a humbling perspective of reality.

To my mentor, Dr. Bonita W. Wyse, for her encouragement, support, and belief in me over the last six years. Her positive attitude and understanding exemplify those characteristics important in a major professor and a friend.

To Dr. R. Gaurth Hansen, who supported my wish to conduct research with significant public policy implications. He continued and expanded my professional growth in the spirit of my former mentor, Dr. Philip L. White of the American Medical Association.

To Dr. C. R. Michael Parent, who challenged me in my pursuit of quality research and who obtained two new interactive computer programs project with significant methodological implications for this research. His advice, support, brilliance, and tireless enthusiasm for perfection have contributed to a superb research product and have allowed me to gain an excellent base as a researcher.

To Dr. Molly Longstreth and Dr. C. Anthon Ernstrom, sincerest thanks for their guidance and valuable suggestions as participants on the graduate committee.

To my colleagues, Dr. Rebecca A. Gould and Dr. Anne M. Smith, for the role they have assumed in directing the Division of Foods and Nutrition at the University of Utah. Without their support,

enthusiasm, and concern, this degree would not have been a reality.

To Jonell Murray, Executive Administrative Assistant, Division of Foods and Nutrition, University of Utah for the untiring role she has assumed in managing the Division and for her professional typing of the manuscript.

To the faculty, staff, and graduate students in the Division of Foods and Nutrition, I am forever grateful for their understanding, interest, and encouragement over the years.

To Sawtooth Software, Inc., Campbell's Soup Company, Dean David M. Compton, College of Health, University of Utah, I offer a sincere thanks for their generosity. Their financial support and contributions made this dissertation a reality.

To Ann Gallenson, for her tireless pursuit of perfection in the development and reproduction of the nutrition labels for my research project and for the extraordinary development of the slide presentation of my research. Her enthusiasm and support are deeply appreciated.

To Chris Pickett, for her brilliant and timely editing of my manuscript. Her perspective and encouragement are deeply appreciated.

To Dr. Steve Johnson for his untiring efforts in assisting me with the computer programs donated by Sawtooth Software, Inc.

To Jeff Jensen for his exhaustive analysis of my research data.

To Dr. Stephanie Crocco, Lou Wilkerson, and Cindy Schweizter for their friendship, support, and understanding over the years.

To my family who have always been a major influence and source of encouragement throughout my academic career. In memory of my mother, whose firm belief in the importance of education, and sacrified her personal life to provide my sister and me with an excellent education.

To my sister, Janet and my cousins, Susan, Linda, and Diane, for always listening and supporting as only family can.

To my aunt and uncle, Dr. and Mrs. William M. Hickam, for their loving role as second parents throughout my life.

To my husband, Dan L. Chichester, to whom this dissertation is dedicated, for his patience and support. His understanding, devotion, and encouragement exceeded that bound by any marriage contract.

Finally, this dissertation and doctoral degree are shared with my family. Without their support, this endeavor would not have been possible or rewarding.

Constance J. Geiger

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS..... iv

LIST OF TABLES..... x

LIST OF FIGURES..... xv

ABSTRACT..... xvii

Chapter

I. INTRODUCTION..... 1

Background of the Problem..... 1

Statement of the Problem..... 4

Purpose of the Study..... 7

Objectives..... 7

Significance of the Study..... 9
Hypotheses.....15

Hypothesis I.....15
Hypothesis II.....15
Hypothesis III.....15
Hypothesis IV.....16
Hypothesis V.....16

II. REVIEW OF LITERATURE.....17

History of Food and Nutrition Labeling.....17

Federal Food and Drug Act - 1906.....17
Federal Food, Drug, and Cosmetic Act - 1938.....17
Nutrition Labeling Regulations.....18
Tripartite Hearings - 1978.....20
Summary.....24

Consumer Surveys on Nutrition Labeling
Knowledge, Attitudes, and Beliefs.....25

Nutrition Labeling Practices.....25
Nutrition Labeling Knowledge.....30
Summary.....31

Research on Nutrition Labeling.....33

Research on Testing of Nutrition Labeling Formats.....34
Nutrition Information at Point-of-Purchase.....41
Research on Nutrition Information Processing and Load.....59

Nutrient Density.....64
Conjoint Analysis.....65

Reliability and Validity of the Use of Conjoint Analysis in Multivariate Decisions.....67

III. METHODOLOGY.....69

Purpose of the Study.....69

Objectives of the Study.....69
Dissertation Hypotheses.....70

Research Design.....71
Overview of Research Approach.....76

Focus Group Interviews on Nutrition Labeling.....76
Questionnaire Development.....78
Survey Instrumentation.....80
Graphic Production Techniques for the Soup Can Labels.....82
Dietary Standards for Nutrition Labels.....83
Research Approach.....84
Data Processing and Analysis.....85

IV. RESULTS.....91

Restatement of the Problem.....91
Description of the Sample.....91
Results.....94

Phase I.....94
Phase II.....102
Other Analyses.....112

V. DISCUSSION.....124

Purpose of Study.....124
Major Findings.....124

Phase I.....124
Phase II.....140

Study Limitations.....144
Summary and Conclusions.....145
Recommendations for Further Study.....146

Recommendations for Public Policy Makers and Marketers.....146

LITERATURE CITED.....148

APPENDICES.....157

Appendix A. History of Nutrition Labeling.....158
Appendix B. Focus Group Questionnaire.....178
Appendix C. Detailed Description of Focus Group Results.....185
Appendix D. Fractional Factorial Design.....198
Appendix E. Pretesting Procedures for Questionnaire.....203
Appendix F. Description of the Ci2 Program.....208
Appendix G. Description of the ACA Program.....211
Appendix H. Final Copy Nutrition Labeling Questionnaire..225
Appendix I. Graphic Production Techniques for the Soup Can Labels.....428
Appendix J. Instructions for Interviewers.....437
Appendix K. Screener Form for Nutrition Labeling Project.440
Appendix L. Instructions for Interviewer to Give to Participants.....442
Appendix M. Nonrespondent Data.....444
Appendix N. Socioeconomic and Demographic Data on Respondents.....448
Appendix O. Other Phase I and Phase II Data.....461
Appendix P. Other Data.....471

VITA 484

LIST OF TABLES

Table — Page

1. Major food and nutrition labeling regulations.....21
2. Design of nutrition labeling studies.....48
3. Design of nutrition at point-of-purchase studies.....56
4. Nutrition standards used for nutrition label information.....83
5. Typical profile of study participants based on socioeconomic and demographic class intervals with the greatest relative frequency. (N = 252).....92
6. Comparison of demographic and socioeconomic information of sample to the population of Salt Lake County and the State of Utah, by median or percentage.....93
7. Mean preference for levels of attributes in purchase decisions. (N = 226).....95
8. Relative importance of Phase I attributes in purchase decisions.....96
9. Composite of soup most likely to be purchased.....96
10. Testing for interaction of segmentation variables with Phase I attributes using MANOVA.....98
11. Univariate F-test for race/ethnic group by brand interaction.....99
12. Univariate F-test for any children by brand interaction.....99
13. Three cluster solution of Phase I attribute utilities. (N = 226).....100
14. Analysis of variance of the three cluster solution for Phase I attributes.....101
15. Phase I three cluster group confirmatory discriminant analysis. (N = 226).....102
16. Two cluster solution of Phase I attribute utilities (N = 226).....103

17. Analysis of variance of the two cluster solution for for Phase I attributes.....104

18. Phase I two cluster group confirmatory discriminant analysis. (N = 226).....105

19. Mean usefulness of nutrition label attributes in purchase decisions. (N = 179).....106

20. Relative importance of Phase II attributes in nutrition usefulness for purchase decisions.....108

21. Adjectival composite of the most useful nutrition label in purchase decisions.....108

22. Testing for interaction of segmentation variables with Phase II attributes.....110

23. Univariate F-test for race/ethnic group by information interaction.....111

24. Effects of consumer characteristics on label reading.....113

25. Reasons for following a special diet.....115

26. Brands of soup purchased.....116

27. Types of soup purchased.....116

28. Nutrients "looked for" on product labels ranked by frequency. (N = 200).....117

29. Usefulness of nutrients in purchase decisions ranked by mean. (Range 1-31).....120

30. Reasons for label reading: "How frequently do you read nutrition labels?" (N = 252).....122

31. Reasons for a nonuse of nutrition information on a food product label. (N = 49).....123

32. Calculation of external effects from Phase I simulations....127

33. Code for attributes and attribute levels.....129

34. Simulation 1: baseline conditions for market simulations : product specifications, based on current market conditions.....130

35. Simulation 1: results of baseline market simulation with and without external effects. (N = 226).....130

36. Conditions for simulation 2: addition of nutrition information load in the traditional format to the Generic brand.....131

37. Results of simulation 2: addition of nutrition information load in the traditional format to the Generic brand with and without external effects. (N = 226).....131

38. Conditions for simulation 3: graphical format added to Generic brand with the most information load.....133

39. Simulation 3: graphical format added to Generic brand with the most information load with and without external effects. (N = 226).....133

40. Conditions for simulation 4: the addition of the graphical format to the Campbell's brand.....134

41. Simulation 4: the addition of the graphical format to the Campbell's nutrition label with and without external effects. (N = 226).....134

42. Conditions for simulation 5: lowering of the Campbell's price from the high level to the medium level.....135

43. Simulation 5: lowering Campbell's price from the high level to the medium level with and without external effects. (N = 226).....135

44. Conditions for simulation 6: all three brands with the most information load in a graphical format at current market price.....137

45. Simulation 6: all three brands with the most information load in a graphical format at current market price with and without external effects. (N = 226).....137

46. Conditions for simulation 7: Campbell's information load lowered from the most to the more level.....139

47. Simulation 7: Campbell's information load lowered from the most to the more level with and without external effects. (N = 226).....139

48. Sex of nonrespondents. (N = 123).....445

49. Label reading of nonrespondents. (N = 123).....445

50. Education of nonrespondents. (N = 123).....446

51. Occupation of nonrespondents. (N = 123).....447

52. Race distribution of respondents. (N = 252).....449

53. Marital status of respondents. (N = 252).....450

54. Number of children living with respondents. (N = 252).....451

55. Education of respondents. (N = 252).....452

56. Respondent employment. (N = 252).....453

57. Occupation of respondent when employed. (N = 252).....454

58. Years of spouse education. (N = 252).....455

59. Spouse employment. (N = 252).....456

60. Occupation of spouse when working. (N = 252).....457

61. Age of respondents. (N = 252).....458

62. Sex of respondents. (N = 252).....459

63. Total family income of respondents. (N = 252).....460

64. Three cluster solution of Phase II attribute utilities. (N = 178).....462

65. Effects of consumer characteristics on usefulness of graphic nutrient density format. (N = 179).....463

66. Effects of consumer characteristics on the some information load in Phase I (N = 226) and Phase II. (N = 179).....464

67. Effects of consumer characteristics on the some information load in Phase I using analysis of variance. (N = 226).....465

68. Effects of consumer characteristics on the some information load in Phase II using analysis of variance. (N = 179).....466

69. Effects of consumer characteristics on the most information load in Phase I (N = 226) and Phase II. (N = 179).....467

70. Effects of consumer characteristics on the most information load using analysis of variance in Phase I. (N = 226).....468

71. Effects of consumer characteristics on the most information load using analysis of variance in Phase II. (N = 179).....469

72. Confirmatory discriminatory analysis of label readers. (N = 252).....470

73. Percentage of food shopping performed by the respondent.....472

74. Years of food shopping by respondent as major food buyer.....474

75. Number of people for whom respondent purchased food.....475

76. Number of respondents with person(s) in household with special dietary needs.....476

77. Attitude towards canned soup.....477

78. Frequency of canned soup purchases.....479

79. Number of respondents who read nutrition information on a food product in the last month.....480

80. Respondents familiar with Albertson's.....481

81. Respondent self-rating of nutrition knowledge.....482

LIST OF FIGURES

Figure — Page

1. Phase I nutrition label formats: (a) traditional (b) graphical....8
2. Phase I nutrition information content loads: (c) some, (d) more, (e) most....10
3. Phase II nutrition label formats: (1) traditional, (2) graphical, (3) graphical nutrient density....11
4. Phase II nutrition information content loads: (4) some, (5) more, (6) most....12
5. Phase II nutrition information expression: (7) traditional, (8) absolute numbers, (9) percentage, (10) absolute numbers and percentages....13
6. Phase II nutrition information order: (11) traditional, (12) rearrangement....14
7. Label II. Adapted from Lenahan, et al. (1972), p. 2....35
8. Label III. Adapted from Lenahan, et al. (1972), p. 2....36
9. Graphical nutrient density label. Adapted from Mohr, et al. (1980), p. 169....39
10. Simple graphic label. Adapted from Rudd (1986), p. 344....40
11. Nutrition label depicting nutrition plus ingredients information and an eight item information load. Adapted from McCullough and Best (1980), p. 185...,....42
12. Full disclosure label. Adapted from Yankelovich, Inc. (1971), p. 64....44
13. Nutrition label levels II and IV. Adapted from Asam and Bucklin (1973), p. 34....46
14. Design matrix for Phase I....72
15. Design matrix for Phase II....75
16. Graphic composite of the most useful nutrition label in purchase decisions....109
17. Market simulations for Phase I using external effects option....138

18. Traditional nutrition label.....189

19. Modified traditional label.....191

20. Simplified numerical graphical label.....193

21. Simplified graphical/graphical I label.....195

22. Simplified graphical/graphical II label.....197

23. ACA system unacceptables section.....213

24. ACA system unacceptables question.....214

25. ACA system preference rating section.....215

26. ACA system preference rating question.....216

27. ACA system importance rating section.....217

28. ACA system importance rating question.....218

29. ACA system paired concepts section.....220

30. ACA system paired concepts question.....221

31. ACA system calibration section.....222

32. ACA system calibration question.....223

ABSTRACT

Using Adaptive Conjoint Analysis and Market Simulations to Determine the Effect and Usefulness of Nutrition Label Information in Consumer Purchase Decisions

by

Constance J. Geiger, Doctorate of Philosophy

Utah State University, 1988

Major Professor: Dr. Bonita W. Wyse

Department: Nutrition and Food Sciences

Nutrition labeling research suggests consumers want nutrition information on the label; however, many do not comprehend it. The purpose of Phase I was to determine the effect of: 1. two levels of nutrition label formats; 2. three levels of nutrition information load on consumers' preference for product choice using adaptive conjoint analysis. A computer interactive interview was conducted on 252 consumers in Crossroads Mall, Salt Lake City, Utah. Label alternatives were printed on soup cans to realistically portray the information. The conjoint analysis compared the attributes, nutrition information format, and nutrition information load in addition to brand and price and determined how the study participants ranked choices within each of these attributes and against the other attributes. There were significant differences ($p < .000$) among all three mean utility values $\pm$ Standard Error of the Mean (SEM) of information load, most ($.300 \pm .03$), more ($.154 \pm .02$), and some ($-.231 \pm .03$). There was no difference between

graphical (.093 ± .027) and traditional (.055 ± .020) formats ($p = .298$). For the other attributes, there were significant differences ($p < .000$) among all brands, Campbell's (.590 ± .03), Private Label (-.007 ± .02) Generic (-.361 ± .03) and all prices, ($p < .000$), low (.431 ± .03), medium (.022 ± .02), and high (-.230 ± .03). Market simulations were performed and market share was shifted from the major brand when nutrition information was added to a Private Label or Generic brand.

The purpose of Phase II was to determine the effect of: 1. three levels of nutrition information content load; 2. two levels of nutrition information order; 3. three levels of nutrition information format; and 4. four levels of nutrition information expression on consumers' perceptions of label usefulness in purchase decisions. The methodology was the same as Phase I. There were significant differences ($p < .000$) among all three mean utility values ± SEM of information load, most (.327 ± .02), more (.091 ± .02), and some (-.213 ± .03), and between the two mean utility values ± SEM of information order, rearranged (.157 ± .03) and traditional (-.02 ± .02). Consumers significantly preferred ($p < .000$) the graphical format (.148 ± .02) over the graphical nutrient density (.038 ± .02) and traditional (.018 ± .03) formats. Consumers significantly preferred ($p < .000$) nutrition information stated in absolute numbers and percentages (.296 ± .03), versus absolute numbers only (.028 ± .03), traditional (-.026 ± .03), and percentages only (-.025 ± .03) expressions. The most useful nutrition label in a purchase decision was one that contained the

most information, in a rearranged order, with a graphical format, and an absolute number and percentages expression.

(496 pages)

CHAPTER I

INTRODUCTION

Background of the Problem

Nutrition labeling has been the focus of numerous studies conducted by the Food and Drug Administration (FDA) (FDA, 1973-1974, 1975, 1979), the food industry (Marketing Science Institute and Community Nutrition Institute, 1982; Hammonds, 1978), consumer organizations (Better Homes and Gardens, 1982; Good Housekeeping Institute, 1982, 1984; Woman's Day, 1978) and independent researchers (Yankelovich, Inc., 1971; Lenahan, Thomas, Taylor, Call, and Padberg, 1972; Asam and Bucklin, 1973; Jacoby, Chestnut, and Silberman, 1977a; Mohr, Wyse, and Hansen, 1980).

Nutrition labeling began as a recommendation of the White House Conference on Food, Nutrition, and Health in 1969 (White House Conference, 1969). The report from the Conference contained several observations concerning the causes of poor diets, including the lack of nutrient information for consumers. The Conference report suggested the inability of consumers to make wise food choices for a balanced diet was partially due to the lack of information concerning the nutritional content of food products.

As a result of the 1969 White House Conference Report on Food, Nutrition, and Health (White House Conference, 1969) and pressure by consumer groups, the FDA in 1973 issued a series of regulations related to nutrition labeling and food quality (Anon., 1973a, b). A number of systems were proposed (Yankelovich, Inc., 1971; Lenahan, et al., 1972) to provide an effective nutrition labeling format

utilizing the 1968 National Academy of Sciences publication, The Recommended Dietary Allowances (Food and Nutrition Board, 1968). The final regulations were published in 1973 (38 FR 6950) with an effective compliance date of July, 1975. By 1977, 43 percent of packaged processed foods were nutrition labeled, which increased to 55.3 percent in 1986 (FDA, 1986a).

The current FDA regulations do not require nutrition information on food labels unless the manufacturer makes a nutritional claim about the product or adds nutrients to the product. When nutrition labeling is used, the Code of Federal Regulations (CFR) 21 CFR 101.9 and 7 CFR 2859.41(e) requires that if nutrition information is presented on a label, then it must follow the prescribed format and include the following information under the overall heading "Nutrition Information Per Serving": serving size, servings per container, caloric content, protein, fat, and carbohydrate content, and percentage of U.S. Recommended Dietary Allowances (RDA) of protein, vitamins, and minerals (FDA, 1986b).

The purposes for nutrition labeling are varied:

1. providing consumers with nutrition information that can contribute to greater understanding of nutrition;
2. providing nutrition information that will assist individuals in selecting foods consistent with their dietary needs;
3. increasing the nutritional quality of food products through focusing manufacturers' attention on the use of sound nutritional principles in food formulations;
4. providing consumers with increased quality assurance and

uniformity of products as a result of manufacturers' improved production control;

5. enhancing the general knowledge of food composition through emphasis on nutrient content;
6. enabling consumers to compare the nutrient content of different products and brands; and
7. providing a standard for claims that a food is a significant or superior nutrient source (at least 10 percent of the U.S. RDA per serving and at least 10 percent more of the U.S. RDA per serving than another food) (FDA, 1979).

In 1978, the FDA, the Federal Trade Commission (FTC), and the United States Department of Agriculture (USDA) issued a notice in the Federal Register (Anon., 1978a) that announced a joint extensive program to elicit comments from the public on nutrition labeling. A series of five public hearings was held throughout the U.S. and more than 450 individuals and group representatives testified. Additionally, over 8,900 written comments were received by the FDA Hearing Clerk (Anon., 1979).

The majority of commenters discussed nutrition labeling in terms of support for a mandatory system. An overwhelming recommendation was that the label format be revised to include more nutrition information and to communicate the information in a more understandable manner (FDA, 1979).

The FDA also conducted a consumer food labeling study in 1978 (FDA, 1979), which provided data concerning consumers' usage of nutrition label information along with their concerns and

recommendations for changes. The data revealed a major problem was the complexity of nutrition labeling.

Consumers indicated they did not understand the technical terminology or how to use the information. Many survey participants indicated a need for more detailed information than was currently provided about the nutritive value of their food. Nutrients that were of particular interest were those that were overconsumed, including calories, sodium, sugars, cholesterol, and fatty acids (FDA, 1979).

The FDA, FTC, and USDA also established an interagency task force to develop experimental nutrition label formats in conjunction with industry and consumers. A contract was awarded to Robert P. Gersin Associates of New York City to design nutrition label formats that were easily understood, technically accurate, and clear. As a result of Gersin Associates' recommendations, an announcement was placed in the Federal Register (Anon., 1983) regarding FDA's support for testing nutrition labeling formats for comprehensibility, and effectiveness of communicating nutrition information.

Statement of the Problem

Today, consumers have more information regarding the nutritional content of packaged items that they purchase than ever before. However, research studies regarding the use of the nutrition label panel suggest a dichotomy. A number of studies have been conducted that suggest most consumers are aware of, and want nutritional information on the label (FDA, 1973-1974, 1975) and would even be willing to pay extra for it (Better Homes and Gardens,

1979; Daly, 1976; Lenahan, et al., 1972; Good Housekeeping Institute, 1984).

Other studies regarding the use and comprehension of current label data suggest that consumers often do not comprehend the data in the current nutrition label format and therefore do not use the information frequently (Jacoby, et al., 1977a; Heimbach, 1982; FDA, 1979). In a survey conducted by Redbook (1976), 58 percent of the respondents found the nutrition information on the label confusing. Daly's (1976) findings suggested that even though attitudes toward nutrition labeling were very positive, comprehension of the label format and terms used on the label was low. Jacoby, et al. (1977a) summarized the data for six studies, and suggested that although a high percentage of consumers indicated awareness and use of nutrition information, only a small percent were able to define nutrition terms and give an accurate assessment of their total dietary intake. Jacoby, et al. (1977a) suggested information be provided to consumers that would be useful to them in purchase decisions.

Nutrition information has also been tested, most recently at point-of-purchase in supermarkets to determine its effect on purchase decisions of more nutritious products (Soriano and Dozier, 1978; Olson, Bisogni, and Thonney, 1982; Jeffrey, Pirie, Rosenthal, Gerber, and Murray, 1982; Muller, 1983, 1984b; Russo, Staelin, Russell, and Metcalf, 1985; Levy, Matthews, Stevenson, Tenney, and Schucker, 1985). Those programs using a matrix design that compared brands by nutrient content showed an increase in purchase behavior

of nutritious foods (Olson, et al., 1982; Russo, et al., 1985; Muller, 1983). However, this was only transitory. Once the point-of-purchase information was removed, consumers reverted to previous shopping behaviors.

The Giants Food Program (Levy, et al., 1985) used shelf tags as "special diet alerts" that remained in place for two years. In this program, significant increases in market shares for nutritious foods were maintained. These results suggested consumers need continued exposure, or repeated involvement with this type of program. Consumers would also have continued exposure to nutrition information on product nutrition labels.

The initial research conducted to determine nutrition label formats (Lenahan, et al., 1972; Yankelovich, Inc. 1971; Asam and Bucklin, 1973; Babcock and Murphy, 1973) used only numerical, percentage, pie chart, or verbal presentations. Alternate formats, such as graphical presentations, were not tested, nor were information order, load, or expression.

Also, the concept of a nutrient density label has been recommended (Hall, 1977) but not extensively evaluated. Results in a study by Mohr, et al. (1980) suggested that a graphical nutrient density label was more effective in aiding consumer nutrition decisions than the traditional label format. A replication of this study by Rudd (1986), with the addition of a graphic label, reaffirmed graphic labels appeared to be more effective in aiding consumer purchase decisions than the traditional label. Hansen, Windham, and Wyse (1985) strongly recommended a graphic format for

the nutrition label as it rapidly conveyed important information and encouraged comparisons between brands.

Therefore, since consumers continued to experience confusion with the current nutrition label and asked for more information in a comprehensible format and all attributes of a nutrition label had not been tested, or controlled for in previous studies, the need for further research was evident. Additionally, since previous studies either tested consumers' reactions to nutrition labels or tested the effect of nutrition information on purchase decisions, it was decided a two phase approach using a multivariate model would be necessary. This involved determining if nutrition information was important in the context of a purchase decision. If so, further research using a multiattribute approach to examine various components of the label would be pursued.

Purpose of the Study

The purpose of this study was to determine the effect of changes in nutrition labeling information on consumer purchase decisions. A second purpose was to develop an "ideal" nutrition label that is useful to consumers in purchase decisions.

Objectives

Objective I. The first objective was to obtain information about the effects of:

a) two levels of nutrition label formats, traditional and graphical (see Figure 1); and

b) three levels of nutrition information content loads,

a.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

PERCENTAGE OF THE U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)

PROTEIN	6	RIBOFLAVIN	4
VITAMIN A	50	NIACIN	4
VITAMIN C	2	CALCIUM	2
THIAMIN	2	IRON	4

b.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

		% TOTAL RECOMMENDED DIETARY INTAKE (0% · 50% · 100%)
CALORIES	70 kcal	
PROTEIN	3 g	
TOTAL CARBOHYDRATES	10 g	
SIMPLE SUGARS	2 g	
COMPLEX CARBOHYDRATES	8 g	
FAT	2 g	
CHOLESTEROL	10 mg	
SODIUM	890 mg	
VITAMIN A	2500 mg	
VITAMIN C	1.2 mg	
THIAMIN	.03 mg	
RIBOFLAVIN	.07 mg	
NIACIN	.80 mg	
CALCIUM	20 mg	
IRON	.70 mg	

Figure 1. Phase I nutrition label formats: (a) traditional, (b) graphical.

some, more, and most (see Figure 2), on consumers' preference for product choice in the context of a purchase decision process.

Objective II. The second objective of this study was to obtain information about the effect of:

a) three levels of nutrition label formats, traditional, graphical, and graphical nutrient density (see Figure 3); and

b) three levels of nutrition information content loads, some, more, and most (see Figure 4); and

c) four levels of nutrition information expressions, traditional, absolute numbers, percentages and absolute numbers, and percentages (see Figure 5); and

d) two levels of nutrition information order, traditional and rearrangement (see Figure 6), on consumers' preference for nutrition label usefulness in purchase decisions.

Significance of the Study

The FDA, the FTC, and the USDA have recognized that the current nutrition labeling system was not the most effective in communicating nutrition information to consumers. Therefore, an announcement was placed in the Federal Register (Anon., 1983) regarding FDA's support for testing alternate nutrition labeling formats. Research studies that are conducted will be evaluated by FDA to determine whether to proceed with a more formal rulemaking

c.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
CARBOHYDRATES	10 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

d.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
CARBOHYDRATES	10 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

PERCENTAGE OF THE U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)

PROTEIN	6	CALCIUM	2
VITAMIN A	50	IRON	4
VITAMIN C	2		

e.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

PERCENTAGE OF THE U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)

PROTEIN	6	RIBOFLAVIN	4
VITAMIN A	50	NIACIN	4
VITAMIN C	2	CALCIUM	2
THIAMIN	2	IRON	4

Figure 2. Phase I nutrition information content loads: (c) some, (d) more, (e) most.

1.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

PERCENTAGE OF THE U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)

PROTEIN	6	RIBOFLAVIN	4
VITAMIN A	50	NIACIN	4
VITAMIN C	2	CALCIUM	2
THIAMIN	2	IRON	4

2.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

% TOTAL RECOMMENDED DIETARY INTAKE

0% 50% 100%

CALORIES	70 kcal
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg
VITAMIN A	2500 mg
VITAMIN C	1.2 mg
THIAMIN	.03 mg
RIBOFLAVIN	.07 mg
NIACIN	.80 mg
CALCIUM	20 mg
IRON	.70 mg

3.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

% TOTAL RECOMMENDED DIETARY INTAKE

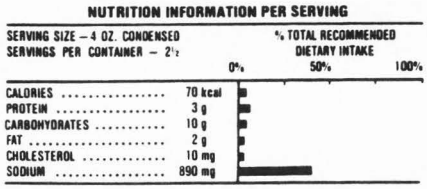
4%
0% 50% 100%

CALORIES	70 kcal
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg
VITAMIN A	2500 mg
VITAMIN C	1.2 mg
THIAMIN	.03 mg
RIBOFLAVIN	.07 mg
NIACIN	.80 mg
CALCIUM	20 mg
IRON	.70 mg

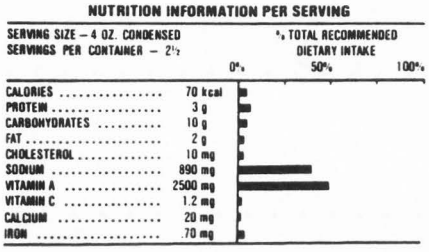
% CALORIES

Figure 3. Phase II nutrition label formats: (1) traditional, (2) graphical, (3) graphical nutrient density.

4.



5.



6.

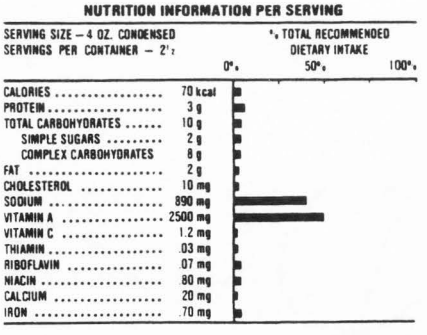


Figure 4. Phase II nutrition information content loads: (4) some, (5) more, (6) most.

7.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

PERCENTAGE OF THE U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)

PROTEIN	6	RIBOFLAVIN	4
VITAMIN A	50	NIACIN	4
VITAMIN C	2	CALCIUM	2
THIAMIN	2	IRON	4

8.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70 kcal
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg
VITAMIN A	2500 IU
VITAMIN C	1.2 mg
THIAMIN	.03 mg
RIBOFLAVIN	.07 mg
NIACIN	.80 mg
CALCIUM	20 mg
IRON	.70 mg

9.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED SERVINGS PER CONTAINER – 2½	% TOTAL RECOMMENDED DIETARY INTAKE %
CALORIES	4
PROTEIN	6
TOTAL CARBOHYDRATES	4
SIMPLE SUGARS	4
COMPLEX CARBOHYDRATES	4
FAT	3
CHOLESTEROL	3
SODIUM	40
VITAMIN A	50
VITAMIN C	2
THIAMIN	2
RIBOFLAVIN	4
NIACIN	4
CALCIUM	2
IRON	4

10.

NUTRITION INFORMATION PER SERVING

SERVING SIZE – 4 OZ. CONDENSED SERVINGS PER CONTAINER – 2½		% TOTAL RECOMMENDED DIETARY INTAKE %
CALORIES	70 kcal	4
PROTEIN	3 g	6
TOTAL CARBOHYDRATES	10 g	4
SIMPLE SUGARS	2 g	4
COMPLEX CARBOHYDRATES	8 g	4
FAT	2 g	3
CHOLESTEROL	10 mg	3
SODIUM	890 mg	40
VITAMIN A	2500 IU	50
VITAMIN C	1.2 mg	2
THIAMIN	03 mg	2
RIBOFLAVIN	07 mg	4
NIACIN	80 mg	4
CALCIUM	20 mg	2
IRON	70 mg	4

Figure 5. Phase II nutrition information expression: (7) traditional, (8) absolute numbers, (9) percentages, (10) absolute numbers and percentages.

11.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

CALORIES	70
PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
SIMPLE SUGARS	2 g
COMPLEX CARBOHYDRATES	8 g
FAT	2 g
CHOLESTEROL	10 mg
SODIUM	890 mg

PERCENTAGE OF THE U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)

PROTEIN	6	RIBOFLAVIN	4
VITAMIN A	50	NIACIN	4
VITAMIN C	2	CALCIUM	2
THIAMIN	2	IRON	4

12.

NUTRITION INFORMATION PER SERVING
SERVING SIZE – 4 OZ. CONDENSED
SERVINGS PER CONTAINER – 2½

PROTEIN	3 g
TOTAL CARBOHYDRATES	10 g
COMPLEX CARBOHYDRATES	8 g
PERCENT U.S. RECOMMENDED DIETARY ALLOWANCES	(%)
CALCIUM	2
IRON	4
VITAMIN C	2
VITAMIN A	50
THIAMIN	2
RIBOFLAVIN	4
NIACIN	4
CALORIES	70 kcal
SODIUM	890 mg
FAT	2 g
CHOLESTEROL	10 mg
SIMPLE SUGARS	2 g

Figure 6. Phase II nutrition information order: (11) traditional, (12) rearrangement.

proposal. Upon completion of this study, results will be sent to the FDA for evaluation.

This study also has methodological significance as a multivariate approach, such as adaptive conjoint analysis (ACA), (Johnson, 1986) has not been previously employed in nutrition labeling research. This study design also will advance knowledge regarding the significance of nutrition label information on market share.

Hypotheses

Hypothesis I

Consumers will have a greater preference for nutrition label format in product choice when it is presented in graphical format over the current labeling format.

Hypothesis II

Consumers will have a greater preference for nutrition label information content in product choice when it is presented in its highest level, most nutrition information, versus its lowest level, some nutrition information.

Hypothesis III

Consumers will have a greater preference for nutrition label information content load in determining the usefulness of nutrition labels in purchase decisions when it is presented in its highest level, most nutrition information, versus its lowest level, some nutrition information.

Hypothesis IV

Consumers will have a greater preference for nutrition label format in determining the usefulness of nutrition labels in purchase decisions when it is presented in graphical format rather than traditional format.

Hypothesis V

Consumers will prefer a graphical nutrient density format as much as, if not more than, the traditional nutrition label format when determining the usefulness of nutrition labels in purchase decisions.

CHAPTER II

REVIEW OF LITERATURE

History of Food and Nutrition Labeling

This section reviews major food and nutrition labeling laws and regulations as they affect the current nutrition label, including the nutrition label formats and presentation of nutrition information used in this study. Federal regulations for food and nutrition labeling are very complex. Responsibility is distributed between the FDA, the USDA, and the FTC (FTC, 1978).

The FDA is responsible for the regulation of ingredients that are added to food, labeling of food products, and the definitions of standards of identity for food products. The USDA is responsible for the labeling of meat and poultry products. Its authority includes grading of agricultural products based on appearance and quality and ingredient disclosure. The FTC has authority to regulate claims made and information used in food advertising (FTC, 1978).

Federal Food and Drug Act - 1906

Food labeling began with the Federal Food and Drug Act of 1906 (Anon., 1906). This Act increased the amount of accurate package labeling and decreased unsubstantiated health claims.

Federal Food, Drug, and Cosmetic Act - 1938

The 1938 Federal Food, Drug, and Cosmetic Act (Anon., 1938) prohibited the sale of foods that were dangerous to health. The

1938 Act was much stronger, more comprehensive, and more rigorously enforced by the court system than the 1906 Act. It prohibited the movement of adulterated misbranded foods through interstate commerce. The 1938 Act (Anon., 1938) required the label of a food product to bear the "common or usual name," if any, of the food, the net quantity of contents, a statement of ingredients, and the name and address of the manufacturer or distributer. After the initiation of the 1938 Act, food labeling remained fairly stable for the next 30 years (Hutt, 1986).

Nutrition Labeling Regulations

Official nutrition labeling began as a recommendation of the White House Conference on Food, Nutrition, and Health in 1969 (White House Conference, 1969). The report from the Conference contained several observations concerning the causes of poor diets, including the lack of nutrient information for consumers. The Conference report suggested that the inability of consumers to make wise food choices about a balanced diet was partially due to the lack of information concerning the nutritional content of food products.

As a result of the 1969 White House Conference Report on Food, Nutrition, and Health (White House Conference, 1969)and pressure by consumer groups, the FDA in 1973 issued a series of regulations related to nutrition labeling and food quality (Anon., 1973a, b). Commissioner Charles Edwards of the FDA stated these proposed regulatory changes were the most comprehensive in food labeling history (Anon., 1973b). The purpose of these regulatory changes was to insure full disclosure of the nutrition content of processed

food. The ultimate result of these regulations was to assist in consumer purchase decisions by increasing understanding and eliminating confusion (French and Barksdale, 1974).

The umbrella regulation was known as nutrition labeling, and governed how and when nutrition labeling was to be used. The information that was added to Part I title 21, of the Code of Federal Regulations is summarized as follows:

a) The code allowed nutrition information relating to the food product to be included on the label as long as it conformed to the requirements of the new section. Mandatory nutrition labeling was required if a nutrient was added to a product or if a nutritional claim was made for a product.

b) Expression of nutrients would be based on average of usual serving size. All nutrients including calories, protein, carbohydrate, fat, vitamins, and minerals would be declared on the label.

c) A declaration of nutrition information on the label would have certain information and use specified headings under "nutrition information." This included serving size, servings per container, caloric content, protein content, carbohydrate content, fat content, and percentage of the U.S. RDA for protein, vitamins, and minerals (Anon., 1973b).

The 1973 regulations also allowed labeling of cholesterol content in milligrams per serving, polyunsaturated fatty acids, saturated fatty acids, and other fatty acids in grams per serving, and labeling of total fat content as a percentage of the total

calories in the food (Anon., 1973b). The end result of these regulations was that almost every food label in the U.S. was revised. The majority of these provisions became effective in mid-1975. Further discussion of food and nutrition labeling regulations is in Appendix A. Table 1 presents a summary of major food and nutrition labeling laws and regulations.

Tripartite Hearings - 1978

In 1978, the FDA and the USDA issued a notice in the Federal Register (Anon., 1978b) that announced the joint, extensive program to elicit comments from the public on nutrition labeling. A series of five public hearings was held throughout the U.S. and more than 450 individuals and group representatives testified. Additionally, over 8,900 written comments were received by the FDA Hearing Clerk (Anon., 1979).

The majority of respondents favored mandatory nutrition labeling. An overwhelming recommendation was revision of the label format to include more nutrition information and to communicate the information in a more understandable manner (Anon., 1979).

The FDA, FTC, and USDA also established an interagency task force to develop experimental nutrition label formats in conjunction with industry and consumers. A contract was awarded to Robert P. Gersin Associates of New York City to design nutrition label formats that were easily understood, technically accurate, and clear. As a result of Gersin Associates' recommendations, an

Table 1. Major food and nutrition labeling regulations.

Year	Type of Regulation Date Effective	Premise
1906	Federal Food and Drug Act	Prohibited misleading and false statements on labels of foods and drugs (Anon., 1906).
1938	Federal Food, Drug, and Cosmetic Act Effective January 1940	Replacement of 1906 Act. Definition of misbranded. Required "common and usual name" of food, net quality of contents, ingredient statements, name and address of manufacturer/distributor. Special dietary foods were labeled with nutrient information (Anon., 1938).
1966	Fair Packaging and Labeling Act	Gave FDA jurisdiction over regulation of of package size, provision of label information, measurement of content (Anon., 1966).
1973	Nutrition Labeling Regulations Effective 1975	Insured full disclosure information about the nutrition content of processed food. Applied only to processed foods that are fortified or for which claims are made. Provided for identification of fats and cholesterol. Standards for dietary supplements. Rules for definition of artificially flavored foods and imitation foods. Consolidated existing fragmented regulations. Nutrient information expressed

Table 1. Continued.

Year	Type of Regulation Date Effective	Premise
1973	Nutrition Labeling Regulations Effective 1975	per serving. Label information included; servings per container, caloric content, protein, carbohydrate, fat, percent U.S. RDA of vitamins and minerals. No claims can be made that a food is a significant source of a nutrient unless nutrient is present in $\geq$ 10 percent U.S. RDA. Sodium and cholesterol labeling allowed without triggering full panel (Anon., 1973a, b).
1978b	Foods for Special Dietary Use	Established definitions for "low calorie," "reduced calorie" (Anon., 1978a).
1982	Sodium Regulation Effective July 1, 1986	Established definitions for "reduced sodium," "moderately low sodium," "low sodium," "sodium free" and "without added salt," "unsalted," "no salt added." Provided for inclusion of potassium content on a voluntary basis. Sodium listed in mg/serving versus mg/100 gms (Anon., 1982).
1984	Fiber Proposal Effective 1988	Amended food labeling regulations to provide for the exclusion of nondigestible dietary fiber when determining the caloric content of food (Anon., 1984a).

Table 1. Continued.

Year	Type of Regulation Date Effective	Premise
1986	Fatty Acid/Cholesterol Proposal, Comments being reviewed.	Provided for proper use of cholesterol and fatty acid labeling. Defined "cholesterol free," "low cholesterol," "cholesterol reduced." Deleted percent calories from fat. Fatty acids declared when products contain two or more grams of fat. Fatty acid labeling and cholesterol labeling trigger each other. A "low cholesterol" meal is defined (Anon., 1986a)
1986	USDA	Established stricter labeling requirements. Stricter definitions for "extra lean," "lean," "low fat," "light," "lite," "leaner," "lower fat" (USDA, 1986).

announcement was placed in the Federal Register (Anon., 1983) regarding FDA support for testing nutrition labeling formats for comprehensibility and effectiveness of communicating nutrition information.

As a result of this announcement and a desire to further test graphical and nutrient density labeling formats, this study was undertaken to develop a nutrition label that was most useful to consumers in purchase decisions.

Summary

In summary, the evolution of nutrition labeling regulations since the early part of the twentieth century has been traced. Food regulations followed the course of initially decreasing economic risk to sellers, then reducing buyer's risk, and ultimately "controlling buyer's health risks." The FDA has proposed and promulgated more specific labeling information since the early 1970s. Currently, a number of proposals are pending, including fatty acid and cholesterol labeling, health claims labeling, fast food labeling, labeling of fresh fruits and vegetables, and many others (Anon., 1986b).

The label is a means of communicating nutrition information to the public. The information presented on the product label will create competition among manufacturers and, it is posited, will create more nutritious products.

Consumer Surveys on Nutrition Labeling Knowledge, Attitudes, and Beliefs

Since the widespread inception of nutrition labeling in 1975, numerous surveys have been conducted (FDA, 1973-1974, 1975, 1979, 1986c; Redbook, 1976; Better Homes and Gardens, 1979, 1982; Smith, Brown, and Weimer, 1979; Good Housekeeping Institute, 1982, 1984; Marketing Science Institute and Community Nutrition Institute, 1982, Heimbach and Stokes, 1982; Heimbach, 1982; Barr, 1985; Crawford and Worsley, 1986). These surveys have provided insight into consumers' knowledge, attitudes, and practices about nutrition and nutrition labeling that were important to the design of this study.

Nutrition Labeling Practices

One of the primary goals of nutrition labeling is to provide the consumer with scientific information on the nutrient content of food products. This information enables the consumer to make an "informed choice" from the vast array of processed and prepared foods. However, the cost of nutrition labeling to the industry and to consumers needed to be justified. This justification occurs by the demonstrated use of nutrition labeling by consumers, especially those population groups who have marginal nutritional status (Schrayer, 1978).

The use of nutrition labeling has increased since its inception in 1975. When FDA surveyed consumers in 1973 (FDA, 1973-1974), over 75 percent indicated they would use nutrition label information in making purchase decisions on a new brand. Fifty-two percent felt

they would derive "quite a bit" of benefit from nutrition labels on processed foods.

In the 1975 FDA survey (1975), interest and support for nutrition labeling were still widespread among consumers. Fifty-eight percent of the survey participants indicated they had noticed nutrition labeling on food products. Thirty-three percent of the shoppers indicated they had used nutrition labeling in purchase decisions. Fifty-two percent of primary grocery shoppers indicated they would use nutrition labeling in a purchase decision for a new product or brand. Seventy-eight percent of shoppers thought nutrition labeling would help them as homemakers.

The primary purpose of the 1978 Food Labeling Survey (FDA, 1979) was to evaluate consumer usage of the current label information and to determine the consumers' need and desire for further or revised information. About 90 percent of respondents claimed to use at least some of the information on the food label. Fifty-four percent of all food shoppers in the survey used ingredient information to avoid substances, including sugar/excessive sugar, salt/excessive salt, preservatives, fat/excessive fat, artificial colors, lard/animal shortening, bleached white flour, artificial flavors, and artificial sweeteners. The reason given for avoiding these substances was consumers felt they were harmful or hazardous to their health.

The nutrition label was also considered useful by consumers. Sixty-four percent of the respondents indicated the use of nutrition information. Twenty-four percent were aware of the nutrition label

but indicated that they did not use it. Only 12 percent were not aware of nutrition information on the label (FDA, 1979).

The participants in the survey indicated they paid particular attention to calories, 35.1 percent; vitamins, 25.5 percent; protein, 21.8 percent; fat content, 20 percent; and carbohydrates, 13.8 percent. Sources of confusion included the metric system, 6.4 percent; everything, 4.4 percent; technical wording, 3.8 percent; do not know how to use it, 2.8 percent; vitamins, 2 percent; and percentages, 1.8 percent. Those areas that were indicated as needing improvement were the nutrition label in general and labeling calories on all products. Very few consumers believed there was too much information present on the label (FDA, 1979).

The FDA survey (1979) summarized the major changes desired by consumers in the food label, including changing presentation of existing information, labeling more products with existing information, and adding information not currently available. The FDA also suggested simplification of the ingredient list, including all ingredients on the ingredient list and simplifying the nutrition label format. It was suggested that calorie information, ingredient information, and open dating be available on all products. New information was requested, including amounts of sugar and amounts of individual ingredients in percentages.

The outcome of this survey suggested a dichotomy. Consumers expressed a desire to have more information about food ingredients; however, they also asked for simplification of existing information on the label. Also, consumers were found to use the food label to

avoid certain ingredients versus using it to acquire certain essential nutrients (FDA, 1979). In summary, the nutrition or food label was important in providing consumers with information. However, it was not comprehended by all consumers, which indicated provision of information necessitated an educational program to accompany the information.

The Better Homes and Gardens Consumer Panel was established in 1976 to provide timely marketing information for the use of Better Homes and Gardens Magazine. Surveys on nutrition information were conducted in 1978 and 1979 (Better Homes and Gardens, 1979). In both surveys, a high percentage of consumers read nutrition information on food packages: 83 percent in the 1979 survey and 78.5 percent in the 1978 survey. Calorie content was looked for 71 percent of the time in 1979 and 76 percent of the time in 1978. Other information used frequently by consumers included vitamins, mineral, cholesterol, and salt (Better Homes and Gardens, 1979).

In the USDA surveys of 1977 and 1978 (Smith, et al., 1979) over 40 percent of consumers indicated they did read the nutrition label before the purchase of a new product. Those households with more members and those with children reported higher amounts of nutrition label reading.

The Better Homes and Gardens Consumer Panel (Better Homes and Gardens, 1982) was again surveyed regarding the buying habits of food products. Sixty-eight percent of the respondents indicated they had read nutrition information on a food package in the last 10 days. This contrasted to 83 percent in 1979 (Better Homes and

Gardens, 1979). However, the nutrients they looked for were similar: calories, 78 percent; vitamins, 30 percent; salt, 56 percent; and sugar, 67 percent.

The 1982 Good Housekeeping Institute survey (Good Housekeeping Institute, 1982) data suggested almost 90 percent of the readership of Good Housekeeping Institute used nutrition labels. In descending order, consumers looked for the ingredient listing, 91.2 percent; the sugar content, 88 percent; the caloric content, 89 percent; and the fat content, 80 percent.

Woman's Day Magazine conducted surveys in 1978 (Woman's Day, 1978) and 1980 (Woman's Day and Food Marketing Institute, 1980) and found 78 percent of consumers wanted more information on the nutrient content of food. Their findings suggested consumers were concerned with the following items on the nutrition label: sugar content, 41 percent; caloric content, 37 percent; vitamin content, 35 percent; and protein content, 35 percent. The Woman's Day (1978) study also revealed 35 percent of consumers indicated nutrition labeling makes a significant difference in purchase decisions.

In 1981 the FDA, as a continuation of their investigation of nutrition information for the public, conducted a national survey (Heimbach and Stokes, 1982) to determine concerns regarding nutrition labeling of foods. Consumers were asked to indicate which nutrients would be most useful to them on food packages. Consumers ranked calories first, protein second, carbohydrates and sugars third, and fat, saturated fat, vitamins, and sodium fourth.

Fifty-nine percent of respondents in a national survey (Marketing Science Institute and Community Nutrition Institute, 1982) indicated they needed more information on food product labels in the grocery store versus 27 percent who thought there was enough information on product labels. Respondents also suggested the complexity of nutrition labeling was more often a problem than not being knowledgeable enough about good nutrition practices.

Nutrition Labeling Knowledge

Since the promulgation of nutrition labeling, concerns have arisen regarding the consumer's ability to understand the information and apply it in purchase situations. Initially, studies assessed knowledge as awareness of nutrition information on a food product (FDA, 1973-1974, 1975, 1979). Later studies measured comprehension of nutrition knowledge (Jacoby, et al., 1977a; Heimbach, 1982).

FDA (1973-1974) found 47 percent of homemakers indicated they understood everything on a nutrition label, while 51 percent did not understand any or all of a label. In 1975, a follow-up study based on self-report knowledge indicated 85 percent of consumers indicated they understood serving size, while 82 percent understood calories (FDA, 1975). Only 36 percent indicated they understood sodium.

FDA (1979) asked consumers to recall the type of information found on food packages. Sixty-two percent mentioned ingredient information, while 38 percent mentioned nutrition information. When aided recall was used, i.e., examples of labels shown to consumers, 64 percent of consumers indicated they used nutrition labels, 24

percent were aware of them but did not use the information, and 12 percent were not aware.

Jacoby, et al. (1977a) found, however, that only 16 percent of consumers could correctly define calories, seven percent could define protein, and only two percent could define fat. They concluded that consumers report high amounts of nutrition label usage and/or awareness of the nutrition label; however, they do not comprehend the information.

In 1982, the FDA (Heimbach, 1982) released a report concerning consumer comprehension of food label information. Heimbach's findings suggested consumers' knowledge regarding quantitative declarations was not encouraging. At least one-third of respondents did not accurately answer questions that involved quantification. Heimbach's suggestion to overcome this lack of basic arithmetic was to either not use a numerical presentation or to replace percentage declarations with simple graphics. He suggested further research would be necessary to determine how successful an alternative format could be in aiding consumer purchase decisions.

Hansen, et al. (1985, p. 168) suggested, "Graphic formats facilitate comparisons of the nutritional composition of foods and are becoming more popular as a means of communicating information." They urged the provision of information in a form "that encourages its application" (p. 170).

Summary

It appears from the review of these studies that nutrition labeling has been serving a very useful function in assisting

primary grocery shoppers to select a well-balanced nutritious diet (Better Homes and Gardens, 1979; FDA, 1979). It also has served the purpose of assuring consumers about the nutritive quality of their foods and has increased consumer confidence about products that are labeled. This, in turn, has encouraged more labeling in order for manufacturers to stay competitive. In fact, in 1986, 55.3 percent of processed foods regulated by FDA carried nutrition labeling (FDA, 1986a) and 58.8 percent of all products used sodium labeling (FDA, 1986c).

The surveys also revealed consumers did not appear to have sufficient knowledge of nutrition information to avail themselves of nutrition labels in order to plan well-balanced diets (Jacoby, et al., 1977a; Heimbach, 1982). Persons who were less knowledgeable about nutrition usually were from lower socioeconomic classes and appeared to be at higher risk for nutritional deficiencies (Lenahan, et al., 1972; FDA, 1973-1974).

The surveys revealed nutrition labeling was used predominantly by consumers for purchase decisions regarding new products and brands (FDA, 1973-1974, 1975; Woman's Day, 1978, and Woman's Day and Food Marketing Institute, 1980). In order for nutrition labeling to be used effectively, a comprehensive education program needed to be implemented (FDA, 1973-1974, 1975).

Another conclusion that was drawn was nutrition quality and food safety were becoming more important in food purchase decisions regarding food products. This is in contrast to the traditional variables of cost, taste, brand, and convenience (Better Homes and

Gardens, 1979).

Numerous studies have suggested many consumers continue to be aware of nutrition labeling; however, they appear to be more likely to use the ingredient list. Not surprisingly, the main reason to use the ingredient list is to avoid consuming certain substances. The most useful nutrition information appears to be those nutrients that are overconsumed, e.g., sugar, calories, and sodium (FDA, 1979; Better Homes and Gardens, 1979, 1982; Good Housekeeping Institute, 1982, 1984; Heimbach and Stokes, 1982) versus those that are underconsumed. Across surveys, calorie information appeared to be the most used portion of the nutrition label panel (Better Homes and Gardens, 1979; Heimbach and Stokes, 1982).

Concern about nutrition labeling appeared to be not as strong as it was in 1978; however, most consumers would like to see additional information on the label (FDA, 1979; Marketing Science Institute and Community Nutrition Institute, 1982). Comments regarding the nutrition label suggested many consumers feel the information on the label was too technical and complex and was difficult to use (Woman's Day, 1978; Woman's Day and Food Marketing Institute, 1980). This information was taken into consideration in the design of nutrition label information for this study.

Research on Nutrition Labeling

The purpose of this section is to review nutrition labeling research studies that have been conducted and relate their findings to the current study design. These studies can be divided into

three types: testing of nutrition label formats, the use of nutrition information at point of purchase, and nutrition information load and processing.

Research on Testing of Nutrition Label Formats

Lenahan, et al. (1972) conducted one of the first studies to determine consumers' reaction to nutrition labels on food products. One of the study objectives dealt with the determination of usefulness of various formats of nutrition information. This was conducted as a national probability sample with 2,195 persons in home interviews.

Lenahan, et al. (1972) used three formats to present nutrition information. The first label represented nutrients expressed as units. A unit represented 10 percent of the RDA, and half units represented five percent of the RDA. The second label used adjectives such as "excellent," "major," "very good," "minor," and fair" to represent nutrient content. The third label used percent of the RDA to represent nutrient content. The nutrients tested included calories, carbohydrates, protein, vitamin A, thiamin, niacin, vitamin C, calcium, and iron (see Figures 7 and 8).

The labels were tested in pairs, e.g., Label I and Label II, Label II and Label III, or Label I and Label III. Label I was significantly preferred ($p < .05$) over Label II. Label III was significantly preferred ($p < .05$) over Label II and Label III was significantly preferred ($p < .05$) over Label I (Lenahan, et al., 1972).

Nutritional

Information

A cup serving (8.5 oz.) of pork and beans is

a GOOD SOURCE of

Protein
Calcium
Iron

a FAIR SOURCE of

Vitamin A
Vitamin C
Thiamin
Niacin
and provides

Protein	15 grams
Fat	7 grams
Carbohydrates	46 grams
Calories (1 cup)	310 calories

Figure 7. Label II. Adapted from Lenahan, et al. (1972), p. 2.

Pork and Beans

A 1-cup serving provides:

310 Calories

46 gm. Carbohydrates

and these percentages of the Recommended Dietary Allowances for Adults

Protein	10%
Vitamin A	5%
Thiamin (B_1)	10%
Niacin	5%
Vitamin C	10%
Calcium	20%
Iron	30%

Figure 8. Label III. Adapted from Lenahan, et al. (1972), p. 2.

Based on the results of this study, Lenahan, et al. (1972) recommended the label stating nutrient content with percent of RDA. These results were similar to those Lenahan, et al. (1972) found in testing these same label formats in grocery stores. The authors recommended that since the percentage of respondents who indicated that they would use the label was high this would substantiate a national labeling program. Those groups needing dietary assistance or improvement, i.e., those with lower incomes and the elderly, would be less likely to use the nutrition label than younger consumers or those with higher incomes. This obviously had ramifications for designing educational programs.

Lenahan, et al. (1972) did not ask consumers what nutrition information would be most useful to them. They also did not test different information loads that could have contained such nutrients as sugar, sodium, cholesterol, or fiber. The study also did not test label formats such as graphical or pie chart.

The first nutrition labeling study to compare the traditional nutrition label with an alternative format, nutrient density, was conducted by Mohr, et al. (1980). The purpose of this study was to determine if the nutrient density format was as effective, if not more effective, than the traditional label format in aiding consumers in nutrition decisions. This hypothesis was tested by having 219 consumers in grocery stores make nutrition decisions based on label information. The results suggested the graphical nutrient density format was more effective than the traditional labeling format in aiding consumers in purchase decisions (see

Figure 9).

Consumers who had yearly family incomes of $4,000 to $7,999, and were high school graduates made more correct responses with the nutrient density labeling format than with the traditional label format. Also, the nutrient density questions took less time than the traditional format questions to complete. This could be attributed to the graphical presentation. This result was noteworthy as 80 percent of the sample was familiar with the current labeling format and had had no previous experience with the nutrient density format. This information may also benefit the lower socioeconomic class consumer who needs the information (Mohr, et al., 1980).

Rudd (1986) replicated the Mohr, et al. (1980) study with the addition of a graphical format, to determine if the graphic format was as effective as the graphical nutrient density format in the quality of consumer purchase decisions (see Figure 10). The results of this study replicated the results of Mohr, et al. (1980). However, the percentage of correct responses was also significantly greater for the graphical format over the traditional format. There was not a significant difference between the number of correct responses to the graphical and graphical nutrient density formats (Rudd, 1986).

McCullough and Best (1980) conducted the first nutrition labeling study employing the marketing research technique of conjoint analysis. The purpose of the study was to determine the feasibility of using conjoint analysis to measure consumers'

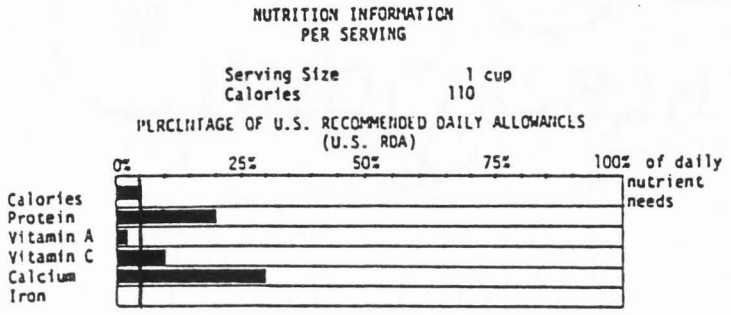


Figure 9. Graphical nutrient density label. Adapted from Mohr, et al. (1980), p. 169.

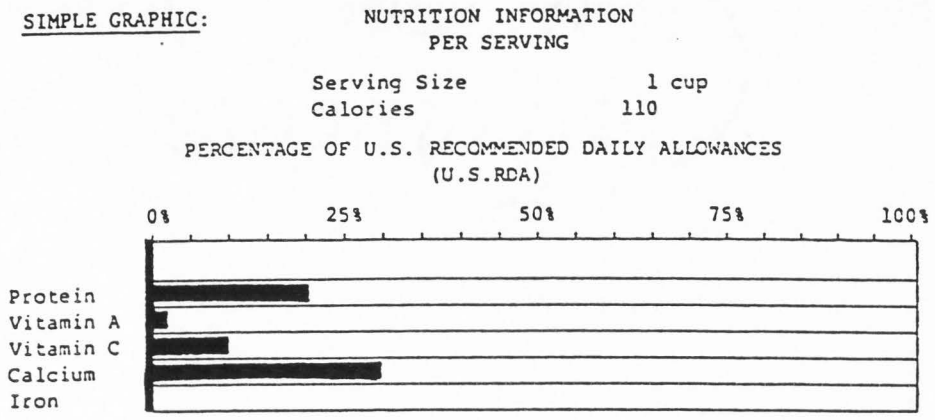


Figure 10. Simple graphic label. Adapted from Rudd (1986), p. 344.

perceptions of the usefulness of various nutrition label configurations.

The variables measured in the conjoint analysis and design were information types, five levels, and information load, three levels. The information type levels included ingredients only, ingredients plus nutrition, nutrition only, percent ingredients plus nutrition, and per ingredients only. The information load levels consisted of four, eight, and 12 items (McCullough and Best, 1980). See Figure 11 for a typical label used in this study.

As a result of the conjoint and cluster analyses, three groups emerged. One cluster was characterized with a decreasing preference for more information and a high preference for current labeling practices. This group consisted of predominantly blue collar workers. The second cluster consisted of white collar workers, with a strong preference for increasing amounts of information. The third cluster showed a greater preference for more information and more complex forms of information. Its composition was predominantly white collar workers (McCullough and Best, 1980).

McCullough and Best (1980) concluded it was impossible to develop a single label format, as improvements in label information for one group appeared to be disadvantageous for another group. However, the program used by the researcher should have determined the most preferred label for the entire sample. This information was not reported and would have been useful in the final analysis.

Nutrition Information at Point-of-Purchase

The next group of studies tested the effect of nutrition

Price 54 cents

NUTRITION		INGREDIENTS	
62	calories/slice	77%	Flour
12 gm	carbohydrates/slice	22%	Water
1.33 mg	protein/slice	.5%	Sugar
.44 mg	iron/slice	.2%	Salt
5.3 mg	calcium/slice	.13%	Yeast

Net Weight 24 oz.

Figure 11. Nutrition label depicting nutrition plus ingredients information and an eight item information load. Adapted from McCullough and Best (1980), p. 185.

information on purchase decisions, using nutrition information at point-of-purchase. The first example of this group of studies evaluated the effect of changing nutrition label information or format and its effect on purchase decisions (Yankelovich, Inc., 1971; Lenahan, et al., 1972; Asam and Bucklin, 1973).

The second group of studies focused on provision of nutrition information at point of purchase using brand by nutrient matrices, educational messages, and shelf tags, versus testing of the actual nutrition label (Soriano and Dozier, 1978; Olson, et al., 1982; Jeffrey, et al., 1982; Muller, 1983, 1984a, 1984b, 1985; Russo, et al., 1985; Levy, et al. 1985).

Nutrition Labels at Point-of-Purchase. Yankelovich, Inc. (1971) evaluated the impact of full disclosure labeling on sales of the leading store brands and private label brand (see Figure 12). Two matched samples of women, with 200 in each group, purchased foods in a simulated supermarket environment at Yankelovich's laboratory in Upper Montclair, New Jersey. The sample was representative of a range of age and income characteristics. The study results suggested the dominant brand in each product category still held its market share in the face of full disclosure nutrition labeling on a secondary brand. Apparently, consumers held certain beliefs that name brands carry quality characteristics. The results also indicated that private label brands are not able to hold their market share when competitive products carry full disclosure nutrition labeling.

Tomato Soup

81% Water

2% Protein

2% Fat

13% Carbohydrate

.001% Calcium

.0001% Iron

.001% Vitamin C

1.9989% Other Nutritive Elements

164 Calories Per 8-ounce Serving

Figure 12. Full disclosure label. Adapted from Yankelovich, Inc. (1971), p. 64.

Full disclosure labeling had its strongest effect on secondary brands, the second or third brand in the category, as long as it was not a private label brand. These brands showed the greatest increase in market share when full disclosure nutrition labeling was used (Yankelovich, Inc., 1971).

Asam and Bucklin (1973) measured the effect of types of nutrition labeling on consumer purchase preference (see Figure 13). The objective was to determine whether nutrition labeling should be voluntary or mandatory. A latin square design was used to vary brand, price, nutrition information, and store location. The authors concluded nutrition labels that used vague descriptions to indicate nutrient content did not affect consumer choice patterns. Additionally, detailed nutrition labels containing average values were used by some consumers and appeared to affect the perception of product quality. However, promotional campaigns lessened the effect of nutrition labels.

Schutz, Judge, and Gentry (1986) examined relative attribute importance in the influence of demographic variables on the ranking of nutrition, cost, brand, and sensory attributes on food purchase and consumption. The study was conducted by mail survey with 600 Sacramento residents. The results of the questionnaire suggested the ratings for sensory attributes were significantly higher than those for brand, nutrition, or price. It was interesting to note brand was the lowest rated attribute in relation to the purchase and use of the foods tested in the study. Price and nutrition were of almost equal importance. These results suggested brand may not

Level II	High in Energy High in Protein High in Iron High in Thiamin Low in Fat	Ingredients: Whole Medium Peas, Sugar, Salt, and Water
Level IV	Each Three-Ounce Serving of these Peas Contains:	Plus: Calcium-25 mg., Phosphorus - 67 mg., Iron - 1.7 mg., Sodium - 206 mg., Potassium - 96 mg., Vitamin A - 469 units, Thiamin - 0.1 mg., Riboflavin - 0.06 mg., Niacin - 1.0 mg., Ascorbic Acid - 8 mg., Magnesium - 25 mg. Ingredients: Whole Medium Peas, Water, Salt, and Water.

Energy	80 calories
Protein	46 grams
Carbohydrate	15.0 grams
Fat	0.4 grams
Moisture	79 percent
Ash	1.0 grams

Figure 13. Nutrition label levels II and IV. Adapted from Asam and Bucklin (1973), p. 34.

always mean quality. Schutz, et al. (1986) found brand to be more important to females than males, and nutrition information was rated more highly by females than by males.

The previously discussed studies of Lenahan, et al. (1972), Yankelovich, Inc. (1971), and Asam and Bucklin (1973) were the only studies conducted that evaluated nutrition label formats and information prior to the inception of nutrition labeling. These studies did not evaluate alternate formats such as graphical, pie charts, or other pictorial presentation of formats. They also did not evaluate order of nutrition information. These studies were most involved with ascertaining consumers' reactions to nutrition labeling. As is illustrated by Figures 7, 8, 11, 12, and 13, these labels were not very sophisticated or visually stimulating.

The later studies of Mohr, et al. (1980) and Rudd (1986) actually tested alternate label formats, graphical nutrient density and graphical. McCullough and Best (1980) tested information type and load, not format. None of the studies for nutrition labels used a multivariate approach that tested various elements of a nutrition label against themselves and other elements. See Table 2 for a summary of these studies.

Other Types of Nutrition Information at Point-of-Purchase. Soriano and Dozier (1978) evaluated the effectiveness of the Supermarket Information Project (SIP), which was developed by the American Heart Association (AHA), to provide nutrition and health related information at the point-of-purchase in the supermarket. The categories evaluated were milk, table spread, dairy case, and

Table 2. Design of nutrition labeling studies.

Author, Year	Independent Variable	Dependent Variable(s)	Sample	Method
Yankelovich, Inc., 1971	Nutrition label 1. Full disclosure 2. Better disclosure 3. No labeling Experimental design 3 (nutrition labels) X 8 (products) X 4 (brands)	1. Purchase decision of: leading, secondary, and private label brands	1. 2 groups of 200 women each; matched for and and income	1. Laboratory grocery store 2. Group sessions to rationalize for purchase decisions
Lenahan, et al., 1972	Nutrition label 3 Levels 1. Units 2. Adjectival 3. RDA	1. Consumer preference 2. Consumer perception 3. Consumer understanding 4. Consumer potential use 5. Usefulness of formats	1. National probability sample; 2, 195 men and women ≥ 18 years	1. Consumer survey with home interview 2. Supermarket interviews
Asam and Bucklin, 1973	Nutrition label formats - 4 levels	1. Shopper purchase	1. 200 volunteers	1. Questionnaire 9 pt. bi-

Table 2. Continued.

Author, Year	Independent Variable	Dependent Variable(s)	Sample	Method
	Latin square Experimental design 4 (nutrition labels) X 4 (brands) X 4 (stores)	preference 2. Shopper perceptions	grocery shoppers	polar objective scale and rankings
McCullough and Best, 1980	1. Information type - 5 levels * Ingredients only * Nutrition only * Ingredients plus nutrition * Percentage ingredient * Percentage ingredient plus nutrition 2. Information load - 3 levels	1. Preference 2. Usefulness	1. 140 female - household shopper 2. Random telephone directory	1. 20 minute in-home interview (overlapping Latin Square Design)
Mohr, et al., 1980	Nutrition label formats 1. Nutrient density 2. Current format	1. Percent of correct responses to questionnaire 2. Usefulness 3. Time to complete questionnaire	1. 219 voluntary supermarket shoppers	1. Questionnaire 2. Test

Table 2. Continued.

Author, Year	Independent Variable	Dependent Variable(s)	Sample	Method
Rudd, 1986	Nutrition label format 1. Current 2. Graphical 3. Graphical nutrient density	1. Percent of correct responses to questionnaire 2. Usefulness 3. Time to complete	1. Voluntary supermarket shoppers. Sample size size not indicated	1. Questionnaire 2. Test

cooking oils. There were no significant changes in consumer purchase behavior. It appeared the SIP program was not effective in changing consumer purchase decisions. The authors suggested the lack of an identification of "heart healthy" and "nutritious food categories" was a crucial factor in the unsuccessful SIP project.

Olson, et al. (1982) evaluated a point-of-purchase supermarket nutrition education program that was designed to increase consumers' knowledge about complex carbohydrate foods and their relationship to health. This was measured by monitoring purchase consumption of high carbohydrate containing foods such as carrots, pasta, oats, dried beans, rice, whole wheat bread, and several others. Three grocery stores participated in the project. The results of this study suggested, when both mass media and point-of-purchase information was used, significant increases in nutrition knowledge and changes in sales of complex carbohydrates. However, sales changes did not continue during the follow-up period, six to 10 weeks later. This was not suprising as many of these products were staples and would not be purchased as frequently. This nutrition education program that combined both mass media and point of purchase information resulted in only small gains in nutrition knowledge and sales of the complex carbohydrates.

Jeffrey, et al. (1982) conducted a nutrition education program in a supermarket setting to determine the feasibility and effectiveness of conducting nutrition education programs in supermarkets. Nutrition knowledge increased in both treatment and

nontreatment stores; therefore, the treatment appeared to not have a knowledge effect. The scores in the experimental store were slightly higher than the controls but not enough for significance. However, nutrition knowledge was high on the pretest initially. More than 85 percent of the shoppers in the pretest scored correctly when choosing the lower fat items. It appeared consumers had a significant amount of knowledge about lowfat food choices. The experimental stores also showed a higher or greater amount of sales of selected lowfat products. However, they were not statistically significant over the control stores. In this instance, nutrition information did not significantly affect purchase decisions.

Muller (1983) determined the impact of instore nutrition information on product sales. A poster using a matrix design was used to present the information and hung above the aisle. The results, brand sales total, suggested consumers responded to point-of-purchase information. This was demonstrated by a shift in brands to the product with the higher nutritional content. The results suggested that nutrition can affect behavior in sales of product. Additionally, when comparisons between brands were facilitated by a matrix design, behavior was more easily changed.

Information load has also been measured for its effect on product sales. Information was presented on large placards with a brand by nutrient format. The results suggested varying the information load on the point-of-purchase signs did not result in a usage difference of these signs for consumer decision making. The findings suggested that increases in information load, from two to

seven brands, and from one to eight cues, did not decrease information use or result in sign avoidance. The results also illustrated a statistically significant shift in purchases towards more nutritious brands. There was an average of about four percent increase in the market share of those brands that were nutritionally superior (Muller, 1984b).

Russo, et al. (1985) designed information programs in the supermarket environment that could improve consumers' nutrition knowledge and shift purchase decisions towards more nutritious products. This study examined the effects of four levels of nutrition information format, two levels of nutrition information ordering, two levels of take home copies, and two levels of special promotion on consumers' awareness, knowledge, and attitude towards nutrition labeling and their effects on purchase decisions of nutritious foods.

The results suggested nutrition knowledge increased over all treatment levels. Knowledge increased more significantly if a promotion was included along with the posting. The data suggested numeric ordering was superior to alphabetical ordering as it facilitated interbrand comparisons. The results also suggested the effect of the presentation of nutrition information at point-of-purchase had a positive effect on nutrition attitude. The summary format that used descriptors to describe nutrition information generated the most negative attitude. Actual information was better than summarized information (Russo, et al., 1985).

A second smaller experiment was carried on simultaneously in

the Russo, et al. (1985) study to determine the influence of nutrition information on purchase selection. Only negative information was provided in this case: the amount of added sugar in breakfast cereals. The results of this study strongly suggested there was an effect on purchase behavior, i.e., there was shift to cereals with a lower sugar content. Market share in low sugar cereals increased 2.7 percent and those cereals highest in sugar decreased 2.3 percent. The results suggested the effect from the posting of the point-of-purchase information was immediate and the changes in purchase behavior remained constant as long as the information was posted. As soon as the information was removed, the mean market share returned to pretest levels (Russo, et al., 1985).

Muller (1985) determined the effect of four types of information factors on purchase behavior of consumers. The experimental design consisted of a four (number of nutrients) by two (nutrient importance level) by three (number of brands) analysis of covariance design. The matrix approach was used to display the nutritional information in a brand by nutrient format. Muller's (1985) findings suggested that introducing nutrition information on a brand by sign format did shift sales towards brands that were ranked as higher in nutrition. Additionally, this effect operated as a threshold, e.g., the shift in sales was found to be directly proportional to the average nutrient variation among brands. Muller's (1985) study did not find that shift in sales was correlated to consumers' importance attached to specific nutrients. His findings also did not support the hypothesis that increasing the

amount of nutrition information would decrease the actual sales in higher ranked brands. This was based on the hypothesis of information overload.

Levy, et al. (1985) evaluated the effect of a "special diet alert" program on product sales. The results, in general, suggested the SDA program did have a positive impact on those products that were identified. Greater market shares were seen in those products across time. Changes were seen in three low sodium food categories and five low calorie/low fat/low cholesterol sectors. When the results were combined across both food categories, significance was found in increases in market share.

Previous programs using a matrix design comparing brands by nutrient content showed an increase in consumer purchase behavior for nutritious foods while the program was implemented (Olson, et al., 1982; Russo, et al., 1985; Muller, 1983, 1985). Once the matrices were removed consumers reverted to previous shopping behaviors (Russo, et al., 1985; Olson, et al., 1982). The Giant Foods Program was successful because it pointed out nutrients people wish to avoid, there was very little information to process, and it was permanent versus short-lived. Also, consumers would have continued repeated involvement with this type of information program (Levy, et al., 1985). The supermarket may not be the best environment to place involved brand by nutrient matrices requiring intensive information processing behavior. See Table 3 for a summary of point-of-purchase studies.

Table 3. Design of nutrition at point-of-purchase studies.

Author, Year	Independent Variable	Dependent Variable(s)	Sample	Method
Soriano, et al., 1978	1. Health related information	1. Consumer purchase behavior	1. 3 supermarkets - 2 test - 1 central	1. Supermarket
Jeffrey, et al., 1982	1. Point-of-purchase material 2 levels absent, present	1. Sales date 2. Nutrition knowledge	1. 8 supermarkets - 4 control - 4 experimental	1. Questionnaire for knowledge pretest/post test
Olson, et al., 1982	1. Mass media 2. Point-of-purchase materials (2 levels) absent/present	1. Purchase/consumption of high carbohydrate containing foods. 2. Nutrition knowledge	1. 3 grocery store nutrition pretest N = 417 post test N = 388	1. Questionnaire for knowledge pretest/ posttest
Muller, 1983 Muller, 1984a, b Muller, 1985	1. Point-of-purchase material - matrix design posters brand by nutrient format	1. Product sales	1. Supermarket = 2	1. Computerized check-out - UPC scanners

Table 3. Continued.

Author, Year	Independent Variable	Dependent Variable(s)	Sample	Method
	2. Nutrition information load - 1, 2, 4 and 8 nutrients X 3 (brands) X 2 (cues, importance levels) X 4 (number of cues) X 2 (replications in different week)			
	1. Nutrition information - sugar on a poster 2. Take home copy of information 3. Ordering of posted information 4. Physical display 5. Instore promotion	1. Purchase decision of breakfast cereals	1. 2 matched supermarkets	1. UPC scanners
Russo, et al., 1985	1. Nutrition information format - 4 levels matrix, summary, complete, intermediate 2. Nutrition information ordering - 2 levels numerous and alphabetic	1. Purchase decisions of nutritious foods 2. Attitude	1. Representative middle-class 3,254 consumers 2. 14 supermarkets	1. Super-market 2. In-store surveys

Table 3. Continued.

Author, Year	Independent Variable	Dependent Variable(s)	Sample	Method
	3. Take home copies of nutrition information - 2 levels - present and absent 4. Special promotion - 2 levels - present and absent 4 X 2 X 2 X 2 matrix			
Levy, et al., 1985	1. Shelf markers for low sodium, low fat, and low cholesterol products quasi-experimental repeated measures design	1. Market share of these products	1. 20 test and control supermarkets 2. Broad range of socioeconomic and demographic variables	1. Supermarket 2. Sales Information

Research on Nutrition Information Processing and Load

There is a substantial amount of literature on information processing theory and information load on consumer purchase decisions. The purpose of this section will be to review the information load studies and some information processing studies as they relate to nutrition labeling and public policy.

Public policy is concerned about the provision of information to consumers in order to have efficient consumption. Consumers improve their purchase selections through trial and error or through programs that enhance consumer knowledge. In order for consumers' nutrition knowledge to be enhanced, they must be able to use or process the information.

Jacoby, Speller, and Kohn (1974a) were among early researchers who described the information overload phenomenon. Information load "refers to the variety of stimuli in type and number, to which the receiver must attend" (McCormick, 1970, p. 114).

> Information overload refers to the fact that there are finite limits to the ability of human beings to assimilate and process information during any given unit of time. Once these limits are surpassed, the system is said to be overloaded and human performance, including decision making, becomes confused, less accurate, and less effective. (Jacoby, 1977, p. 569)

In their study, the number of brands and the number of product attributes were varied. Their data suggested as information load increased, decision accuracy decreased. This was confirmed in their other studies (Jacoby, Kohn, and Speller, 1973; Jacoby, Speller, and Kohn, 1974b).

There were a number of critical evaluations of these studies

(Russo, 1974; Wilkie, 1974). Russo (1974) reexamined the data of Jacoby, et al. (1974a, 1974b) as Russo disagreed with the operationalization of total amount of information. The total amount of information in the Jacoby, et al. (1974a) study was defined N_{alt} (brands) X N_{dim} (dimensions). Russo (1974) suggested N_{dim} was more pertinent and related to actual information processing by consumers as six brands with four pieces of information per brand is not the same as eight brands with three pieces of information per brand. Wilke (1974) agreed with this observation. Russo (1974) suggested the Jacoby, et al. (1974a) data reflected that consumer confusion resulted from too little information, and not too much information. It was obvious that consumers used the information as they spent more time making decisions about the alternatives with more information.

Additional research was conducted in this area by Scammon (1978) to determine the impact of two levels of information load (four or eight nutrients) and information format (adjectival or percentage of U.S. RDA) on the ability of consumers to make product evaluation decisions. In general, the amount of nutrition information was not related to the selection of the more nutritious brand. When examining the data more closely, the results suggested a significant difference between the "no" information control group and the groups with four and eight nutrients. Therefore, some information is better than no information. However, Scammon's (1978) data suggested there was not a significant difference between the amount of nutrition information and the ability to identify the

nutritious product, which does not support the information overload hypothesis.

Scammon (1978) found the adjectival format significantly contributed to the identification of the more nutritious brand, over the percentage format; however, consumers were less satisfied with the adjectival format.

The results suggested that neither the format of the information nor the amount of information presented to study participants impacted on their purchase decisions. However, study participants felt more certain, more satisfied, and less confused with their purchase decisions when higher amounts of information were present. The television commercials conveyed "accurate brand knowledge" to study participants; however, this did not appear to impact on their purchase decision even when the Koogle brand was made to appear more nutritious than Skippy (Scammon, 1978).

Bettman and Kakkar (1977) studied the most efficient way for consumers to process information on a purchase decision setting. Three levels of format were used, including one that encouraged attribute processing, one that encouraged brand processing, and a third that was suitable for either type.

A major result of Bettman and Kakkar's (1977) study was the types of strategies used to acquire information were strongly influenced by the structure of the information presented. This implied that the processibility of the information was dependent on the format. Therefore, if there are certain types of information processing that are easier for consumers to use, then information

should be presented in a format that promotes that type of processing.

Patton (1981) investigated the effect of different amounts of information on purchase decisions of consumers by also varying product quality. The results suggested when brands were controlled for quality but varied in amount of information, study participants selected the brand that provided the most information. Additionally, there appeared to be no difference among the formats used to provide information on brand choice. (Note formats used included no special display, a brand by attribute information matrix display that had the same information as on the cereal package, and a brand by attribute information matrix display with a limited amount of information).

The results of the unequal quality condition suggested choice of brand did not lean as heavily towards those brands with the most information. Patton (1981) suggested the difference in quality may have contributed to the lessening of the high levels of information. However, there still was a significant difference in those brands that provided the most information. Patton's (1981) data suggest that a company may improve its market share by increasing the amount of information on its products. If all competitors supplied the same quality of information, however, the effect would be suppressed.

Brucks, Mitchell, and Staelin (1984) investigated the effects of various formats in the provision of nutrition information in print advertisements, in addition to assessing the effect of

nutrition knowledge and product characteristics on information processing in this task. The design of the study involved two primary independent variables: nutrition information format and nutrition information load.

The results suggested a number of interesting conclusions. A higher amount of nutrition information was associated with an advertised product when the information was present versus when it was not. Additionally, the data suggested increasing the amount of nutrition information appeared to result in decreased use of the information. The study respondents who tested higher on nutrition knowledge recalled more nutrition information, and a larger percentage of the information they recalled was nutritional. Nutrition knowledge of the consumer along with the perceived nutritional quality of the product affected nutrition information processing (Brucks, et al., 1984)

As is evident, the data regarding the effects of nutrition information load and nutrition information format are contradictory. A number of studies suggest that consumers make poorer nutritional choices when more nutrition information is present (Jacoby, et al., 1974a; Jacoby, et al. 1977a), whereas Russo (1974) showed they make better nutrition choices. Additionally, Scammon (1978) indicated format affects processing of information and correctness of quality decision, whereas Patton (1981) found format does not influence the accuracy of consumer purchase decisions. Scammon (1978) recommended further research in this area using multivariate analysis so that format, load, and other variables could be considered

simultaneously. Hence, as stated earlier the purpose of the current study was to determine the effect of both format and information in a consumer purchase decision.

A multivariate approach was used in both phases of the current study. In the determination of the most useful nutrition label, the nutrient density format was evaluated.

Nutrient Density

Numerous studies on the use of nutrient density as a guideline for nutrient intake have been conducted (Hansen, Wyse, and Brown, 1978; Wittwer, Sorenson, Wyse, and Hansen, 1977; Hansen and Wyse, 1980; Windham, Wyse, Hansen, and Hurst, 1983a; Windham, Wyse, Hansen, and Hurst, 1983b; Sorenson and Hansen, 1975). The index of nutritional quality was proposed, developed, and evaluated over the last 17 years (Hansen, 1971, 1973; Sorenson and Hansen, 1975; Sorenson, Wyse, Wittwer, and Hansen, 1976; Wittwer, et al., 1977; Hansen, et al., 1978; Hansen and Wyse, 1980; Wyse, Sorenson, Wittwer, and Hansen, 1976).

Nutrient density is defined as "the ratio of a food's nutrient contribution to its calorie contribution" (Wittwer, et al., 1977, p. 26). The Index of Nutritional Quality (INQ) has been developed from the concept of nutrient density:

$$\text{INQ} = \frac{\text{Percent of Nutrient Allowance}}{\text{Percent of Energy Requirement}}$$

This index allows the evaluation of nutritional quality of foods and dietary intake.

Nutrient density has been tested for use in nutrition labeling

(Mohr, et al., 1980) and was found to be superior to the current nutrition label format in enhancing accuracy of consumer decision making. Rudd (1986) reported similar results. The graphic nutrient density label was easier for consumers to comprehend with little explanation. Therefore, the nutrient density format for nutrition labeling was important to test in further nutrition label research.

It was tested in this study, along with other nutrition label attributes, by using the multivariate technique of conjoint analysis.

Conjoint Analysis

In the last 20 years, conjoint analysis has become a widely used technique for the study of multiattribute decision making. The first description of the technique was published by Luce and Tukey (1964). Nearly a thousand commercial studies have been conducted using a variation of the marketing approach first described by Green and Rao (Cattin and Wittink, 1982; Green and Rao, 1971). As defined by Green and Rao (1971, p. 355):

> Conjoint measurement is concerned with the joint effect of two or more independent variables on the ordering of a dependent variable.

The technique takes rank ordered information and transforms it into interval data (Green and Rao, 1971).

The majority of commercial applications have involved consumer products (Cattin and Wittink, 1982; Currim, Weinberg, and Wittink, 1981). The purpose of the commercial applications of conjoint analysis, in the majority of cases, involved the evaluation of new

product concepts (Cattin and Wittink, 1982). A second purpose was the determination of price with market segmentation as the third reported most common use (Cattin and Wittink, 1982). Four attributes were used in each phase of the current study. Green and Wind (1975) have also recommended the use of conjoint analysis for pricing and brand alternatives, new product formulations and combinations of brand name, package design, and promotional copy combinations.

The median number of attributes used in conjoint analysis studies was six or seven. The number was kept small, especially in the full-profile approach, as consumers had difficulty in evaluating profiles with more than six attributes (Cattin and Wittink, 1982).

There are two primary data collection procedures (Le Claire, 1980) in conjoint analysis: the full-profile approach and the trade-off matrix (Le Claire, 1980; Johnson, 1974; Bennett and Moore, 1981). In the majority of studies conducted, the full-profile approach has been utilized as it was more realistic of the consumer choice environment. Other supportive reasons included its ease of administration, the speed in which it could be conducted, less respondent fatigue, and flexibility in analysis (Cattin and Wittink, 1982).

The most commonly used modes of presenting stimuli and exhibits to participants were through verbal and written descriptions of hypothetical objectives. Pictorial descriptions and actual products were used in seven percent of the cases (Cattin and Wittink, 1982). Actual products were used in the current study.

There were two different types of response modes used to determine preference judgements: rank ordering of hypothetical objects and rating scales. Rank order judgements were used for their realistic approach to shopping behavior and their ease of administration (Cattin and Wittink, 1982). Newer programs, Adaptive Conjoint Analysis (ACA), use a combination of these methods (Johnson, 1986).

The dependent variable was most frequently defined as either intention to buy or preference. Both were used in about 45 percent of the cases (Cattin and Wittink, 1982).

Conjoint analysis results were most commonly used:

1. To determine a market simulation based on individual preference level to predict market share for a new product or changes in an existing one.
2. To determine market segmentation based on preference judgements.
3. To determine the aggregation of preference data for all study participants (Cattin and Wittink, 1982).

Reliability and Validity of the Use of Conjoint Analysis in Multiattribute Decisions

As conjoint analysis has become more frequently used in multiattribute consumer purchase decision studies, the reliability and validity of its results and their use have been studied (Tashchian, Tashchian, and Slama, 1981; Cattin and Weinberg, 1979). A review of reliability and validity was included in a conjoint analysis article by Green and Srinivasan (1978). Additional studies

have appeared in the literature since that time and have dealt with three main issues, according to Tashchian, et al. (1981): data collection (Ascito and Olshavsky, 1980), measurement of reliability and validity (Blackston and van der Zanden, 1980), and the structural and chronological reliability of conjoint analysis (McCullough and Best, 1979).

Tashchian, et al. (1981) examined the effects of individual differences, five demographic variables, on the quality of the participant's response and the participant's willingness to take part in a full-profile conjoint analysis task. The results of this study suggested education, race, and age were related significantly to completion of the full-profile task. The study participants' prior knowledge of the concern being tested correlated significantly with conjoint validity. Education was also significantly related to validity (Taschian, et al., 1981). The reliability and validity of conjoint analysis in the study are discussed in the methodology chapter, along with a more indepth discussion of conjoint analysis.

CHAPTER III

METHODOLOGY

Purpose of the Study

The purpose of this study was to determine the effect of changes in nutrition labeling information on consumer purchase decisions. A second purpose was to develop an "ideal" nutrition label that would be useful to consumers in purchase decisions.

Objectives of the Study

Objective I. The first objective was to obtain information about the effect of:

a) two levels of nutrition label formats, traditional and graphical (see Figure 1) and

b) three levels of nutrition information load, some, more, and most (see Figure 2) on consumers' preference for product choice in the context of a purchase decision process.

Objective II. The second objective of this study was to obtain information about the effect of:

a) three levels of nutrition label formats, traditional, graphical, and graphical nutrient density (see Figure 3);

b) three levels of nutrition information load, some, more, and most (see Figure 4);

c) four levels of nutrition information expression, traditional, absolute numbers, percentages, and both

absolute numbers and percentages (Figure 5); and

d) two levels of nutrition information order, traditional and rearrangement (see Figure 6) on consumers' preference for nutrition label usefulness in a purchase decision.

Dissertation Hypotheses

Ho1: There will be no difference in consumer preferences for the graphical nutrition label format and the traditional nutrition label format in purchase decisions.

Ho2: There will be no difference in consumer preferences for the most nutrition information load and the some nutrition information load in purchase decisions.

Ho3: There will be no difference in consumer preferences for the most nutrition information load and the some nutrition information load in determining the usefulness of nutrition labels in purchase decisions.

Ho4: There will be no difference in consumer preferences for the graphical nutrition label format and the traditional nutrition label format in determining the usefulness of nutrition labels in purchase decisions.

Ho5: There will be no difference in consumer preferences for the graphical nutrient density label format and the traditional label format in determining the usefulness of nutrition labels in purchase decisions.

Research Design

The research design was divided into Phase I and Phase II. The purpose of Phase I, which pertained to objective 1, was to determine the effect of two levels of nutrition label formats, traditional and graphical and three levels of nutrition information load, some, more, and most nutrition information on consumer preferences in purchase decision. The design matrix was 3 (brands) X 3 (prices) X 2 (formats) X 3 (information loads) (see Figure 14). This phase also examined the effect of changes in nutrition labeling on consumer purchase decisions.

In Phase I, hypotheses one and two were tested. The product class, vegetable beef soup, remained constant. The brand of soup used to portray nutrition information was Red and White soup. This brand was not tested in the study, was not sold in Salt Lake City, and therefore would not bias consumers' decisions regarding brand.

In Phase I, the independent variables tested by hypotheses one and two were nutrition information format and nutrition information load. Brand and price were also considered independent variables. The dependent variable measured was consumers' preference for product choice.

This design required the testing of 54 different combinations. The accomplishment of this type of design would be difficult if each individual had to examine 54 combinations of attributes. Therefore, ACA (Johnson, 1986) was used.

ACA (Johnson, 1986) is a form of conjoint analysis that is microcomputer-based. The computerized interview is developed or

Phase I

3 X 3 X 2 X 3 Matrix

Attributes are:

Brand:	Campbell's
Brand:	Private Label,* i.e., Albertson's
Brand:	Generic
Price:	Low - 37 cents
Price:	Medium - 55 cents
Price:	High - 56 cents
Nutrition Format:	Traditional
Nutrition Format:	Graphical
Nutrition Information:	Some
	Calories, Sodium, Protein, Carbohydrate, Fat, and Cholesterol
Nutrition Information:	More
	Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol, Calcium, Iron, Vitamin C, and Vitamin A
Nutrition Information:	Most
	Calories, Sodium, Protein, Carbohydrate, Simple Sugars, Complex Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin

Figure 14. Design matrix for Phase I.

* Albertson's is one example of a Private Label.

adapted for each respondent. This program determines the effective of defined product attributes on overall preference or likelihood of purchase. It does not require a fractional factorial design as the program determines the:

> relative desirability of each attribute level, and relative importance of each attribute. Then, under control of the researcher, the respondent is interviewed in detail about only those attribute levels which would be acceptable to him and only those which he regards as relatively important. (Johnson, 1987a, p. 3)

The attribute utilities are calculated throughout the program using ordinary and least squares regressions.

A primary purpose of conjoint analysis is to appraise new service or product concepts. Conjoint analysis has also been used in product design and modification, determination of features for new products, and pricing (Cattin and Wittink, 1982; Green and Srinivasan, 1978; Currim, Weinberg, and Wittink, 1981; Bennett and Moore, 1981).

Conjoint analysis has been used in determining consumer choice processes, by ascertaining the "relative importance" of attributes and levels of attributes based on rankings and trade-off decisions (Johnson, 1974; Green and Srinivasan, 1978). Variables are described as attributes in conjoint analysis. The technique requires a description of the product or products using attributes. Each attribute consists of levels, which need to be enumerated. In Phase I of this study, four attributes were used to describe a vegetable beef soup. Each attribute had from two to four levels, e.g., nutrition information load - some, more, and most levels.

The purpose of Phase II, which pertained to objective 2, was to determine the effect of:

a) three levels of nutrition label formats, traditional, graphical, and graphical nutrient density;

b) three levels of nutrition information load, some, more, and most;

c) four levels of nutrition information expression, traditional, absolute numbers, percentages, and both absolute numbers and percentages; and

d) two levels of nutrition information order, traditional and rearrangement; on consumers' preference for nutrition label usefulness in a purchase decision.

The design matrix was 3 (formats) X 3 (information loads) X 4 (information expressions) X 2 (nutrition information orders) (see Figure 15). This phase determined a nutrition label that would be useful to consumers in purchase decisions.

In Phase II, hypotheses three, four, and five were tested. The product class, vegetable beef soup and the brand, Campbell's, remained constant. The nutrition information was listed on Campbell's soup cans.

In Phase II, the independent variables tested in the hypotheses were nutrition information format and nutrition information load. Nutrition information order and expression were also considered independent variables. The dependent variable was usefulness in purchase decisions.

Phase II

3 X 3 X 4 X 2 Matrix

Attributes are:

Nutrition Format:	Traditional
Nutrition Format:	Graphical
Nutrition Format:	Nutrient Density
Nutrition Information:	Some
	Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol
Nutrition Information:	More
	Calories, Sodium, Protein, Carbohydrate, Simple Sugars, Complex Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A
Nutrition Information:	Most
	Calories, Sodium, Protein, Carbohydrate, Simple Sugars, Complex Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin
Nutrition Information Expression:	Traditional
Nutrition Information Expression:	Absolute Numbers
Nutrition Information Expression:	Percentages
Nutrition Information Expression:	Absolute Number + Percentages
Nutrition Information Order:	Traditional
Nutrition Information Order:	Rearrangement

Figure 15. Design matrix for Phase II.

Overview of Research Approach

The study began with the testing of format, amount of information, information expression, and arrangement of information on two focus groups. The information obtained from the focus groups served as the basis for the nutrition labels and study questionnaire.

Next the labels were professionally printed on Campbell's and Red and White soup cans to realistically portray the information. In order to test the labels, a new computer interactive interview was developed, pretested, and fielded.

The study was conducted as a shopping mall intercept at Crossroads Mall in Salt Lake City, Utah. Data were collected and tabulated on computer disks and analyzed using Adaptive Conjoint Analysis (Johnson, 1986) and the Statistical Package for the Social Sciences/Personal Computer Plus (SPSS/PC+) Programs (Norusis, 1986).

Focus Group Interviews on Nutrition Labeling

Information obtained from the focus groups is reported in the methodology section because it served as the basis for the labels that were evaluated in the study. Two focus group interviews were conducted in June 1983. The purpose of the focus group interviews was to obtain information on consumer reactions to proposed label formats to be tested in the shopping mall intercept study. Nutrition label format, amount, expression, and arrangement of information were tested.

The focus groups were structured in two sections. During the

first section, questions were asked regarding food shopping practices and current usage of nutrition label information to serve as a comparison to previous studies and as a basis for the survey instrument. During the second half of the focus group sessions, the participants were divided into five groups. Each group reacted to a different label format and then presented this label to the whole focus group, allowing the remaining participants a chance to react to all label formats. At the conclusion of the focus group session, the participants were asked to complete a short socioeconomic and demographic questionnaire (see Appendix B).

Focus Group I consisted of females between the ages of 25 and 50, with the 25 to 35 age group predominant. All participants were married, had an average of four children, and had a high school diploma, with 75 percent having some college education. All but one participant were full-time homemakers, with their husbands employed full-time. Their total family incomes ranged from $12,000 to $45,000 yearly, with over half in the $25,000 to $45,000 range. All but two participants performed most of the food shopping.

Focus Group II consisted of half females and half males between the ages of 25 and 50, with the 25-35 age group predominant. They all were single, with no children, and had a high school diploma. Seventy-three percent had some college education, with 40 percent of the total group having graduate degrees. The majority of the participants were employed full-time as professionals. Their income ranged from $4,000 to $25,000 per year with an average income of $12,000. Seventy-three percent of this group performed all of the

food shopping.

As a result of the study of the two focus groups, the decision was made to use one brand and one product category, i.e., vegetable beef soup, as various products and brands appeared to confuse the design. The graphical format label would extend out to 100 percent of the RDA, and when used, all nutrients were included. Labels were printed in actual size because the graphical format may not be as effective when reduced to fit on real labels. In addition, it was decided that actual products would be used with the label alterations since this had not been tested extensively.

The decision was made to have four levels of information expression: traditional, absolute numbers only, percentages only, and both absolute numbers and percentages together to accommodate the differences between Focus Group I and II. Three levels of label format, traditional, graphical, and nutrient density, also were used to accommodate the differences between Focus Groups I and Focus Group II. This allowed the study design to determine which was most useful to consumers as a whole in a purchase decision and to test if these differences would appear as market segments. For a more detailed description of the focus group results, see Appendix C.

Questionnaire Development

After incorporating focus group results, the questionnaire was field tested. The initial questionnaire was developed to use a full-profile approach of conjoint analysis. A design matrix using fractional factorial design (orthogonal array) was developed (see Appendix D). The questionnaire was refined over a period of time.

In traditional conjoint analysis, study participants make decisions about the test concept in one of two ways: trade-off approach or full-profile approach. The trade-off approach entails making decisions about two attributes at one time. The study participant is asked to rank combinations of levels of two attributes each, from least preferred to most preferred. This approach is relatively easy for the respondent and can be used in mail surveys. The combinations are usually printed on cards. This approach does have limitations: the task is not as realistic as the full-profile approach and it requires numerous judgements (Johnson, 1974; Green and Srinivasan, 1978).

The full-profile approach requires the study participant to rank complete descriptions of products in regard to preference or likelihood of purchasing. A level of each attribute is described in each product concept (Green and Srinivasan, 1978; Johnson, 1978). In order to avoid information overload, a fractional factorial design is usually implemented. The limitation of this approach is the evaluation of numerous attributes at one time. This, however, more realistically represents the actual purchase situation (Green and Srinivasan, 1978).

An administrative decision was made to use ACA, (Johnson, 1986) a new interactive computer program as it overcomes the disadvantages of the trade-off and full-profile approaches. The ACA (Johnson, 1986) system employed rankings, importance ratings, and the full-profile approach. The full-profile approach was accompanied by life size exhibits that illustrated the various levels of each attribute.

A fractional factorial design was not required as it is in the non-computerized programs. As a result, a new questionnaire was developed and tested during the summer and early fall of 1987. For more details regarding this process see Appendix E.

Survey Instrumentation

The questionnaire linked two computer programs: Computerized Interviewing II (Ci2) (Johnson, 1987b) and ACA (Johnson, 1986). The Ci2 (Johnson, 1987b) program is a computer-interactive interviewing system. Its capabilities include constructing a questionnaire, administering the questionnaire, and providing a marginal tabulation of respondent data. There are five components to this system: Frames, Logic, Run Questionnaire, Print Questions, and Examine Data (Johnson, 1987b) (see Appendix F).

The ACA system implemented the statistical technique of conjoint analysis into a computer interactive system. This is a generic program that can be adapted by individual researchers to test consumer acceptance of new products. The ACA system consists of three components: an Interviewing System, a Utility Calculator, and a Market Simulator. The Interviewing System contains prewritten frames that can be adapted for a particular questionnaire. The Interviewing System also collects participant responses to the ACA questionnaire. The Utility Calculator derives each respondent's utilities and strength of preference for each level of each attribute tested. This is done by ordinary least squares regression (Johnson, 1986).

The Market Simulator allows the testing of product scenarios

based on attribute levels and respondent utilities to determine market share. The "Share of Preference with Corrections" was the choice model type used in this project. It divided the respondent's choice among the designated products based on calculated respondent utilities (Johnson, 1986) (see Appendix G).

The questionnaire developed for this study contained three distinct modules: two ACA (Johnson, 1986) modules linked to one Ci2 (Johnson, 1987b) module (see Appendix H). The questionnaire began with an introduction and instructions in the Ci2 module and then went directly into the first ACA module. The first ACA module dealt with Phase I of the study, the effect of nutrition information on consumer purchase decision of vegetable beef soup. Five exhibits were printed on Red and White soup cans for this phase: one for each level of the variables Nutrition Label Format and Nutrition Information Load (see Figures 1-2).

The second ACA module, Phase II of the study, dealt with the determination of the most useful nutrition label. The product class tested was vegetable beef soup. The brand, Campbell's soup, remained constant. Lifesize nutrition labels were printed and placed on Campbell's soup cans to display all levels of all variables. This section had 12 exhibits (see Figures 3-6).

After the completion of the two ACA modules, the questionnaire program returned to the Ci2 module. This portion of the questionnaire included questions on food shopping patterns, questions 4-15; soup shopping behavior, questions 16-36; use of nutrition information on the label, questions 40-144; reasons for

using the nutrition label, questions 156-179; self-report nutrition knowledge, question 178; Rokeach value scale, questions 182-186; Market Maven scale, questions 197-202; and a shopping involvement scale, questions 207-211. The final portion of the questionnaire in the Ci2 module consisted of questions to elicit socioeconomic and demographic information, questions 213-249.

All questions included in the final questionnaire were based on theoretical concepts and previous consumer nutrition surveys. Each question was judged important in data analysis and provided the opportunity for segmentation of responses and for additional market simulations.

In order to administer the questionnaire, field disks were prepared from a master disk. The field disks were double-density floppy disks that were inserted into a 256 K IBM PC microcomputer. A color monitor with 40 and 80 column screen capabilities was used. Twenty-seven field disks were programmed to automatically assign respondent numbers in the field. Each disk was programmed to collect data for 20 respondents.

Graphic Production Techniques for the Soup Can Labels

In order to produce realistic facsimiles of the various labels involved in the study, the principal investigator employed a graphics house located on the University of Utah campus to coordinate the overall development of the labels. Twin Typographers of Salt Lake City did the typesetting and Ramen Winegar Panorama Production of Salt Lake City handled printing of the labels (see

Appendix I for further details).

Dietary Standards for Nutrition Labels

The current U.S. RDA standards for nutrition labeling were used to portray nutrition information. The standards in Table 4 were used for those nutrients that did not have a U.S. RDA.

Table 4. Nutrient standards used for nutrition label information.

Nutrient	Standard
Calories	2000
Carbohydrate	250 grams (50% of Kcal)
Simple Sugars	50 grams (10% of Kcal)
Complex Carbohydrates	200 grams (40% of Kcal)
Fat	67 grams (30% of Kcal)
Cholesterol	300 mg
Sodium	1100 mg/1000 Kcal

The standard for calories is the midpoint for women aged 23-51 years from the RDA (Food and Nutrition Board, 1980; Hansen, et al., 1985). The carbohydrate and simple sugars standard is based on the recommendation from the Food and Nutrition Board of the National Academy of Sciences to increase complex carbohydrates from 46 percent of calories and decrease simple sugar intake from 16 - 17 percent of calories (Food and Nutrition Board, 1980).

The standards for fat and cholesterol are recommendations of the AHA (1986). The standard for sodium is the midpoint of the range

1100-3300 mg/day, suggested as a safe and adequate intake by the (Food and Nutrition Board, 1980).

Research Approach

Utah Market Research, a professional marketing research firm, conducted the study. The interviewers were provided with information and a training session regarding questionnaire administration (see Appendix J). Interviewers administered the interactive computerized questionnaire to 252 selected shopping mall participants in the Crossroads Mall Shopping Center in downtown Salt Lake City, Utah. Testing occurred six days a week from 10:00 a.m. to 5:00 p.m. Interviewers used all entry sites into the main section of the mall on all floors to select study subjects.

The interviewers asked shoppers if they would be willing to participate in a 30-40 minute marketing research survey (see Appendix K). Interviewers told consumers they would be compensated $3.00 for their time. If subjects agreed, they were taken to the market research offices on the third floor of the mall. Interviews were conducted in individual interviewing rooms that contained a table with an IBM PC XT computer with a color monitor.

The interviewer stayed with the subject during the computer administered interview in order to assure the participant answered all questions correctly, and to assure there were no problems with the program. The interviewer explained the questionnaire prior to administration; however, this varied with the interviewer (see Appendix L). The interviewer was instructed to leave during the last portion of the questionnaire where sensitive socioeconomic

demographic questions were asked.

Upon completion of the questionnaire, the participant contacted the attendant and was given the $3.00 participant fee. The participants were then asked to sign a form that indicated they had completed the study.

If a shopper declined to participate in the study, the screeners were instructed to ask three questions: the person's occupation, years of school, and whether or not he or she read nutrition labels. The screener was also asked to note the sex of the nonrespondent. These data were used to compare nonrespondents and respondents on socioeconomic demographic variables (see Appendix M).

The Utah Market Research group interviewed approximately 13 shoppers per day. The study was initiated on Wednesday, October 7, 1987 and was concluded on October 26, 1987.

The Principal Investigator for the study met with Utah Market Research Interviewers on a daily basis for the first week at 6:00 p.m. to ascertain if any problems occurred and to collect the computer disks for daily analysis. The second week, the principal investigator met every other day with the interviewers and then was not available for the last week of the study. The principal investigator wore a pager in case any problems occurred with the computers or the program.

Data Processing and Analysis

The Ci2 interviewing module (Johnson, 1987b) provided individual respondent data for each question, a compilation of

responses to open-ended questions, and a marginal tabulation of all participants' responses. The Ci2 program (Johnson, 1987b) also converted the individual respondent data into an ASCII format for interfacing with the SPSS/PC+ program.

The ACA program (Johnson, 1986) provided an individual respondent report, utilities for each respondent, and mean utilities for the total sample. It also provided the ability to perform market simulations. Data from both the Ci2 interviewing module (Johnson, 1987b) and the ACA (Johnson, 1986) module were analyzed with the SPSS/PC+ program (Norusis, 1986).

Statistical tests performed by the SPSS/PC+ program (Norusis, 1986) included descriptive statistics, multivariate analysis of variance, (MANOVA), regression analysis, cluster analysis, and discriminant analysis. The ACA system (Johnson, 1986) performed the conjoint analysis and the market simulations.

Descriptive statistics were performed on all variables. Statistics included frequencies, percentages, means, median, mode, range, variance, standard error, and standard deviation.

The reliability and validity of conjoint analysis were handled in the ACA program (Johnson, 1986) by the calculation of an internal correlation for each respondent. This correlation, which ranges from 0 to .999, is the internal correlation between the respondent's actual and predicted answers to the Calibration Concepts Section. See Appendix G for the description of the Calibration Concepts. This correlation can be used as an exclusion or inclusion factor in data analysis. According to information from Sawtooth Software,

Inc., the developers of the ACA program (Johnson, 1986), the bottom five to seven percent of the sample should be dropped from further statistical procedures, due to low correlation (personal communication, Joseph Curry, Sawtooth Software, Inc.). In Phase I, the correlation was set for $\geq .300$ for inclusion in further data analysis, i.e., 226 usable cases met the $r^2 \geq .300$ level for inclusion. In Phase II, the correlation was set at $\geq .400$ for inclusion, N = 179 (personal communication, Joseph Curry, Sawtooth Software, Inc.).

To determine if differences existed between each level of an attribute, MANOVAS were performed on the attributes: brand, price, and nutrition information load in Phase I and nutrition information format, nutrition information load, and nutrition information expression in Phase II. Analysis of variance, (ANOVA) was performed on nutrition information format in Phase I and nutrition information order in Phase II as only two levels of the attributes were tested.

For each attribute in Phase I and II, 13 variable segmentations were performed: age, primary grocery shopper, special diet, sex, race, marital status, any children, education, occupation, income, label reader, attitude towards soup, and nutrition knowledge, to determine if there were any differences in response to all independent variables. Previous studies have suggested differences in consumers' responses to label information based on these variables (Lenahan, et al., 1972; McCullough and Best, 1980; Daly, 1976; Mohr, et al., 1980; Klopp and McDonald, 1981; Schutz, et al., 1986). MANOVA or ANOVA was used in each of the segmentations by

attribute to determine if differences/interactions existed.

The utility values for all independent variables in Phase I and Phase II were used to perform cluster analysis for each phase. The clustering technique used was based on nearest centroid sorting (Anderberg, 1973; Aldenderfer and Blashfield, 1986). In this method, a subject was assigned to a cluster based on the smallest distance between the subject and the cluster center (centroid).

Ten clusters were picked arbitrarily to determine the pattern of the clusters and to determine if the clusters were significantly different. It appeared that clusters at that level were redundant and few subjects were grouped in clusters four through 10. The decision was made to then proceed with three cluster solutions in both Phase I and II. The quick cluster procedure was run on the SPSS/PC+ program (Norusis, 1986). Information was provided on initial and final cluster centers, Euclidean distance between the final cluster centers, ANOVA, and the F test. Discriminant analysis was run on the utilities for Phase I and Phase II to determine cluster solution validity.

Mohr, et al. (1980) found in their study that persons with high school diplomas and lower incomes had a significantly larger number of correct nutrition decisions using the graphical nutrient density label format. Two way analysis of variance was used to determine if the variables, education and income, were related to usefulness of the graphic nutrient density format in Phase II.

McCullough and Best (1980) found the variables of education, income, and nutrition knowledge affected consumer preference for

some versus more information loads. Regression analysis was used to determine if education, income, and nutrition knowledge were predictors of preference of the some information load in Phase I and II. Education, occupation, and nutrition knowledge were used in regression analysis to predict usefulness of the most information load in Phases I and II. These variables were also tested with three way ANOVA.

A number of studies have found significant differences between label and nonlabel readers in such variables as education, income, occupation, age, race, and nutrition knowledge (Lenahan, et al., 1972; Klopp and McDonald, 1981; Daly, 1976; McCullough and Best, 1980). Regression analysis was used with these variables to determine if they could predict label and nonlabel users in this study. These variables were also tested with discriminant analysis. In performing the above regression analyses, correlation matrices were developed to determine significant correlations. If predictor variables were strongly correlated, one of the variables was deleted in the final equation to solve for multicollinearilty.

Market simulations were performed on Phase I using the "Share of Preference with Corrections" choice model to determine if manipulation of nutrition information attributes would result in a shift of market share from Campbell's to Albertson's/Private Label, or Generic brands. Presumably if consumers do like and find useful a particular label format, etc. it will shift their purchase in that direction. Market simulations will help confirm this. Additional

simulations subsequently were run to determine the changes Campbell's needed to make to protect market share.

CHAPTER IV

RESULTS

Restatement of the Problem

The purpose of this study was to determine if the format and the amount of nutrition information were important to consumers in purchase decisions using adaptive conjoint analysis. A second purpose was to develop a nutrition label that would be useful to consumers in purchase decisions.

Description of the Sample

The study was conducted on 252 randomly chosen consumers in Crossroads Mall, a major mall in downtown Salt Lake City, Utah. A profile of respondents by class interval with the greatest frequency can be seen in Table 5.

The majority of the 252 survey participants were female, between 18 - 34 years of age, married, with some college education. See Appendix N for a categorical breakdown of socioeconomic and demographic variables. Table 6 compares the sample from this study to the population of the State of Utah and to Salt Lake County. The study sample had a larger percentage of Caucasians, and had individuals more highly educated than the State of Utah or Salt Lake County populations. This sample also had a lower employment rate, possibly due to the high percentage of college students that frequented the shopping mall. See Appendix M for nonrespondent data.

Table 5. Typical profile of study participants based on socioeconomic and demographic class intervals with the greatest relative frequency. (N = 252)

Variables	Demographic Category	Percentage
Age	18 - 24	36.9
Sex	Female	61.9
Race/Ethnic Group	Caucasian	90.1
Marital Status	Single	46.4
Education	1-3 Years of College	38.1
Employment	Yes, Full-Time	55.6
Family Income	50,000+	17.9
Occupation	Professional	31.0
Spouse Education	1-3 Years of College	41.4
Spouse Occupation	Professional	39.8
Children	None	66.7

Table 6. Comparison of demographic and socioeconomic information of sample to the population of Salt Lake County and the State of Utah, by median or percentage.

Variables	Nutrition Labeling Study	Salt Lake County#	State of Utah#
Race/Ethnic Group			
Hispanic	0.8%	5.0%	4.1%
Median Age*	25 - 34 years	25.4 years	24.2 years
Martial Status			
Widowed or Divorced	9.5%	12.5%+	10.6%+
Employed	72.6%	95.2%	86.4%
Education			
High School Diploma	93.3%	79.5%	80.0%
College > 4 years	31%	18.2%	16.3%
Median Income	$15-$19,999	$21,064	$20,024

Statistics for Salt Lake County and State of Utah from Brock and Jensen (1980).

* Nutrition labeling study did not have anyone under age 18; therefore, median age appeared higher than the State or County.

+ For those over age 15.

Results

Phase I

Conjoint Analysis. In Phase I, the first conjoint analysis compared attributes (i.e., brand, price, nutrition information format, nutrition information load), and determined how the study participants ranked choices within each of these attributes and against the other attribute. Table 7 presents the mean results for the sample.

There was a significant difference in preference among all three brands (see Table 7). Campbell's was the most preferred, followed by Albertson's. The Generic brand was least preferred. A significant difference also existed among all three levels of price, with the high price least preferred and the lowest price most preferred.

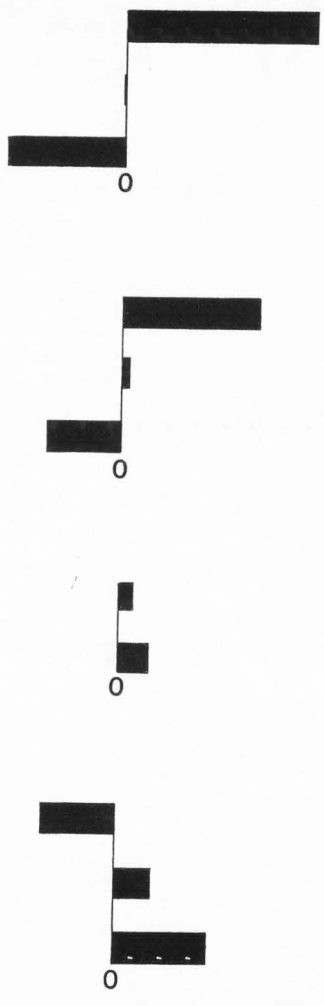
There was no difference in consumer preference for the traditional and graphical nutrition label formats in purchase decisions. Therefore, we failed to reject null hypothesis one.

Consumers significantly preferred higher levels of nutrition information in product choice decisions. There were significant differences among all three levels of nutrition information load. Therefore, null hypothesis two of no difference in consumer preferences for the most nutrition information load and the some nutrition information load was rejected.

Those attributes that have the largest mean utility range are considered more important in the purchase decision process (Sands

Table 7. Mean preference for levels of attributes in purchase decisions.# (N = 226)

Attribute	Mean Utility Score
Brand	
Campbell's	.590* ± .031+
Albertson's	-.007* ± .024
Generic	-.361* ± .034
Price	
Low	.431* ± .033
Medium	.022* ± .022
High	-.230* ± .029
Nutrition Information Format	
Traditional	.055[a] ± .020
Graphical	.093[a] ± .027
Nutrition Information Load	
Some	-.231* ± .027
More	.154* ± .019
Most	.300* ± .025



± Values are the mean utility ± standard error of the mean (SEM).

* $p \leq .000$

[a] $p = .298$

and Warwick, 1981). Brand was the most important attribute in the purchase decision process, followed in rank order by price (see Table 8) nutrition information load, and nutrition information format. The composite of the soup most likely to be purchased by consumers in this study is seen in Table 9.

Table 8. Relative importance of Phase I attributes in purchase decisions.

Attribute	Maximum Mean Utility	-	Minimum Mean Utility	=	Range of Utility
Brand	.590	-	(-.361)	=	.951
Price	.431	-	(-.230)	=	.661
Nutrition Information Load	.300	-	(-.231)	=	.531
Nutrition Information Format	.093	-	.055	=	.038

Table 9. Composite of soup most likely to be purchased.

Attribute	Level
Brand	Campbell's
Price	Low
Nutrition Information Format	Graphical or Traditional
Nutrition Information Load	Most

Multivariate Analysis of Variance (MANOVA). Previous studies have examined subgroups of populations to determine if there are differences in the use of the nutrition label information by various socioeconomic and demographic groups (Lenahan, et al., 1972; Daly, 1976; McCullough and Best, 1980).

In this study, 13 MANOVAS were performed for each of the four attributes (i.e., brand, price, nutrition information format, and nutrition information load) on the following variables: age, primary grocery shopper, special diet, sex, race/ethnic group, marital status, any children, education, occupation, income, label reader, attitude towards soup, and self-reported nutrition knowledge (see Table 10).

The segmentation variables that were significant in the multivariate analysis of variance for brand were race/ethnic group and presence of children (see Table 10). Tables 11 and 12 illustrate where the significance occurred. Race/ethnic group significantly affected the preference for Albertson's over Generic. The presence of children significantly affected the preference for Campbell's over Albertson's.

The MANOVAS for price and information load attributes revealed no significant differences for any segmentation variables. The analysis for the format attribute revealed a significant difference among occupations, $p < .03$.

Cluster Analysis and Discriminant Analysis. The utility values for all levels of the four attributes in Phase I were used to perform cluster analysis. The results for the three cluster

Table 10. Testing for interaction of segmentation variables with Phase I attributes using MANOVA.#

Segmentation Variables	Attributes			
	Brand	Price	Nutrition Information Format	Nutrition Information Load
Age	.064+	.237	.745	.833
Shopping	.853	.366	.293	.335
Special Diet	.063	.723+	.258	.445
Sex	.210+	.097+	.681	.655
Race/Ethnic Group	.022	.146	.517	.963
Marital Status	.397	.314	.937	.572
Any Children	.025	.808	.632	.534
Education	.806	.869	.508	.851
Occupation	.200	.278	.031	.844
Income	.305+	.831+	.272+	.370+
Label Reader	.688	.890	.201	.108
Attitude Towards Soup	.340	.205	.262	.173
Nutrition Knowledge	.381	.995	.253	.614

Values reported are levels of significance.

+ Multivariate test for homogeneity of dispersion matrices violated, therefore, results are suspect.

Table 11. Univariate F-test for race/ethnic group by brand interaction.

Attribute Level	F	Significance of F
Campbells.Albertsons	.05648	.812
Albertsons.Generic	7.70749	.006

Table 12. Univariate F-test for any children by brand interaction.

Attribute Level	F	Significance of F
Campbells.Albertsons	7.48231	.007*
Albertsons.Generic	.04808	.827

$p < .05$

solution can be seen in Table 13. Cluster 1, N = 177, was characterized by a preference for brand, i.e., Campbell's. This preference appeared to be insulated from information and price.

Cluster 2, N = 45, was characterized as information seekers, as high amounts of information were desired in purchase decisions. Cluster 3, N = 7, showed a strong preference for low price and could be characterized as being guided by economics.

The variability within clusters for all levels of attributes, with the exception of graphical format, was less than the variability between clusters (see Table 14).

Frequencies were tabulated for each of the 13 segmentation variables for each attribute level in Phase I. Further statistical

Table 13. Three cluster solution of Phase I attribute utilities.# (N = 226)

Attributes	Cluster 1 N = 177	Cluster 2 N = 45	Cluster 3 N = 7
Brand			
Campbell's	.6903*	.2618	.2081
Albertson's	.0145	-.1148	.1636
Generic	-.4511	-.0916	.1320
Price			
Low	.3057	.7657	1.3831*
Medium	.0744	-.1996	.1303
High	-.1264	-.5108	-1.0093*
Nutrition Information Format			
Traditional	.0753	-.0617	.2924
Graphical	.0939	.0986	.0437
Nutrition Information Load			
Some	-.1846	-.5186*	.4559
More	.1905	.0147	.1280
Most	.2478	.5591*	-.0799

Values are utilities.

* Primary variables defining clusters were selected by choosing the attribute level with a utility value of .5000 or higher. A level could only be used once to define any cluster.

Table 14. Analysis of variance of the three cluster solution for Phase I attributes.

Attribute Level	F	Probability
Campbell's	20.0498	.000
Albertson's	3.2507	.041
Generic	13.6163	.000
Low Price	37.7612	.000
Medium Price	14.6199	.000
High Price	33.3201	.000
Traditional Format	5.0930	.007
Graphical Format	.0980	.907
Some Nutrition Information	27.3630	.000
More Nutrition Information	7.3536	.001
Most Nutrition Information	19.3031	.000

analysis could not be performed as Cluster 3 had only seven members, which was inadequate for even nonparametric tests. Discriminant analysis was performed to determine the reliability of the three cluster solution. The results can be seen in Table 15.

A two cluster solution was also run for Phase I as the discriminant analysis correctly classified only 66.7 percent of Cluster 2 membership (see Table 16). Cluster 1 of the two cluster solution was characterized by a strong preference for low price. Cluster 2 was characterized by brand preference, again insulated

Table 15. Phase I three cluster group confirmatory discriminant analysis. (N = 226)

Cluster	Number of Cases	Predicted Group Membership 1	2	3
1	174	173 (99.4%)	1 (0.6%)	0 (0.0%)
2	45	15 (33.3%)	30 (66.7%)	0 (0.0%)
3	7	4 (57.1%)	0 (0.0%)	3 (42.9%)

Percent of "grouped" cases correctly classified: 91.15%

from price and nutrition information.

The variability within clusters for all levels of attributes, with the exception of traditional nutrition information format, some nutrition information, and most nutrition information, was less than the variability between clusters (see Table 17).

The results of the discriminant analysis to check the validity of the two cluster solution can be seen in Table 18. The discriminatory analysis correctly classified only 66.7 percent of Cluster 1 membership. It appeared brand had a strong effect on purchase decision.

Phase II

Conjoint Analysis. In Phase II, the second conjoint analysis compared the attributes, nutrition information format, load, expression and order, and determined how the study participants ranked choices within each of these attributes and against the

Table 16. Two cluster solution of Phase I attribute utilities.#
(N = 226)

Attributes	Cluster 1 N = 12	Cluster 2 N = 214
Brand		
Campbell's	.1166	1.1952*
Albertson's	.5859	-.1720
Generic	.2362	-1.2125*
Price		
Low	2.0379*	-.0259
Medium	.4783	.2640
High	-1.8383*	-.0684
Nutrition Information Format		
Traditional	.5854	-.1135
Graphical	-.0747	.2330
Nutrition Information Load		
Some	.8929	-.0875
More	.0376	.2260
Most	.1633	.0316

Values are utilities.

* Primary variables describing clusters were selected by choosing the attribute level with a utility value of .5000 or higher. A level could only be used once to define any cluster.

Table 17. Analysis of variance of the two cluster solution for Phase I attributes.

Attribute	F	Probability
Campbell's	16.5335	.000
Albertson's	.2169	.642
Generic	10.4335	.001
Low Price	82.2592	.000
Medium Price	7.6943	.006
High Price	63.8272	.000
Traditional Nutrition Format	2.9970	.085
Graphical Nutrition Format	4.1405	.043
Some Nutrition Information	1.6835	.196
More Nutrition Information	5.3969	.021
Most Nutrition information	.0174	.895

Table 18. Phase I two cluster group confirmatory discriminant analysis. (N = 226)

Cluster	Number of Cases	Predicted Group Membership 1	2
1	12	8 (66.7%)	4 (33.3%)
2	214	0 (0.0%)	214 (100.0%)

Percent of "grouped cases correctly classified: 98.23%

attributes. Table 19 presents these sample results.

The data suggested consumers significantly preferred the level of most nutrition information load over the level of some nutrition information in determining the usefulness of nutrition labels in purchase decisions. Therefore, null hypothesis three was rejected.

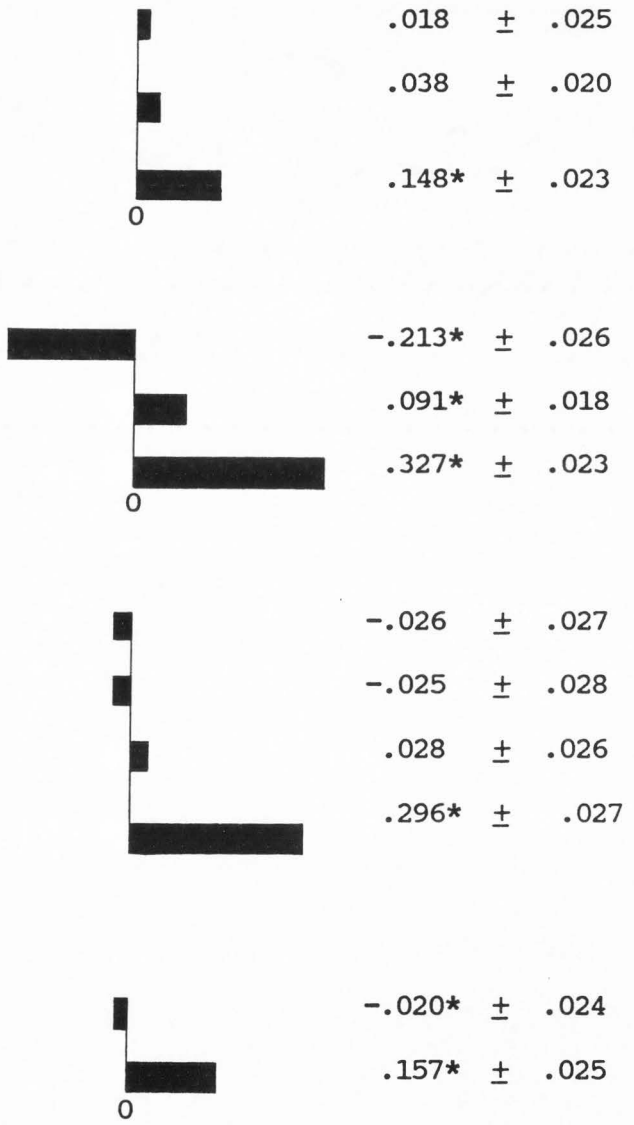
Consumers significantly preferred the graphical nutrition label format over the traditional nutrition label format in determining the usefulness of nutrition labels in purchase decisions. Null hypothesis four was rejected.

The graphical nutrient density label was as useful as the traditional format. The fifth nonstatistical hypothesis stated consumers would prefer the graphical nutrient density format as much as, if not more than, the traditional format. The first half of this hypothesis was not rejected.

Phase II of this study also examined other attributes of the nutrition label. The data suggested consumers significantly preferred nutrition information stated in terms of absolute numbers

Table 19. Mean usefulness of nutrition label attributes in purchase decisions.# (N = 179)

Attribute	Mean Utility Score
Format	
Traditional	.018 ± .025
Graphical Nutrient Density	.038 ± .020
Graphical	.148* ± .023
Load	
Some	-.213* ± .026
More	.091* ± .018
Most	.327* ± .023
Expression	
Traditional	-.026 ± .027
Percentages	-.025 ± .028
Absolute Numbers	.028 ± .026
Absolute Numbers and Percentages	.296* ± .027
Order	
Traditional	-.020* ± .024
Rearranged	.157* ± .025



Values are mean utilities ± SEM.

* $p \leq .000$

and percentages versus traditional expression, and percentages only. Absolute numbers ranked second after absolute numbers and percentages; however, the difference was still significant.

The other nutrition label attribute studied was order of nutrition information. The rearranged order emphasized the positive nutrients on the top portion of the label and the negative nutrients on the bottom portion. The data suggested consumers significantly preferred this order over the traditional order of nutrition information in determining the usefulness of nutrition labels in purchase decisions.

Nutrition information load was considered the most important attribute in the nutrition label, followed by information expression, order, and format, respectively (see Table 20). The most useful nutrition label in a purchase decision was one that contained a graphical format, the most information, an expression of absolute numbers and percentages, and a rearranged order. The composite of the most useful nutrition label in purchase decisions is seen in Table 21 and Figure 16.

MANOVA. Thirteen segmentations were also performed in Phase II, conjoint analysis two, for each of the four attributes, nutrition information format, load, expression, and order the following segmentation variables: age, primary grocery shopper, special diet, sex, race/ethnic group, marital status, any children, education, occupation, income, label reader, attitude towards soup, self-reported nutrition knowledge using MANOVA or ANOVA (see Table 22).

Table 20. Relative importance of Phase II attributes in nutrition label usefulness for purchase decisions.

Attribute	Maximum Mean Utility	-	Minimum Mean Utility	=	Range of Utility
Nutrition Information Load	.327	-	(-.213)	=	.540
Nutrition Information Exprssion	.296	-	(-.026)	=	.322
Nutrition Information Order	.157	-	(-.020)	=	.177
Nutrition Information Format	.148	-	.018	=	.130

Table 21. Adjectival composite of the most useful nutrition label in purchase decisions.

Attribute	Level
Format	Graphical
Load	Most Information
Expression	Absolute Numbers and Percentages
Order	Rearranged

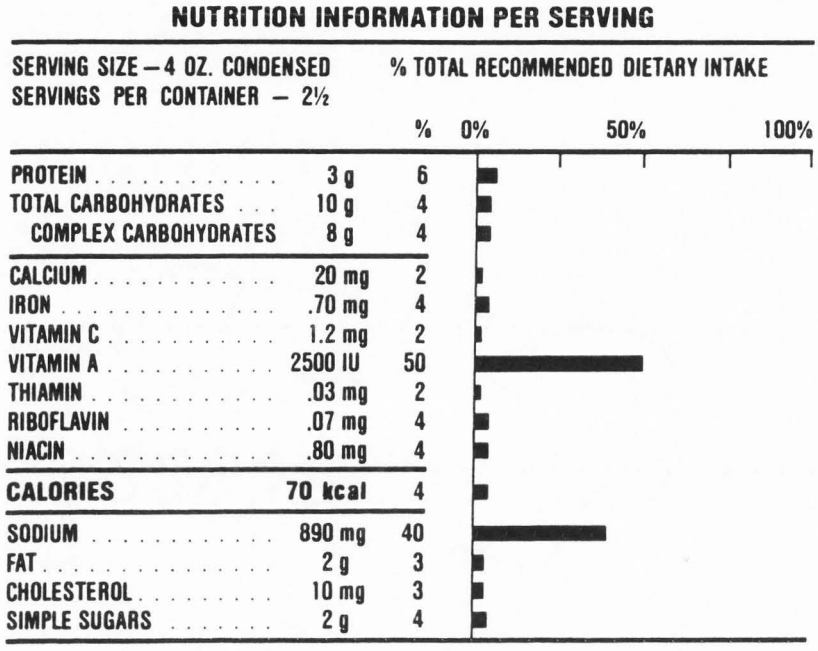


Figure 16. Graphic composite of the most useful nutrition label in purchase decisions.

Table 22. Level of significance for segmentation variables with Phase II attributes.#

Variables	Attributes			
	Nutrition Information Format	Nutrition Information Load	Nutrition Information Expression	Nutrition Information Order
Age	.327+	.026+	.420+	.754+
Shopping	.283	.685	.606+	.458
Special Diet	.102+	.231+	.242+	.629
Sex	.611	.442	.033+	.852
Race	.620	.042	.520	.850
Marital Status	.509	.884	.918+	.145
Any Children	.254	.200	.048+	.236
Education	.604+	.849	.677	.408
Occupation	.010+	.559+	.444+	.543+
Income	.156	.699+	.088+	.877
Label Reader	.361	.078	.030+	.255
Attitude Towards Soup	.181	.705+	.259	.138+
Nutrition Knowledge	.972	.440	.772+	.370

Values reported are levels of significance.

+ Multivariate test for homogeneity of dispersion matrices violated, therefore results are suspect.

The only variable that was significant in the MANOVA for nutrition label usefulness was race/ethnic group with nutrition information load. Race/ethnic group made a significant difference in preference for usefulness of the more versus the some information load (see Table 23).

Table 23. Univariate F-test for race/ethnic group by information interaction.

Attribute Level	F	Significance of F
Most.More Information Load	.81862	.367
More.Some Information Load	5.56308	.019

Cluster Analysis. Utility values for all levels of the four attributes in Phase II were used to perform cluster analysis. The results using two through 10 cluster solutions yielded some clusters with real differences; however, there were no strong descriptors of cluster membership (see Appendix 0).

Regression and ANOVA. Two way analysis of variance was used to determine if the variables, education and income, were related or different across groups in usefulness of the graphic nutrient density format in Phase II. The results sugggested usefulness of graphic nutrient density across groups did not differ (see Appendix 0).

Regression analysis was used to determine if education, income, and nutrition knowledge were predictors of preference of the some

information load in Phase I and II. The results of the regression analysis and the three way ANOVA suggested there was no relationship between education, income, and nutrition knowledge and the some information load in Phases I and II (see Appendix O).

Education, occupation, and nutrition knowledge were used in regression analysis to predict usefulness of the most information load in Phases I and II. The results of the regression analysis and the three way analysis of variance suggested there was no relationship between, education, occupation, and nutrition knowledge and the most nutrition information load in Phases I and II (see Appendix O).

Regression analysis was run with the variables: education, income, occupation, age, race, and nutrition knowledge to determine if they predicted label and nonlabel users in this study. As is evident from Table 24, nutrition knowledge is related to label reading; however, it is a weak relationship.

The discriminant analysis validated the regression analysis as only an overall correct classification of 80.56 percent was achieved. Ninety-two percent of the nonlabel readers were classified in the label reader group (see Appendix O).

Other Analyses

Food Shopping Behavior. Over 86 percent of survey participants performed more than 50 percent of the food shopping for their households. Slightly more than half of the participants had been doing the grocery shopping for more than five years. Almost 19 percent (18.7 percent) had been the major food buyer for their

Table 24. Effects of consumer characteristics on label reading.

Independent Variable	Correlation	B	Beta	Significance
Nutrition Knowledge	.239	.01351	.23005	.0003
Race/Ethnic Group	-.005	-4.92400E-03	-3.637E-03	.9532
Education	.019	.03507	.02174	.7325
Age	.000	-.03645	-.03077	.6329
Occupation	.126	.09304	.11094	.0879
Income	-.008	-.04536	-.05432	.4127
Constant		.51928		.0001
Adjusted R Square = .0470				
F = 3.0628*				

* $p < .01$

household for more than 20 years. The average number of people for whom the major grocery shopper purchased food was four.

Respondents were asked if anyone in their household followed a special diet. The types of special diets are seen in Table 25. The most common was a weight reduction diet.

Attitudes towards canned soup were examined. Over 89 percent of respondents indicated their attitude was neutral to extremely positive. The mean value for attitude was 20.6 on a 30 point scale. Purchase behavior regarding soup was measured. Twenty-seven percent of respondents purchased soup once per week and 25.8 percent purchased soup every other week. Forty-three percent of survey participants purchased one to five cans per month, while 29.3 percent purchased six to 10 cans per month.

Survey participants were asked which brands of soup they purchased. As can be seen in Table 26, 96.8 percent of respondents purchased Campbell's soup, while 24.3 percent purchased store brands and 14.2 percent purchased generic brands.

Types of soup purchased are presented in Table 27. Chicken noodle soup was purchased by 72.1 percent of respondents while a vegetable meat soup mixture was purchased by 58.3 percent of respondents.

Nutrition Label Behavior. Almost 80 percent (79.4 percent) of respondents read the nutrition label in the past month. Table 28 shows the nutrients that were looked for on the label. Calories ranked highest with use by 89.5 percent of respondents, followed by protein and fat with use by 72.0 percent of respondents.

Table 25. Reasons for following a special diet.

	Anyone With Special Dietary Needs				Total Cases	
	Yes		No#			
Type of Special Diet	Count	Column (%)[a]	Count	Column (%)	Count	Column (%)
Weight Reduction	64	70.3%	1	100.0%	65	70.7%
Diabetes	13	14.3%			13	14.1%
Heart Disease	15	16.5%			15	16.3%
High Blood Pressure	25	27.5%	1	100.0%	26	28.3%
Renal	4	4.4%			4	4.3%
Weight Gain	14	15.4%	1	100.0%	15	16.3%
Other	46	50.5%			46	50.0%
TOTAL CASES	91	100.0%	1	100.0%	92	100.0%

One person who indicated he did not purchase food inadvertantly answered this question.

[a] Percentages do not add to 100 as multiple responses were allowed.

Table 26. Brands of soup purchased. (N = 247)

Brand	Number	Percentage[a]
Lipton	132	53.4
Campbell's	239	96.8
Swiss Knorr	36	14.6
Store	60	24.3
Progresso	47	19.0
Generic	35	14.2
Other	35	14.2

[a] Percentages do not add to 100 as multiple responses were allowed.

Table 27. Types of soups purchased. (N = 247)

Type of Soup	Number	Percentage[a]
Broth	87	35.2
Chicken Noodle	178	72.1
Cream Soups	172	69.6
Tomato	140	56.7
Vegetable Mixture	140	56.7
Vegetable Meat Mixture	144	58.3
Other	90	36.4

[a] Percentages do not add to 100 as multiple responses were allowed.

Table 28. Nutrients "looked for" on product labels ranked by frequency. (N = 200)

Nutrient	Frequency	Percentage
Calories	179	89.5
Protein	144	72.0
Fat	144	72.0
Added Sugar	133	66.5
Cholesterol	126	63.0
Calcium	112	56.0
Sodium	112	56.0
Iron	101	50.5
Total Carbohydrate	99	45.5
Vitamin A	88	44.0
Saturated Fat	86	43.0
Vitamin C	83	41.5
Vitamin D	74	39.0
Vitamin E	74	37.0
Vitamin B_1	71	35.5
Vitamin B_2	71	35.5
Dietary Fiber	70	35.0
Vitamin B_{12}	63	31.5
Vitamin B_6	61	30.5
Niacin	58	29.0
Potassium	57	28.5
Vitamin K	55	27.5

Table 28. Continued.

Nutrient	Frequency	Percentage
Polyunsaturated Fat	54	27.0
Simple Sugar	52	26.0
Monounsaturated Fat	50	25.0
Complex Carbohydrate	49	24.5
Zinc	45	22.5
Folic Acid	39	19.5
Magnesium	47	18.7
Phosphorus	35	17.5
Copper	31	15.5

Forty-seven, 23.5 percent, respondents looked for other information on the nutrition label in addition to the 31 nutrients listed. The information most commonly looked for in this category was ingredients/additives/preservatives. One respondent indicated he looked for the ratio of sugar/cholesterol to price.

Respondents were also asked about the usefulness of the nutrients they looked for on the nutrition label (see Table 29). Sodium, cholesterol, saturated fat, and total fat were considered the most useful in purchase decisions. Calorie information was ranked tenth.

Respondents were asked about reasons for reading the nutrition label. The most frequent reason for reading the nutrition label was to avoid certain nutrients (see Table 30).

Table 31 shows the breakdown of reasons why respondents do not use nutrient information. Lack of time was the most common reason for nonuse of the nutrition label.

Questionnaire Behavior. The Ci2 portion of the questionnaire was timed by an internal mechanism in the program. The mean number of minutes to complete the Ci2 portion of the questionnaire was 14.1 $\pm$ .3 (Mean + SEM). The range was from five minutes to 37 minutes. The number of Xbacks ranged from 0 to 28. The mean was .8 $\pm$ .1 (SEM). (An Xback is defined as going back to a previous question to possibly change an answer.) For descriptive statistics of those questions not reported in the results, see Appendix P.

Table 29. Usefulness of nutrients in purchase decisions ranked by mean.# (Range 1-31)

Nutrient	Mean	Number of Respondents
Sodium	26.1 ± .6	112
Cholesterol	26.1 ± .5	126
Saturated Fat	25.3 ± .6	86
Total Fat	25.2 ± .5	144
Added Sugar	25.0 ± .6	133
Polyunsaturated Fat	24.8 ± .9	54
Monounsaturated Fat	24.5 ± 1.0	50
Dietary Fiber	24.4 ± .8	70
Calcium	23.9 ± .6	112
Calories	23.6 ± .5	179
Iron	23.1 ± .6	101
Simple Sugars	23.1 ± 1.0	52
Ascorbic Acid	23.0 ± .7	83
Protein	23.0 ± .5	144
Vitamin B_{12}	22.8 ± .8	63
Vitamin B_6	22.7 ± .8	61
Total Carbohydrate	22.4 ± .6	94
Zinc	22.2 ± 1.0	45
Magnesium	22.0 ± .9	39
Vitamin D	21.4 ± .7	78

Table 29. Continued.

Nutrient	Mean	Number of Respondents
Potassium	21.4 ± .9	57
Vitamin E	21.4 ± .7	78
Vitamin B_1	21.4 ± .8	71
Niacin	21.2 ± .9	58
Vitamin B_2	21.2 ± .8	71
Folic Acid	20.7 ± 1.3	39
Complex Carbohydrate	20.6 ± 1.1	49
Vitamin A	20.4 ± .7	88
Vitamin K	20.4 ± .9	55
Phosphorus	20.1 ± 1.1	35
Copper	19.8 ± 1.1	31

Values are means ± SEM.

* An analog rating scale was used that allowed responses of 1-31 (31 = very frequently).

Table 30. Reasons for label reading: "How frequently do you read nutrition labels?"* (N = 252)

Reason	Mean#
To avoid certain nutrients	22.1 ± .5
To compare nutritional quality of two different brands	20.8 ± .5
To select a new product/brand	20.7 ± .5
To check on the quality of foods advertised as nutritious	20.5 ± .5
To help plan nutritious meals for my family	19.8 ± .5
To select low calorie and diet foods	19.6 ± .6
To help plan meals for a balanced diet	18.3 ± .5
To choose foods for special diets	18.1 ± .6

* An analog rating scale was used that allowed responses of 1-31 (31 = very frequently).

Values are mean ± SEM.

Table 31. Reasons for a nonuse of nutrition information on a food product label. (N = 49)

Reason	Number	Percentage[a]
I think the information is confusing	13	26.5
I do not understand the information	8	16.3
I do not have time to read it	18	36.7
I do not think the information is important	11	22.4
I already eat a balanced diet	11	22.4

[a] Percentages do not add to 100 as multiple responses were allowed.

CHAPTER V

DISCUSSION

Purpose of Study

The purpose of this study was to determine the effect of two levels of nutrition information format, traditional and graphical; and three levels of nutrition information load, some, more, and most on consumer purchase decisions. A second purpose of this study was to develop a nutrition label that was useful to consumers in purchase decisions. These two purposes were accomplished with a new interactive computerized conjoint analysis program (ACA), which tested each attribute against itself and against the other attributes. This technique has not been used previously in nutrition labeling studies.

Major Findings

Phase I

The results of the Phase I conjoint analysis and MANOVAs indicated that brand plays a highly significant role in purchase decisions. The cluster and discriminant analyses indicated brand was also highly insulated against price and information. These results were not surprising. Other studies have been conducted that support these findings (Jacoby, Szybillo and Busato-Schach, 1977b; Jacoby, et al. 1974b; Patton, 1981; Yankelovich, Inc. 1971).

The results of the Phase I conjoint analysis and MANOVA showed a significant among between all three levels of information load.

Other researchers have noted similar results. Jacoby, et al. (1977b) investigated the type and amount of information used by consumers for making purchase decisions. They hypothesized that when brand name is available in a purchase decision, consumers will use or search for less information. Their results suggested brand name and price were most frequently selected in this purchase decision process. When brand and manufacturer names were available, fewer pieces pieces of information were selected to make a purchase decision. Apparently brand name served as a "chunk of information."

Jacoby, et al. (1977a) explored the use of various types of information in purchase situations in two studies. When brand name was present, nutrition information was acquired by 39 percent of respondents in Study 1 and 21 percent in Study 2. When the brand name was removed from the product, consumers acquired more information, i.e., the average acquisition rate increased.

Patton (1981) evaluated the effect of different amounts of information on purchase decisions as consumers may shift product choice to those brands that provide the most information. Patton (1981) suggested that when brands were controlled for quality, but varied in amount of information, study participants selected the brand that provided the most information. Additionally, there appeared to be no difference among the formats used to provide information on brand choice. When the product quality was perceived as unequal, the brand choice did not lean as heavily towards those brands with the most information. The difference in quality may have contributed to the lessening of the high levels of information.

However, there still was a significant difference in those brands that provided the most information. Based on the data in this study, Patton (1981) suggested that a company may improve its market share by increasing the amount of information on its products. If all competitors supply the same quantity of information, however, the effect would be suppressed.

Yankelovich, Inc. (1971) conducted a consumer experiment to determine if nutrition labeling affected food purchase decisions. A secondary purpose was to evaluate the impact of full disclosure labeling on sales of the leading store and Private Label brands. The results of this study suggested full disclosure labeling appeared to shift consumer purchase decisions to those brands that carried full disclosure labels.

The dominant brand in each product category held its market share in the face of full disclosure nutrition labeling on a secondary brand. Apparently, quality was associated with name brands. A secondary finding suggested that Private Label brands were not able to hold their market share when competitive products carried full disclosure nutrition labeling. Full disclosure labeling had its strongest effect on secondary brands. These brands appeared to share the greatest increase in market share when full disclosure nutrition labeling was used (Yankelovich, Inc., 1971).

Nutrition information load played a significant role in purchase decisions in this study; however, nutrition information format did not. This was reinforced with market simulations. A baseline case, representing existing supermarket conditions, was

performed using the "Share of Preference with Corrections" market simulation in the ACA program. Other factors that affect market share are not considered; therefore, the term "preference share" is used. Factors not considered include advertising, the number of sales locations, etc. (Johnson, 1986).

The ACA program has an additional feature that assists with more accurate predictions of market share: The external effects option, which is subjective. The values used for external effects are derived by dividing the market share by the preference share and then multiplying by 100. The range for external effects can be from 0 to 999. A value above 100 results in an increased product preference share, a value below 100 results in a decreased product preference share, and a value of 100 results in no effect (Johnson, 1986). Values calculated for external effects are presented in Table 32.

Table 32. Calculation of external effects from Phase I simulations.

Product	Current# Market Share		Baseline Preference Share (%)	External Effects
1. Campbell's	55%	÷	45.1 X 100% =	122
2. Albertson's/ Private Label	20%	÷	31.5 X 100% =	63
3. Generic	10%	÷	23.4 X 100% =	43

#Personal Communication, Mark Trumbull, H. J. Heinz Company.

Seven market simulations were performed with both the share of preference and share of preference with External Effects. Table 33 gives the codes for the attributes and their attribute levels used in the market simulations. Table 34 depicts baseline conditions.

In the baseline condition, Campbell's has a high price, traditional information format, and the most information load. Albertson's has a medium price with a traditional format and most information load. The Generic brand has the lowest price with no information format or nutrition information load. The results of the baseline simulation can be seen in Table 35.

The next market simulation involved adding the most information level in the traditional format to the Generic brand to determine if nutrition information would affect Campbell's market share (see Table 36). As can be seen from Table 37, Campbell's lost 3.8 percent and Albertson's lost 1.8 percent of their market share while the Generic brand gained 5.6 percent. This suggests nutrition information is important in purchase decisions. Additionally, nutrition information would increase consumer perception of quality of the Generic brand. Jacoby, et al. (1974a) reported higher consumer preference ratings for products with higher information loads. This apparently occurred in this simulation.

Simulation 3 entailed changing the information format for the Generic brand from traditional to graphical with all other conditions remaining the same. The conditions for this simulation can be seen in Table 38 and the results of the simulation are

Table 33. Code for attributes and attribute levels.

Attribute	Level	Name of level
1 Brand	10	Campbell's
1 Brand	20	Albertson's
1 Brand	30	Generic
2 Price	10	Low
2 Price	20	Medium
2 Price	30	High
3 Nutrition Information Format	10	Traditional
3 Nutrition Information Format	20	Graphical
4 Nutrition Information Load	10	Some
4 Nutrition Information Load	20	More
4 Nutrition Information Load	30	Most

Table 34. Simulation 1: baseline conditions for market simulations: product specifications, based on current market conditions.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	30	10	30
2. Albertson's/ Private Label	20	20	10	30
3. Generic	30	10	0	0

Table 35. Simulation 1: results of baseline market simulation with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference with External Effects (%)
1. Campbell's	45.1 ± 1.3	64.8 ± 1.9
2. Albertson's/ Private Label	31.5 ± 0.9	23.4 ± 0.7
3. Generic	23.4 ± 1.4	11.8 ± 0.7

Values are percentages ± SEM.

Table 36. Conditions for simulation 2: addition of the most nutrition information load in the traditional format to the Generic brand.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	30	10	30
2. Albertson's/ Private Label	20	20	10	30
3. Generic	30	10	10	30

Table 37. Results of simulation 2: addition of the most nutrition information load in the traditional format to the Generic brand with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference with External Effects (%)
1. Campbell's	40.1 ± 1.2	61.0 ± 1.8
2. Albertson's/ Private Label	27.4 ± 0.7	21.6 ± 0.6
3. Generic	32.5 ± 1.3	17.4 ± 0.7

Values are percentages ± SEM.

presented in Table 39. Campbell's lost an additional 1.6 percent, Albertson's lost .7 percent, and Generic brand gained 2.3 percent of market share. Even though there was not a significant difference between consumer preference for graphical and traditional formats, the graphical format resulted in a shift of market share away from the leading and private label brands. The use of graphics rapidly conveys a considerable amount of information and facilitates comparisons (Hansen, et al., 1985).

The next simulations involved the steps Campbell's would need to take to protect its market share. Simulation 4 involved the addition of the graphical format to the Campbell's label. Table 40 shows the conditions of the simulation and Table 41 presents results. The results of this simulation are interesting. Campbell's market share remained the same, 59 percent, while the Generic market share decreased and the Albertson's market share increased. The reason for this shift is not evident.

Simulation 5 involved lowering Campbell's price from the high to the medium level. The conditions for the simulation are reported in Table 42 and the results are seen in Table 43. As is evident, Campbell's regained 4.1 percent of market share. Price was important in this shift in market share from Private Label brand to Campbell's. Since this only involved a one cent difference, it would be to Campbell's advantage to lower their price.

Simulation 6 was run to determine the shift in market share if all three brands contained the some information in the graphical format (see Table 44). Patton (1981) suggested if all competitors

Table 38. Conditions for simulation 3: graphical format added to Generic brand with the most information load.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	30	10	30
2. Albertson's/ Private Label	20	20	10	30
3. Generic	30	10	20	30

Table 39. Simulation 3: graphical format added to Generic brand with the most information load with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference with External Effects (%)
1. Campbell's	38.1 ± 1.3	59.4 ± 2.0
2. Albertson's/ Private Label	26.0 ± .8	20.9 ± 0.6
3. Generic	36.0 ± 1.5	19.7 ± 0.8

Values are percentages ± SEM.

Table 40. Conditions for simulation 4: the addition of the graphical format to the Campbell's brand.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	30	20	30
2. Albertson's/ Private Label	20	20	10	30
3. Generic	30	10	20	30

Table 41. Simulation 4: the addition of the graphical format to the Campbell's nutrition label with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference with External Effects (%)
1. Campbell's	38.4 ± 1.2	59.0 ± 1.9
2. Albertson's/ Private Label	30.0 ± 1.0	23.8 ± 0.8
3. Generic	31.6 ± 1.3	17.1 ± 0.7

Values are percentages ± SEM.

Table 42. Conditions for simulation 5: lowering of the Campbell's price from the high level to the medium level.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	20	20	30
2. Albertson's	20	20	10	30
3. Generic	30	10	20	30

Table 43. Simulation 5: lowering Campbell's price from the high level to the medium level with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference with External Effects (%)
1. Campbell's	42.3 ± 1.1	63.1 ± 1.7
2. Albertson's/ Private Label	26.6 ± 0.9	20.5 ± 0.7
3. Generic	31.1 ± 1.3	16.3 ± 0.7

Values are percentages ± SEM.

supplied the same information, then the effect of increasing market share would be minimized (see Table 45).

The results show Patton's (1981) hypothesis is not wholly supported. Market share of the Generic brand, 17.4 percent, is still above its baseline level of 12 percent. Campbell's and Albertson's market shares are below baseline. This is probably due to the presence of information on the Generic brand, which would increase consumer perception of its quality, as it normally does not carry nutrient labeling. Therefore, it would be in Generic brand manufacturers' best interests to put nutrition labeling on their brands.

When observing the overall picture of shifts in market share, it is apparent Campbell's is currently taking the most appropriate action by providing consumers with the most nutrition information (see Figure 17). However, what would occur to Campbell's market share if information was lowered from the most to the more level of information load? Simulation 7 was run to determine this effect on market share (see Tables 46 and 47).

It is apparent that Campbell's would lose at least an additional .7 percent of market share when compared to simulation 3 results (simulation 3 had the same conditions except for the lowering of the information load). When compared to the results of simulation 1, the total loss could be as high as 6.1 percent overall, which would be a considerable loss of profit. Therefore, it is apparent from these market simulations that nutrition information is important in purchase decisions and can influence

Table 44. Conditions for simulation 6: all three brands with the most information load in a graphical format at current market price.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	30	20	30
2. Albertson's/ Private Label	20	20	20	30
3. Generic	30	10	20	30

Table 45. Simulation 6: all three brands with the most information load in a graphical format at current market price with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference With External Effects (%)
1. Campbell's	40.1 ± 1.2	61 ± 1.8
2. Albertson's/ Private Label	27.4 ± 0.7	21 ± .6
3. Generic	32.5 ± 1.3	17.4 ± .7

Values are percentages ± SEM.

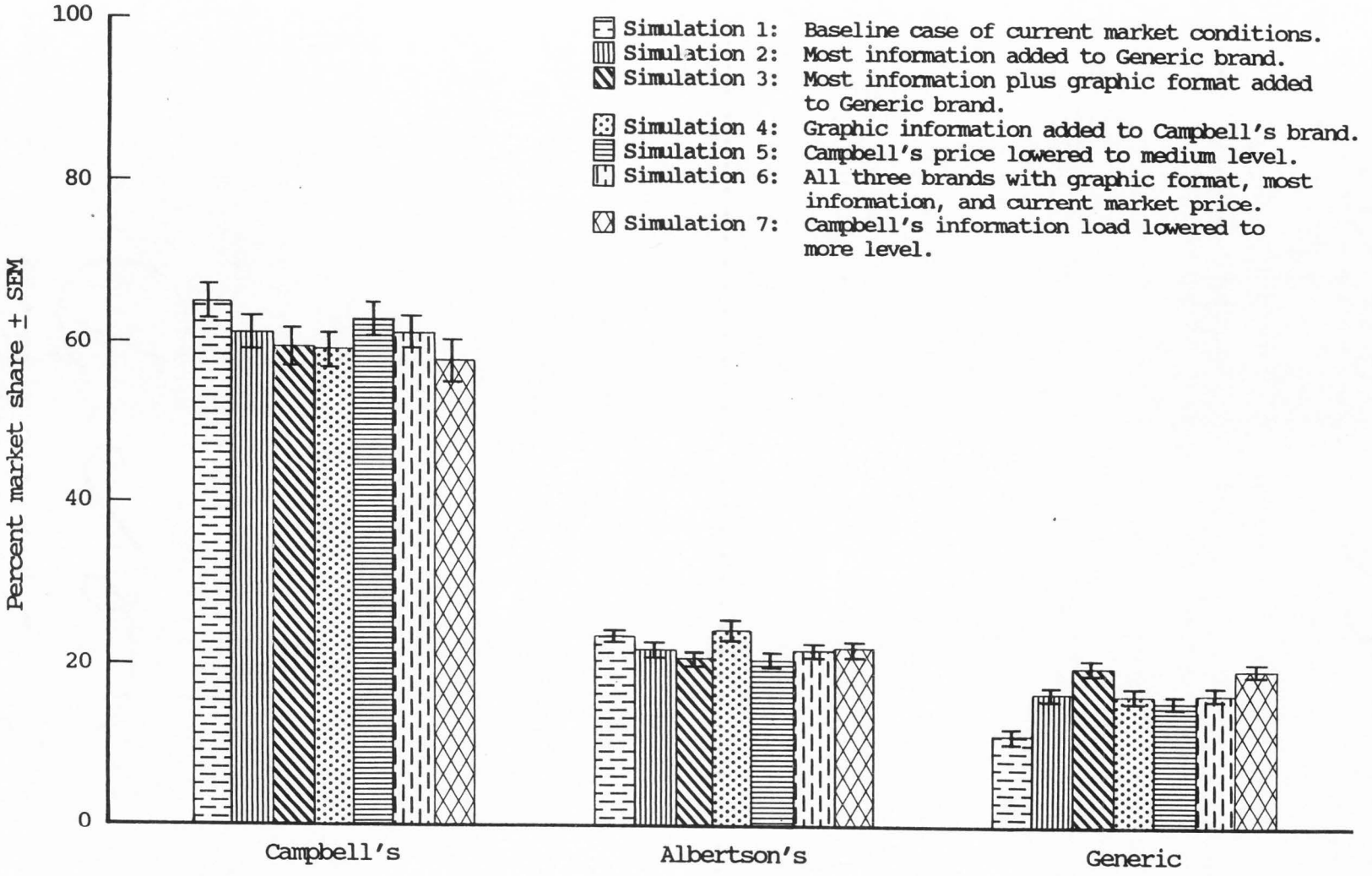


Figure 17. Market simulations for Phase I using external effects option.

Table 46. Conditions for simulation 7: Campbell's information load lowered from the most to the more level.

Product	Attribute and Level			
	1	2	3	4
1. Campbell's	10	30	10	20
2. Albertson's/ Private Label	20	20	10	30
3. Generic	30	10	20	30

Table 47. Simulation 7: Campbell's information load lowered from the most to the more level with and without external effects.# (N = 226)

Product	Share of Preference (%)	Share of Preference with External Effects (%)
1. Campbell's	41.1 ± 1.5	58.7 ± 2.2
2. Albertson's/ Private Label	26.7 ± 0.8	21.7 ± 0.7
3. Generic	32.2 ± 1.4	19.6 ± 0.8

Values are percentaages ± SEM.

market share.

The results for both types of simulations are similar. Even though the Campbell's brand appears be the dominating factor in purchase decisions in Phase I, the addition of nutrition information on the Generic brand causes a shift of market share/preference share from Campbell's and Albertson's/Private Label brands. In order for Campbell's to regain market share, it should continue to use the most nutrition, put it in a graphical format, and lower its price to the medium level.

Phase II

The results of the Phase II conjoint analysis and MANOVAS showed significant differences among all three levels of nutrition information load, with the most information load preferred. This compares well with other studies that have been conducted; however, this was somewhat surprising, in that the some information load included the nutrients considered to be those in which consumers were most interested: calories, sodium, cholesterol. Muller (1983) showed the same effect in his study. He tested for information importance and found that more information regardless of importance was always preferred.

The results of the conjoint analysis and MANOVAs showed significant differences between the graphical format and the graphical nutrient density and traditional formats. The significant difference between the graphical and traditional format was not surprising. Previous studies have shown that the graphical format

lends itself to improved purchase decisions (Mohr, et al. 1980; Rudd, 1986).

Even though the difference in consumer perception of usefulness in purchase decisions was not significant between the traditional and graphical nutrient density formats, the result that graphical nutrient density was equally useful is important. The consumers were not given an explanation for any of the formats; therefore, it was interesting to see that consumers thought the graphical nutrient density format was as useful as the more familiar traditional format. This was also found by Mohr, et al. (1980) and Rudd (1986).

Other parameters tested in this phase were nutrition information expression and nutrition information order. Consumer preference for various forms of nutrition information expression has been tested previously (Lenahan, et al., 1972). However, the levels used have been adjectival or percentages (Lenahan, et al., 1972; Yankelovich, Inc., 1971; Asam and Bucklin, 1973). The focus group results of this study suggested there was a strong preference for either percentages alone or absolute numbers alone. Therefore, four levels of nutrition information expression were tested: the traditional format, which actually uses absolute numbers for macronutrients and percentages for the micronutrients; absolute numbers only for all nutrients; percentages only for all nutrients; and absolute numbers and percentages for all nutrients. The last three levels had not been tested previously. The results of the focus groups were not borne out in the study.

As a result of the conjoint analysis and MANOVAs it was clear

there was a significant difference among the use of absolute numbers and percentages level and the other three levels. Obviously, this combination would satisfy the needs of the consumers who wanted percentages and those who wanted absolute numbers. This also could be a result of the consumer having a higher level of assurance of product quality when more information is provided. This agrees with the work of Daly (1976) and Klopp and McDonald, (1981), which suggested nutrition information on the label also had nonuse benefits. The highly significant preference for absolute numbers and percentages may also be a manifestation of more information is preferred by consumers. This is supported by Scammon's (1978) study in which consumers felt more satisfied and less confused with their purchase decisions when higher amounts of information were present.

The attribute of nutrition information order had not been tested previously. The order here was used to emphasize the positive nutrients on the top portion of the label, split by the calories, with the nutrients to be consumed in lower amounts on the bottom of the label. Previous studies have suggested the primary reason consumers read the label is to avoid certain nutrients, such as calories, sodium, cholesterol, sugar, and fat (FDA, 1975, 1979). The results of this study suggested the same conclusion, as respondents indicated they frequently read the label to avoid certain nutrients. It is interesting to note, however, this order was significantly preferred even though the nutrients most consumers tend to look for were on the bottom portion of the label. However, this order may have been easier to read, due to the breaks between

the information.

The results of the cluster analysis revealed less clear clusters for Phase II then Phase I. The lack of interaction from the 52 MANOVAS, with the exception of race/ethnic group with information load, also would support the lack of segmentation of consumer preference for usefulness of nutrition label attributes in purchase decisions. This suggests that consumers prefer one label as most useful in purchase decisions. Previous studies have not supported this conclusion (Lenahan, et al., 1972; McCullough and Best, 1980). However, Lenahan's study did not use a totally interactive design. McCullough and Best (1980), however, did use conjoint analysis to determine nutrition labels that were most useful for different consumers segments. Their results suggested there were three different nutrition label formats that would be required to meet the need of three different market segments.

Since this time, consumer interest and awareness of nutrition have increased. Eighty percent of this sample had read the nutrition label within the past month. Previous studies have suggested similar rates, but only among primary grocery shoppers. The respondents in this study did not have to be primary grocery shoppers. Additionally, food manufacturers are using nutrition and health claims more frequently in advertising, i.e., increased fiber to prevent cancer, etc. With increased interest and awareness of the importance of nutrition to health, consumer perceptions of nutrition information useful in purchase decisions may become more homogeneous.

Study Limitations

The primary study limitation may have been the shopping mall sample. Shopping mall intercept studies may have limitations (Sudman, 1980). Frequent shoppers are more likely to be selected, and may have different characteristics than infrequent shoppers. If the study is not conducted at all times the mall is open, certain groups may be overrepresented. Also, sampling should occur throughout the mall, at all entrances, so that sample bias does not occur. In this study, shoppers were interviewed from the time the stores opened until the stores closed. Few stores were open on Sundays; therefore, sampling did not occur on this day. Consumers were selected for participation throughout the mall, not just at one entrance.

Crossroads Mall was chosen for this study because its sample was more representative of the State of Utah and it also received a substantial amount of tourist, out-of-state traffic. The sample population in this study had a lower mean age than the general U.S. population; however, it was very close to the state mean. This also may be due to the larger numbers of teenagers who frequent the mall.

When statistical procedures, MANOVAS, were run, significant differences may not have been evident due to underrepresentation in older age, greater than 55, and in undereducated, less than a high school diploma, groups. There was, however, a good representation of income distribution approximating the general population.

Summary and Conclusions

The analysis of computerized ACA and Ci2 interactive interview data on purchase decisions provided baseline information for the effect of nutrition information on purchase decisions. In this study, the concept of nutrition labeling information, specifically format and load, was studied using adaptive conjoint analysis. The primary objective of this analysis was to develop the nutrition label most useful to consumers in purchase decisions.

The results of this study indicated that regardless of demographic, socioeconomic, and nutrition knowledge status, consumers are fairly homogeneous in their preference for attributes in low involvement purchase decisions, Phase I, and very homogeneous in their preference for a nutrition label that is useful in purchase decisions, Phase II. In other words, brand, price, and nutrition information are significant in low involvement purchase decisions. Brand, however, is such a strong determinant that it overshadows the other two. However, market share can be shifted from the major brand if nutrition information is added to a Private Label or Generic brand. Therefore, marketers who wish to increase market share should provide more nutrition information in a comprehensible format.

In terms of a label that is most useful to consumers in purchase decisions, there was a significant preference for a graphical format, the most nutrition information load, the absolute numbers and percentages expression, and a rearranged order of nutrition information in this study. It appears consumers now are

more homogeneous in their perceptions.

Recommendations for Further Study

A number of recommendations can be made for further study. The most useful nutrition label found in Phase II should be tested for consumer comprehension. Can consumers use the information to make purchase decisions? This nutrition label also could be printed on product labels and tested for its effect on long-term changes in purchase decisions of more nutritious foods.

Recommendations for Public Policy Makers and Marketers

Marketers should provide more nutrition information in a comprehensible format to consumers to maintain or increase market share. Not only will it be of benefit to food companies, it should also increase the consumers' satisfaction and quality perception of the products.

The use of multivariate analysis in decisions regarding nutrition labeling should be recognized by public policy makers as important in formulating policy regarding nutrition labeling standards. The results of this study should be considered in rule making and a comprehensive nutrition education program should be designed to assist consumers in using the label and increasing nutrition knowledge. With the concerns about overnutrition, provision of useful nutrition information may increase health status of Americans. The nutrition information presented on the product

label will create competition between manufacturers and, it is hoped, will create more nutritious products.

LITERATURE CITED

Aldenderfer, M. S.; Blashfield, R. K. 1986. Cluster analysis: quantitative applications in the social sciences. Beverly Hills: Sage Publications.

American Heart Association. 1986. Dietary guidelines for healthy American adults. American Heart Association: Dallas, Texas.

Anderberg, M. R. 1973. Cluster analysis for application. New York: Academic Press, 1973.

Anonymous. 1906. Federal Food and Drug Act of 1906. U.S. Statues. 34:768-772.

Anonymous. 1938. Federal Food, Drug, and Cosmetic Act of 1938. U.S. Statues. 52:1040.

Anonymous. 1966. Fair Packaging and Labeling act. U.S. Statues. 80 (1):1296.

Anonymous. 1973a. Nutrition labeling. Federal Register. 38(13): 2124-2164.

Anonymous. 1973b. Nutrition labeling. Federal Register. 38(49): 6950-6975.

Anonymous. 1978a. Foods for special dietary use. Federal Register. 43(185):43248-43260.

Anonymous. 1978b. Food labeling. Federal Register. 43(112):25296-25305.

Anonymous. 1979. Food labeling; tentative positions of agencies. Federal Register. 44(247):75990-76020.

Anonymous. 1982. Food labeling; declaration of sodium content of foods and label claims for foods on the basis of sodium content. Federal Register. 47(118):26580-26589.

Anonymous. 1983. Temporary exemptions from food labeling requirements for conducting authorized food labeling experiments. Federal Register. 48(69):15236-15240.

Anonymous. 1984a. Food labeling; nutrition labeling of food; calorie content. Federal Register. 49(157):32216-32218.

Anonymous. 1984b. Food labeling; declaration of sodium content of foods and label claims for foods on the basis of sodium content; OMB approval and effective date. Federal Register. 49(126):26571-36572.

Anonymous. 1986a. Food labeling; definitions of cholesterol free, low cholesterol, and reduced cholesterol. Federal Register. 51:42584.

Anonymous. 1986b. Nutrition labeling and health claims. Dairy Council Digest. 57(6):31-36.

Asam, E. H.; Bucklin, L. P. 1973. Nutrition labeling for canned goods: a study of consumer response. Journal of Marketing, 37:32-37.

Ascito, F.; Olshavsky, R. W. 1980. Limits to accuracy in conjoint analysis. Advances in Consumer Research. 8:313-316.

Babcock, M. J.; Murphy, M. M. 1973. Two nutrition labeling systems. Journal of the American Dietetic Association. 62:155-161.

Barr, S. I. 1985. Nutrition labeling: results of a survey of Canadian dietetic association members. Journal of the Canadian Dietetic Association. 46(1):33-39.

Bennett, P.; Moore, N. 1981. Consumers' preference for alternative energy conservation policies: a trade-off analysis. Journal of Consumer Research. 8:313-321.

Bettman, J. R.; Kakkar, P. 1977. Effects of information presentation format on consumer information acquisition strategies. Journal of Consumer Research. 3(4):234-240.

Better Homes and Gardens. 1979. June, 1978 versus January, 1979 . . . a comparison of attitudes on food. The Better Homes and Gardens Consumer Panel. New York, New York: Better Homes and Gardens.

Better Homes and Gardens. 1982. Inquiry: A study on food from the Better Homes and Garden Consumer Panel 1982. Better Homes and Gardens Consumer Panel. New York, New York: Better Homes and Gardens.

Blackston, M.; van der Zanden, N. 1980. Validity of conjoint analysis: some real market results. European Research. 8:243-250.

Brock, S. J.; Jensen, K. E. 1980. Population atlas of Utah. Labor market information services. Salt Lake City, Utah: Utah Department of Employment Security.

Brucks, M.; Mitchell, A. A.; Staelin, R. 1984. The effect of nutritional information disclosure in advertising: an information processing approach. Journal of Marketing and Public Policy. 3:1-25.

Cattin, P.; Weinberger, M. G. 1979. Some validity and reliability issues in the measurement of attribute utilities. Advances in Consumer Research. 7:780-783.

Cattin, P.; Wittink, D. A. 1982. Commercial use of conjoint analysis: a survey. Journal of Marketing. 46:44-53.

Craig, J. 1979. Production for the graphic designer. New York, New York: Watson-Guptil Publications.

Crawford, D.; Worsley, A. 1986. A preliminary investigation of consumer views and behaviors regarding food labeling. Food Technology in Australia. 38(2):74-76.

Currim, I.; Weinberg, C.; Wittink, D. 1981. Design of subscription programs for a performing arts series. Journal of Consumer Research. 8(June):67-75.

Daly, P. A. 1976. The response to consumers to nutrition labeling. Journal of Consumer Affairs. 10(2):170-178.

Federal Trade Commission. 1978. Food and nutrition policy session briefing book. Washington, D.C.: Office of Policy Planning and Evaluation.

Food and Drug Administration. 1973-1974. Consumer nutrition knowledge survey. A nationwide study of food shopper's knowledge, beliefs, attitudes and reported behavior regarding food and nutrition: factors related to nutrition labeling. Report I. U.S. Department of Health, Education and Welfare.

Food and Drug Administration. 1975. Consumer nutrition knowledge survey. A nationwide study of food shopper's knowledge, beliefs, attitudes and reported behavior regarding food and nutrition: factors related to nutrition labeling. Report II. U.S. Department of Health, Education and Welfare.

Food and Drug Administration. 1979. FDA 1978 consumer food labeling survey. Department of Health, Education and Welfare.

Food and Drug Administration. 1986a. Status of nutrition labeling in processed foods. 1986. Food label and package survey. Washington, D.C.: Food and Drug Administration.

Food and Drug Administration, Department of Health and Human Services. 1986b. Code of federal regulations. Title 21, parts 100-169. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office.

Food and Drug Administration. 1986c. Trends in sodium labeling of supermarket foods, 1978-1986: food label and package survey. Washington, D.C.: Food and Drug Administration.

Food and Nutrition Board. 1968. Recommended dietary allowances. 7th Rev. Ed. Washington, D.C.: National Academy of Sciences.

Food and Nutrition Board. 1980. Recommended dietary allowances. 9th Rev. Ed. Washington, D.C.: National Academy of Sciences.

French, W. A.; Barksdale, H. C. 1974. Food labeling regulations - effects toward full disclosure. Journal of Marketing. 38(3):14-19.

Good Housekeeping Institute. 1982. Food and nutrition concerns. Good Housekeeping Institute Consumer Research Report. New York, New York: Good Housekeeping.

Good Housekeeping Institute. 1984. What consumers want on food labels. Good Housekeeping Institute Report. New York, New York: Good Housekeeping.

Green, P. E.; Rao, V. R. 1971. Conjoint measurement for quantifying judgemental data. Journal of Marketing Research. 8:355-63.

Green, P. E.; Srinivasan, V. 1978. Conjoint analysis in consumer research: issues and outlook. Journal of Consumer Research. 5:103-123.

Green, P. E.; Wind, Y. 1975. Mew way to measure consumer judgements. Harvard Business Review. (July-August):107-117.

Hadden, S. G. 1986. Read the label. Boulder, Colorado; Westview Press, Inc.

Hall, R. L. 1977. Food additives: an industry view. FDA Consumer. 11(10):6-11.

Hammonds, T. 1978. Nutrition and the American food system: part II. Presentation to Food Marketing Institute/Family Circle/Community Nutrition Institute. National Nutrition Conference. Washington, D.C., June 1 and 2.

Hansen, R. G. 1971. Caloric requirements in relation to micronutrient intake. In Symposium on vitamins and minerals in processed foods. American Medical Association. Chicago, Illinois: American Medical Association.

Hansen, R. G. 1973. An index of food quality. Nutrition Reviews. 3(1):1-7.

Hansen, R. G.; Windham, C. T.; Wyse, B. W. 1985. Nutrient density and food labeling. Clinical Nutrition. 4:164-170.

Hansen, R. G.; Wyse, B. W.; Brown, G. 1978. Nutrient needs and their expression. Food Technology. 32:44-53.

Hansen, R. G.; Wyse, B. W. 1980. Expression of nutrient allowances per 1000 kilocalories. Journal of the American Dietetic Association. 76:223.

Heimbach, J. T. 1982. Public understanding of food label information. Washington, D.C.: Food and Drug Administration.

Heimbach, J. T.; Stokes, R. C. 1982. Nutrition labeling and public health: survey of American Institute of Nutrition members, food industry and consumers. The American Journal of Clinical Nutrition. 36:700-708.

Hutt, P. B. 1986. Health claims: government regulations of health claims in food labeling and advertising. Food, Drug, and Cosmetic Law Journal. 41(1):3-73.

Jacoby, J. 1977. Information load and decision quality: some contested issues. Journal of Marketing Research. 14(Nov.):569-573.

Jacoby, J.; Chestnut, R. W.; Silberman, W. 1977a. Consumer use and comprehension of nutrition information. Journal of Consumer Research. 4(Sept.):119-128.

Jacoby, J.; Kohn, C.A.; Speller, D.E. 1973. Time spent acquiring information as a function of information load and organization. Proceedings of the American Psychological Association's 81st Annual Convention. 8:813-814.

Jacoby, J.; Speller, D.; Kohn, C. 1974a. Brand choice behavior as a function of information load. Journal of Marketing Research. 11:63-69.

Jacoby, J.; Speller, D. E.; Kohn, C. A. 1974b. Brand choice behavior as a function of information load: replication and extension. Journal of Consumer Research. 1:33-42.

Jacoby, J.; Szybillo, G. J.; Busato-Schach, J. 1977b. Information acquisition behavior in brand choice situations. Journal of Consumer Research. 3(March):209-216.

Jeffrey, R. W.; Pirie, P. L.; Rosenthal, B. S.; Gerber, W. M.; Murray, D. M. 1982. Nutrition education in supermarkets: an unsuccessful attempt to influence knowledge and product sales. Journal of Behavioral Medicine. 5(2):189-200.

Johnson, R. M. 1974. Trade-off analysis of consumer values. Journal of Marketing Research. 11(May):121-7.

Johnson, R. M. 1986. ACA system for adaptive conjoint analysis. Ketchum, Idaho: Sawtooth Software, Inc.

Johnson, R. M. 1987a. Adaptive conjoint analysis. Paper presented to Sawtooth Software Annual Conference. Sun Valley, Idaho. Available from: Sawtooth Software, Inc., Ketchum, Idaho.

Johnson, R. M. 1987b. Ci2 system. Ketchum, Idaho: Sawtooth Software, Inc.

Klein, N. M. 1986. Assessing unacceptable attribute levels in conjoint analysis. Advances for Consumer Research. 14:154-158.

Klopp, P.; MacDonald, M. 1981. Nutrition labels: an exploratory study of consumer reasons for nonuse. Journal of Consumer Affairs. 15(2):301-316.

Le Claire, K. A. 1980. Trade-off analysis applied to educational choice behavior. European Research. (Nov.):251-265.

Lenahan, R. J.; Thomas, J. A.; Taylor, D. A.; Call, D. L.,; Padberg, P. I. 1972. Consumer reaction to nutrition information on food product labels. Search Agriculture. 2(15):1-26.

Levy, A. S.; Matthews, O.; Stephenson, M.; Tenney, J. E.; Schucker, R. E. 1985. The impact of a nutrition information program on food purchases. Journal of Marketing and Public Policy. 4:1-3.

Luce, R. D.; Tukey, J. W. 1964. Simultaneous conjoint measurement: a new type of fundamental measurement. Journal of Mathematical Psychology. 1(Feb.):1-27.

Marketing Science Institute; Community Nutrition Institute. 1982. Determinants of food consumption in American households. Marketing Science Institute Report No. 82-112.

McCormick, E. 1970. Human factors engineering. New York: McGraw-Hill Book Company.

McCullough, J.; Best, R. 1979. Conjoint measurement: temporal stability and structural reliability. Journal of Marketing Research. 16(Feb.):26-31.

McCullough, J.; Best, R. 1980. Consumer preference for food label information: a basis for segmentation. Journal of Consumer Affairs. 14(1)Summer:180-192.

Mohr, K. G.; Wyse, B. W.; Hansen, R. G. 1980. Aiding consumer nutrition decisions: comparison of a graphical nutrient density labeling format with the current food labeling system. Home Economics Research Journal. 8(3):162-172.

Muller, T. E. 1983. Analysing information display effectiveness with electronic scanning systems. European Research. (Oct.) 136-143.

Muller, T. E. 1984a. The use of nutrient composition data at the point-of-purchase. Journal of Nutrition Education. 16(3):137-256.

Muller, T. E. 1984b. Buyer response to variations in product information load. Journal of Applied Psychology. 69(2):300-306.

Muller, T. E. 1985. Structural information factors which stimulate the use of nutrition information: a field experiment. Journal of Marketing Research. 22(2):143-154.

Norusis, M. J. 1986. SPSS/PC+. Chicago, Illinois: SPSS Inc.

Olson, C. M.; Bisogni, C. A.; Thonney, P. F. 1982. Evaluation of a supermarket nutrition education program. Journal of Nutrition Education. 14(4):141-145.

Patton, W. E. 1981. Quantity of information and information display type as predictors of consumer choice of product brands. Journal of Consumer Affairs. 15:92-105.

Redbook. 1976. The Redbook nutrition report: a national study of women food shoppers. Boston, Massachusetts: Redbook.

Rudd, J. 1986. Aiding consumer nutrition decisions with the simple graphic label format. Home Economics Research Journal. 14(3):342-346.

Russo, J. E. 1974. More information is better: a re-evaluation of Jacoby, Speller, and Kohn. Journal of Consumer Research. 1(3):68-72.

Russo, J. E.; Staelin, R.; Russell, G. J.; Metcalf, B. L. 1985. Nutrition information in the supermarket. Journal of Consumer Research. 13:48-70.

Sands and Warwick. 1981. What product benefits to offer to whom: an application of conjoint segmentation. California Management Review. 29(1):69-74.

Scammon, D. 1978. Information load and consumers. Journal of Consumer Research. 4(3):148-155.

Schrayer, D. W. 1978. Consumer response to nutrition labeling. Food Technology. 32(12):42-45.

Schutz, H. G.; Judge, D. S.; Gentry, J. 1986. The importance of nutrition, brand, cost and sensory attributes to food purchase and consumption. Food Technology. 40(11):79-82.

Smith, R. G.; Brown, J. A.; Weimer, J. P. 1979. Consumer attitudes toward food labeling and other shopping aids. Washington, D.C.: United States Department of Agriculture. Agriculture Economic Report 439. 1-10.

Sorenson, A. W.; Hansen, R. G. 1975. Index of food quality. Journal of Nutrition Education. 7:53.

Sorenson, A. W.; Wyse, B. W.; Wittwer, A. J.; Hansen, R. G. 1976. An index of nutritional quality for a balanced diet. Journal of the American Dietetic Association. 68:236.

Soriano, E.; Dozier, D. M. 1978. Selling nutrition and heaart-healthy behavior at the point-of-purchase. Journal of Applied Nutrition. 30(1 and 2):56-65.

Sudman, S. 1980. Improving the quality of shopping center sampling. Journal of Marketing Research. 17(November):423-431.

Tashchian, A.; Tashchian, R.; Slama, M. 1981. The impact of individual differences on the validity of conjoint analysis. Advances in Consumer Research. 9:363-366.

United States Department of Agriculture. 1986. USDA policy memos 070A and 071A. Washington, D.C.: U. S. Department of Agriculture, Food Safety and Inspection Service Printing and Distribution Section, Room 0151 - South Building, 1986.

White House Conference. 1969. White House Conference on Food, Nutrition and Health, final report. U. S. Government Printing Office, Washington, D. C. 0-378-473, 341.

Wilkie, W. L. 1974. The role of marketing research in public policy decision making. Journal of Marketing. 38(January):38-47.

Windham, C. T.; Wyse, B. W.; Hansen, R. G.; Hurst, R. L. 1983a. Nutrient density of diets in the USDA nationwide food consumption survey, 1977-1978: I. Impact of socioeconomic status on dietary density. Journal of the American Dietetic Association. 82(1):28-34.

Windham, C. T.; Wyse, B. W.; Hansen, R. G.; ; Hurst, R. L. 1983b. Nutrient density of diets in the USDA nationwide food consumption survey, 1977-1978:II. Adequacy of nutrient density consumption practices. Journal of the American Dietetic Association. 82(1):34-43.

Wittwer, A. J.; Sorenson, A. W.; Wyse, B. W.; Hansen, R. G. 1977. Nutrient density - evaluation of nutritional attributes of foods. Journal of Nutrition Education. 9(1):26-30.

Woman's Day. 1978. Nutrition, a study of consumer's attitudes and behavior towards eating at home and out of the home. Greenwich, Connecticut: Woman's Day.

Woman's Day; Food Marketing Institute. 1980. Nutrition versus inflation: the battle of the eighties. 2nd Woman's Day/FMI Family Food Study. Greenwich, Connecticut: Woman's Day.

Wyse, B. W.; Sorenson, A. W.; Wittwer, A. J.; Hansen, R. G. 1976. Nutritional quality index identifies consumer nutrient needs. Food Technology, 8-30(1):22, 26-27, 32-33, 35-37, 40.

Yankelovich, Inc., 1971. Nutrition labeling: a consumer experiment to determine the effects of nutrition labeling on food purchases. Chain Store Age. (Jan.):57-77.

APPENDICES

Appendix A

History of Nutrition Labeling

This section reviews nutrition labeling laws as they affect the current nutrition label. These laws affected the development of nutrition label formats and information presentation used on this study. Federal regulations for food and nutrition labeling are very complex. Responsibility is distributed primarily between the FDA, the USDA, and the FTC.

Federal Food and Drug Act - 1906

Food labeling became common at the turn of the century, beginning with the original Federal Food and Drug Act of 1906. For this particular Act, a label was considered misbranded: (1) if the product was branded or labeled to mislead the consumer, (2) if a product was an "imitation" and did not state this on the label, (3) if any false or misleading statements were made about the ingredients, (4) if the weight was not clearly and correctly stated on the package label (Anon., 1906). Overall, the Federal Food and Drug Act increased the amount of accurate package labeling, and decreased unsubstantiated health claims. Problems arose, however, in the next few decades, as a clear distinction was not made between food and drugs.

Federal Food, Drug, and Cosmetic Act - 1938

In 1938 the Federal Food, Drug, and Cosmetic Act replaced the 1906 Act. It did not go into effect until January 1940. The 1938 Act prohibited the sale of foods that were dangerous to health. The 1938 Act was much stronger, more comprehensive, and more rigorously

enforced by the court system than the 1906 Act. It prohibited the movement of adulterated misbranded foods through interstate commerce (Anon., 1938).

The Federal Food, Drug, and Cosmetic Act of 1938 considered foods and drugs misbranded if the label was misleading or false. The 1938 Act set standards for the preparation of food by processors and also established labeling requirements for foods that differed from those of drugs. The concept and definition of a drug were also further expanded (Anon., 1938).

The 1938 Act required the label of a food product to bear the "common or usual name," if any, of the food, the net quantity of contents, a statement of ingredients, and the name and address of the manufacturer or distributer (Anon., 1938). Labeling of imitation foods was required along with any "special dietary food." Additionally, special dietary foods were to be labeled with nutrient information such as mineral, vitamin, and other dietary properties. All information had to be placed prominently on the label in understandable terminology (Anon., 1938). After the initiation of the Federal Food, Drug, and Cosmetic Act in 1938, food labeling stayed fairly stable for the next 20 to 30 years (Hutt, 1986).

Nutrition Labeling Regulations

Official nutrition labeling began as a recommendation of the White House Conference on Food, Nutrition, and Health in 1969 (White House Conference, 1969). The report from the Conference contained several observations concerning the causes of poor diets, including

the lack of nutrient information for consumers. The Conference report suggested that the inability of consumers to make wise food choices about a balanced diet was partially due to the lack of information concerning the nutritional content of food products (Anon., 1969).

As a result of the 1969 White House Conference Report on Food, Nutrition, and Health and pressure by consumer groups, the FDA in 1973 issued a series of regulations related to nutrition labeling and food quality (Anon., 1973a, b). Commissioner Charles Edwards of the FDA stated these proposed regulatory changes were the most comprehensive in food labeling history (Anon., 1973b). The purpose of these regulatory changes was to insure full disclosure of the nutrition content of processed food. The ultimate result of these regulations was to assist in consumer purchase decisions by increasing understanding and eliminating confusion (French and Barksdale, 1974).

Character of the 1973 Nutrition Labeling Regulations

The regulations were selectively applied as they affected only processed food products for which nutrition claims were made or that were fortified with nutrients. Other food products were indirectly influenced by the FDA requirements due to the changes in competition that resulted from the nutritional labeling of products. It was predicted that these requirements would affect almost 50 percent of the nation's food supply (Anon., 1973a).

The labeling regulations, according to FDA in 1973, were,

> Designed to provide the American consumer with specific and meaningful new information on the identity, quality, and nutritional value of a wide variety of general and special foods available in the nation's market place. (Anon., 1973a, p. 2124)

Nutrient and vitamin/mineral labeling was instituted with a uniform format using the Recommended Dietary Allowances (RDA). Additionally, the new FDA program in 1973-1974 provided for identification of fats and cholesterol. It established standards for products sold as dietary supplements of vitamins and minerals and set new rules for the definition and labeling of artificially flavored foods and imitation foods. This comprehensive program consolidated and clarified existing but fragmentary FDA regulations that affected food labeling practices (Anon., 1973a). The following is a summary of those nutrition labeling regulations.

The umbrella regulation was known as nutrition labeling (Anon., 1973b), and governed how and when nutrition labeling was to be used. This regulation established the following:

1) Nutrition labeling for the majority of foods was voluntary. This was not true if a product was fortified with the addition of nutrient or nutrients, or a nutritional claim was made about a product, or when nutrition information was provided during advertising or labeling. If the latter occurred, the product was required by law to have full nutrition labeling.
2) Those statements that would trigger the full nutrition label panel included any reference to calories, protein, fat, carbohydrate, vitamins, minerals, or use of the food in dieting.
3) Products that were enriched or fortified required full labeling.

Such products included enriched bread or flour, fortified milk, fortified fruit juices, and diet foods.

4) Levels of vitamins and minerals were listed as a percentage of the newly established 1968 RDA. The 1968 RDA replaced the previously used minimum daily requirements. The U.S. RDA values were derived by the FDA from the highest value for each nutrient with the exception of calcium, phosphorus, biotin, pantothenic acid, copper, and zinc given in the National Academy of Sciences, National Research Council 1968 Tables for males and nonpregnant, nonlactating females, four or more years of age.
5) Protein content was required to appear on all products unless the product contained no protein. Nutrition information that had been provided for in other regulations had to appear on the same single panel on the label.

The FDA Commissioner derived the above criteria based on comments received from the proposed nutrition labeling section in the Federal Register of March 30, 1973. Comments were received from 3,141 organizations and individuals. The overall consensus from the more than 3,000 comments supported nutrition labeling. There were 23 comments that were negative and disagreed with the basic concepts of the proposal (Anon., 1973b).

Therefore, due to the overwhelming positive support for more detailed nutrition labeling, the Commissioner of the Food and Drug Administration added the food and nutrition labeling section to Part I title 21, of the Code of Federal Regulations. The following information was added:

(a) The code allowed nutrition information relating to the food product to be included on the label as long as it conformed to the requirements of the new section. Mandatory nutrition labeling was required if a nutrient was added to a product or if a nutritional claim was made for a product.

(b) Expression of nutrients would be based on average or usual serving size. All nutrients including calories, protein, carbohydrate, fat, vitamins, and minerals would be declared on the label.

(c) A declaration of nutrition information on the label would have certain information and use specified headings under "nutrition information":

(1) Serving size: a clear statement of the serving size.

(2) Servings per containers: The number of servings per container.

(3) Caloric content: a statement of the caloric content per serving. This would be rounded to the nearest 10 - calorie increment.

(4) Protein content: the number of grams of protein in a serving expressed to the nearest gram.

(5) Carbohydrate content: the number of grams of carbohydrate in a serving rounded to the nearest gram.

(6) Fat content: the number of grams of fat in a serving rounded to the nearest gram. Fatty acid composition, cholesterol content, and sodium content could also be declared.

(7) Percentage of U.S. RDA of protein, vitamins, and minerals: the amount per serving of the protein, vitamins, and minerals expressed in percentages of the 1968 U.S. RDA.

(i.) The U.S. RDA would be expressed in 10 percent increments, with the following exceptions: two percent increments should be used up to and including the 10 percent level, five percent increments above 10 percent and up to and including 50 percent level, and 10 percent increments above the 50 percent level. Nutrients present in amounts less than two percent of the U.S. RDA should be indicated by a 0, or by an asterisk. This asterisk then referred to another asterisk placed at the bottom of the table and followed by the statement "contains less than 2% of the U.S. RDA of this (these) nutrient (nutrients)."

(ii.) Protein would be declared first expressed as a percentage of the U.S. RDA.

(iii.) Vitamins and minerals would follow the protein declaration, and be included in the following order: vitamin A, vitamin C, thiamin, riboflavin, niacin, calcium, and iron. Other vitamin and minerals listed in paragraph (c) (7) (iv) could be included.

(iv.) The following U.S. RDA were established for these vitamins and minerals, essential in human nutrition:

Vitamin A, 5000 International Units

Vitamin C, 60 milligrams

Thiamin, 1.5 milligrams

Riboflavin, 1.7 milligrams

Calcium, 1.0 gram

Iron, 18 milligrams

Vitamin D, 400 International Units

Vitamin E, 30 International Units

Vitamin B_6, 2.0 milligrams

Folic Acid, 0.4 milligram

Vitamin B_{12}, 6 micrograms

Phosphorus, 1.0 gram

Iodine, 150 micrograms

Magnesium, 400 milligrams

Zinc, 15 milligrams

Copper, 2 milligrams

Biotin, 0.3 milligram

Pantothenic Acid, 10 milligrams

(v.) Claims could not be made that a food made a significant source of a nutrient unless the food contained 10% or more of the U.S. RDA for that nutrient per serving (Anon., 1973b).

Another section of the Nutrition Labeling Act discussed cholesterol, fat, and fatty acids labeling. The regulations in 1973 (Anon., 1973b) allowed the following:

a) Labeling of cholesterol content in milligrams per serving.

b) Labeling of the amounts of polyunsaturated fatty acids,

saturated fatty acids, and other fatty acids in grams per serving.

c) Labeling of total fat content as a percentage of the total calories in the food.

If the manufacturer provided information on cholesterol and fatty acid composition, the nutrition label had to include the following statement: "information on fat and/or cholesterol content is provided for individuals who, on the advice of a physician, are modifying their total dietary intake and/or cholesterol" (Anon., 1973, p. 2136). The law stated that a label could not contain any claims suggesting the particular food product would prevent, mitigate, or cure heart or artery disease or any other conditions (Anon., 1973b).

Other statements and regulations in the overall nutrition labeling regulations included: 1) label designation of ingredients for standardized foods; 2) use of the term "imitation"; 3) proposed labeling of flavors, spices, and food containing flavors; 4) exemptions of food labeling requirements; and 5) special dietary foods label statements (Anon., 1973b).

The end result of these regulations was that almost every food label in the United States was revised. Food companies were given a suitable period for using up old labels. The majority of these provisions became effective in mid-1975.

1978 Tripartite Hearings

In 1978, the FDA, the FTC, and the USDA issued a notice in the

Federal Register (Anon., 1978b) that announced the joint, extensive program to elicit comments from the public on nutrition labeling. A series of five public hearings was held throughout the United States and more than 450 individuals and group representatives testified. Additionally, over 8,900 written comments were received by the FDA Hearing Clerk (Anon., 1979).

The majority of respondents favored mandatory nutrition labeling. An overwhelming recommendation was the label format be revised to include more nutrition information and to communicate the information in a more understandable manner (Anon., 1979).

The FDA, FTC, and USDA also established an interagency task force to develop experimental nutrition label formats in conjunction with industry and consumers. A contract was awarded to Robert P. Gersin Associates of New York City to design nutrition label formats that were easily understood, technically accurate, and clear. As a result of Gersin Associates' recommendations, an announcement was placed in the Federal Register (Anon., 1983) regarding FDA support for testing nutrition labeling formats for comprehensibility and effectiveness of communicating nutrition information.

Today's Nutrition Labeling Regulations

Few changes have occurred since the initial labeling regulations went into law in 1975. Currently, nutrition labeling is still voluntary unless a claim is made about a particular nutrient in the food or a nutrient is added. Most manufacturers today realize that nutrition labeling provides a medium to inform

consumers and to sell a product. Manufacturers realize they have to compete; therefore, numerous manufacturers provide nutrition labeling on a voluntary basis. According to the latest food label and package survey (FLAPS), which was conducted in 1986, over 50% under the jurisdiction of the FDA have nutrition labeling (FDA, 1986a).

Calorie Labeling

Concern about calories contributed greatly to the federal regulations that were published in 1978 to define "low calorie" and "reduced calorie." "Low calorie" was defined and restricted to 1) those foods for which a serving of the food supplies no more than 40 calories and 2) foods that do not supply more than 0.4 calories per gram as consumed. "Reduced calorie" is defined as a calorie level that is at least one-third lower than the calories in the original product. The reduced calorie product also has to be nutritionally equivalent and "organoleptically" similar to the original food or it is to be called "imitation." The regulations also required that the nutrition label carry a declaration of a caloric comparison between the calorie in the regular product versus the calories in the "reduced calorie" product (Anon., 1978a).

Before the implementation of this regulation, the majority of diet foods were labeled as "low calorie." There were no restrictions or definitions applied to this term. The new regulation rigidly mandated the difference between "low calorie" and "reduced calorie" (Anon., 1978a).

Sodium Labeling

The sodium labeling proposal was published on June 18, 1982 (Anon., 1982). The purpose of sodium labeling regulations was to amend the Food Labeling Regulations to establish definitions for the terms "reduced sodium," "moderately low sodium," "low sodium," and "sodium free." The regulations were implemented 1) to provide for the appropriate use of such terms as without added salt, unsalted, no added salt; 2) to arrange for potassium labeling on a voluntary basis; 3) to require sodium labeling whenever full nutrition labeling is also required; 4) and to arrange for the appropriate use of the above terms in nutrition labeling (Anon., 1982).

The FDA regulations listed five descriptive terms regarding the sodium content of foods:

1. "sodium-free" - less than 5 milligrams of sodium per serving.
2. "very-low sodium" - less than or equal to 35 milligrams of sodium per serving.
3. "low-sodium" - less than or equal to 140 milligrams of sodium per serving.
4. "reduced-sodium" - at least a 75 percent reduction in the usual level of sodium in the food.
5. "unsalted" - no salt added during processing to a food normally processed with salt (Anon., 1982).

The regulations also provided for the opportunity of voluntary labeling of potassium content on the label in milligrams of potassium per serving. This was to be printed immediately following any sodium information (Anon., 1982).

The final regulations for sodium labeling were published on April 18, 1984. Prior to these regulations sodium could be listed on the label in milligrams per 100 grams. The new regulation allowed the listing of sodium in milligrams per serving. The final regulations became effective on July 1, 1986. The law mandated manufacturers provide the sodium content in milligrams per serving of their product whenever nutrition labeling was used (Anon., 1984b). The manufacturer was allowed to list sodium content by itself. Sodium labeling does not require nutrition labeling; however, nutrition labeling does require sodium labeling (Anon., 1984b). Today sodium labeling appears on approximately 59 percent of grocery store sales (FDA, 1986a).

Total Dietary Fiber Proposal

On August 13, 1984 the FDA posted and published a notice in the Federal Register involving an amendment of the Food Labeling Regulations to provide for the exclusion of nondigestible dietary fiber when determining the calorie content of a food for nutrition labeling purposes. The purpose of this proposal was to allow for more accurate determination of the available calories in high fiber food. Prior to the announcement of this proposal, the carbohydrate content of a food included calculation of the calories for all carbohydrates including dietary fiber (Anon., 1984a).

The FDA developed a method to determine the amount of nondigestible dietary fiber in a food. This method is based on the results of a collaborative study by the Association of Official Analytical Chemists (AOAC). Without this type of adjustment, the

calories declared on the label were actually greater than the total amount of calories available (Anon., 1984a).

The new formula for calculated caloric content per serving was proposed as follows: (grams of protein X 4) + (grams of fat X 9) + [(grams total carbohydrate - grams total nondigestable dietary fiber) X 4] = calories per serving. The comment period continued until October 12, 1984 (Anon., 1984a). The comments were reviewed and for any food product label that lists total dietary fiber, an adjustment can be made in caloric content.

Fatty Acid/Cholesterol Proposal

On November 25, 1986 the Food and Drug Administration offered a new proposal that would amend the food labeling regulations to define and provide for the proper use of cholesterol and fatty acid labeling (Anon., 1986a). The other purpose of this proposed regulation was to define "cholesterol free," "low cholesterol," and "cholesterol reduced" in the labeling of foods.

The FDA proposed to define "cholesterol free" as those foods containing less than 2 mg of cholesterol per serving. In order to not mislead consumers, a food naturally having less than 2 mg of cholesterol per serving such as peanut butter could be described "cholesterol free" food. This claim would refer to the particular food class and not merely to a particular brand, i.e., "peanut butter, a cholesterol-free food" (Anon., 1986a).

"Low cholesterol" was proposed to describe foods that contained less than 20 mg of cholesterol per serving. Therefore, a food that naturally contains less than 20 mg of cholesterol per

serving can be described as "a low cholesterol food." This term may also pertain to formulated or processed foods specifically designed to have a lower cholesterol content (Anon., 1986a).

The term "cholesterol reduced" or "reduced cholesterol" is to be applied only to those foods that contain no more than 25% of the cholesterol for foods for which they are substitutes. Those products claiming to be "cholesterol reduced" would be required to display comparative information on the extent of the cholesterol reduction, i.e., the cholesterol content of this souffle has been reduced from 360 mg to 100 mg per serving (Anon., 1986a).

In recognition of the fact that cholesterol content can be reduced in products, and that it may not be possible to reduce the cholesterol content by 75%, the FDA would allow the use of other terms such as "less cholesterol," "lower cholesterol," on the condition that quantitative information on the amount of reduction was provided (Anon., 1986a).

In this proposal, the FDA recommended the deletion of the requirement that food labels bearing cholesterol or fatty acid information should also bear a statement indicating the information was for individuals modifying their diet on the advice of the physician. Additionally, the FDA proposed the percentage of calories from fat as part of the label information be deleted. The rationale behind this deletion was that the information is not essential in the dietary management of fat intake. It is more useful in the total diet versus individual foods (Anon., 1986a).

In regard to fatty acid labeling, the current proposal

recommended fatty acids be declared when products contain two grams or more of fat. Declaration of fatty acids on the label would trigger cholesterol labeling. The use of both fatty acid and cholesterol labeling would be voluntary, but would become mandatory if a claim about fatty acids was made. On the other hand, the proposal for cholesterol declaration included one for fatty acids, e.g., if cholesterol was declared on the label it would trigger the requirement for a fatty acid declaration and also full nutrition labels. This information would be mandatory if a claim was made (Anon., 1986a)

This new proposal creates a dilemma. In the current labeling of fatty acids there is what is known as an "and/or" declaration. Fats and oils are allowed to be grouped as a "may contain . . . and/or . . .," when the "oleaginous" components are not the primary ingredient. The new regulations present a real dilemma for the food manufacturer who wants to declare the cholesterol content of food when the food has a blend of fats and/or oils present at a level greater than two grams per serving. The primary reason for blending is for availability and price. Therefore, one label declaration may not be acceptable or appropriate for the various formulations of a particular product. This proposal, therefore, could limit the amount of fatty acid and cholesterol labeling occurring due to the cost of both printing numerous labels and doing numerous determinations. This would appear to defeat the purpose of nutrition labeling (Anon., 1986b).

The comment period for this proposal closed on March 27, 1987.

To date, there has been no indication that the FDA would consider permitting cholesterol and fatty acid declarations to stand alone on the label. If declared, these food components would likely trigger full label information in the established format (Anon., 1986b).

USDA Approaches to Nutrition Labeling

The other governmental agency that regulates nutrition labeling is the USDA. The USDA has the responsibility of setting standards for dairy, meat, and poultry products along with fresh fruits and vegetables. Initial nutrition labeling regulations were proposed by the USDA on January 11, 1974; however, they were never finalized. Currently, USDA initiates new requirements by publishing new policy memoranda or updating existing ones (FTC, 1978).

For the most part, USDA and FDA requirements are similar with respect to nutrient classification and format. However, there are two major differences. The USDA requires nutrient declarations only when a specific claim is made. Additionally, producers can select either a limited labeling format or the full FDA format. The second difference is that the FDA requires nutrition labeling on a product as it is packaged, while the USDA requires labeling on the prepared product, such as three ounces of cooked chicken (Hadden, 1986).

The USDA requires that nutrient data be submitted to them for prior approval of product labels. Also, the USDA has a nutrition labeling verification program, which guarantees the label claim.

In April 1987, the USDA, which is responsible for the regulation of meat, poultry, and egg products, increased the

stringency of their requirements. The purpose of these regulations was to more accurately describe the fat content of the aforementioned foods. Previously, claims pertaining to fat such as "lite," "lean," "extra lean" had been used in an interchangeable manner on meat and poultry products that contained 25 percent less fat than a comparable product and also on products that contain no more than 10 percent fat. Under the policy established in April 1987, those names should have more specific meanings:

a) "extra lean" - less than or equal to five percent fat.

b) "lean", "low fat" - less than or equal to 10 percent fat.

c) "light," "lite," "leaner," "lower fat" - used to mean at least 25 percent less fat than similar products (USDA, 1986).

If any of the above terms are used on a meat, poultry, or egg product label, the amount of fat must to be declared. Additionally, when a fat comparison is made between foods, a statement must appear that explains this comparison (USDA, 1986).

Summary

In summary, the evolution of nutrition labeling regulations since the early part of the twentieth century has been traced (see Table 1). Food regulations followed the course of initially decreasing economic risk to sellers, then reducing buyers risk to buyers, and ultimately controlling buyers health risks. More specific labeling information has been proposed and promulgated since the early 1970s. Currently, a number of proposals are pending, including the cholesterol and fatty acid proposals, health

claims labeling, fast food labeling, labeling of fresh fruits and vegetables, and many others (Anon., 1986b).

The label is a means of communicating nutrition information to the public. The information presented on the product label will create competition between manufacturers and it is hoped will create more nutritious products.

Appendix B

Focus Group Questionnaire

Demographic Questions

These last few questions are for statistical background purposes: Please circle the appropriate response.

1. What is your age:

   1. 18-25 years
   2. 25-35 years
   3. 35-50 years
   4. 50-65 years
   5. 65+ years

2. What is your sex:

   1. Male
   2. Female

3. What is your current marital status:

   1. Single
   2. Married
   3. Separated
   4. Divorced
   5. Widowed

4. Do you have any children living with you?

   1. Yes
   2. No

5. (If yes to question 4). If yes, what are their sexes and ages?

Sex	Age	Sex	Age
M F	_____	M F	_____
M F	_____	M F	_____
M F	_____	M F	_____
M F	_____	M F	_____

6. Are you or is anyone else in thise household on any kind of a special diet at this time?

   1. Yes
   2. No

7. (If yes to question 6) Who is on a special diet and what kind of special diet is it?

_____

_____

_____

8. What is the highest grade (or year) of school you have completed?

Never attended school	0
Elementary School	1 2 3 4 5 6 7 8
High School	9 10 11 12
High School Equivalency	12
College (Academic Year)	1 2 3 4 5 6 7 8 or more

9. Are you employed for pay, either part-time or full-time?

   1. Yes, part-time
   2. Yes, full-time
   3. No

10. (If no to question 9) Are you,

   1. A full-time homemaker
   2. A student
   3. Temporarily unemployed
   4. Retired

11. Please tell me which of these categories comes closest to what you do or what you usually did when you were working.

1. Professional worker
2. Technical worker
3. Farm/farm manager
4. Clerical worker
5. Manager, official, proprietor
6. Sales worker
7. Craftsman, foreman
8. Service worker
9. Farm laborer
10. Other laborer
11. Other, please specify _____

---

12. (If married) What is the highest grade (or year) of school your spouse has completed?

Never attended school	0
Elementary School	1 2 3 4 5 6 7 8
High School	9 10 11 12
High School Equivalency	12
College (Academic year)	1 2 3 4 5 6 7 8 or more

13. (If married) Is your spouse employed for pay, either, part-time or full-time?

1. Yes, part-time
2. Yes, full-time
3. No

14. (If married and answered no to question 13) Is you spouse:

1. A full-time homemaker
2. A student
3. Temporarily unemployed
4. Retired

15. (If Married) Please tell me which of these categories comes closest to what your spouse does or what your spouse did when your spouse was working.

1. Professional worker
2. Technical worker
3. Farmer/farm manager
4. Clerical worker
5. Manager, official, proprietor
6. Sales worker
7. Craftsman, foreman
8. Service worker
9. Farm laborer
10. Other laborer
11. Other, please specify _____

---

16. Would you tell me approximately what your total family income was in 1982?

1. Less than $4,000
2. $4,000-$4,900
3. $5,000-$9,999
4. 10,000-$11,999
5. $12,000-$14,999
6. $15,000-$19,999
7. $20,000-$24,999
8. $25,000-$34,999
9. $35,000-$44,999
10. $45,000-$54,999
11. $55,000 or more

17. How much of the food shopping do you do for your household?

1. All of the food shopping
2. Most of the food shopping
3. Half of the food shopping
4. Less than half of the food shopping
5. Almost none of the food shopping
6. None of the food shopping

18. I would like your opinion about what kinds of nutrition information you would pay particular attention to or would find helpful on food packages. If you are not very familiar with a nutrient, indicate you don't know enough to decide.

Amount of nutrient per serving	Very useful	Of some use	Of little or no use	Don't know enough
1. Calories				
2. Carbohydrate				
3. Fiber				
4. Starch				
5. Total Sugar				
6. Added Sugar				
7. Fat				
8. Polyunsaturated Fat				
9. Saturated Fat				
10. Cholesterol				
11. Protein				
12. Vitamins				
13. Vitamin A				
14. Vitamin C				
15. Vitamin D				
16. Vitamin E				
17. Vitamin K				
18. Biotin				
19. Folic Acid				
20. Inositol				
21. Niacin				
22. Pantothenic Acid				

Amount of Nutrient per serving	Very useful	Of some use	Of little or no use	Don't Know enough
23. Pyridoxine (B_6)				
24. Riboflavin (B_2)				
25. Thiamin (B_1)				
26. Vitamin B_{12}				
27. Minerals				
28. Calcium				
29. Chromium				
30. Copper				
31. Iodine				
32. Iron				
33. Magnesium				
34. Manganese				
35. Phosphorus				
36. Potassium				
37. Selenium				
38. Sodium				
39. Zinc				

Appendix C

Detailed Description of Focus Group Results

Usage of the Nutrition Label Information

The participants in Focus Group I looked for the following items on food labels when shopping: the date of expiration, the caloric content (especially on cereals), the amount of product versus price, the sodium content, and sometimes the presence of vitamin C. The majority of the focus group looked for the vitamin and mineral content on cereal products, "because there is nothing else there."

The nutrition information most frequently used included the caloric content, the sugar content, and the vitamin and mineral content, along with information indicating whether or not the product was natural. The focus group participants suggested they used the label information to avoid certain ingredients, to look for ingredients they felt were good, and for comparative purposes. The participants suggested they would like the following information on all food labels: calories in big print, percentages rather than grams, natural and added sugar, and the date the food was packed.

The information that was considered confusing by participants included: grams, technical terminology, and numerous names for sugar. The only ingredient that would prevent some participants from purchasing a product was caffeine.

Focus Group II showed different trends in their usage of nutrition information than Focus Group I. The nutrition information most commonly used included calories, percentages of vitamins and minerals, carbohydrate, protein, fat, iron, and sodium.

The focus group participants used the label for its nutrition

information and to compare brands. Only two participants mentioned using the label to avoid particular ingredients, including sugar, monosodiumglutamate, coconut oil, and additives. One focus group member would not purchase a product unless it contained additives as the product would spoil too rapidly!

International units and the technical names on the ingredient list were the only items mentioned as confusing. This focus group understood grams and milligrams and asked for absolute amounts on vitamins and minerals.

In terms of additional information on labels, the group approved of nutrition information; the only item they might add would be sodium. The group suggested nutrition information should appear on all products. The participants were very aware certain products did not provide nutrition information. They also wanted to know the percentage of each ingredient on the ingredient label.

Several focus groups suggestions were implemented on the final labels. These suggestions included the testing of percentages alone, grams alone, and both absolute numbers and percentages together on the final label. Information concerning calories, sodium, sugar, and vitamins and minerals was used on the final labels.

Food Shopping Practices

In the first focus group, product quality, family preferences, and familiar brands appeared to have the largest influence on food purchases. Some participants suggested if comparative advertising

between brands was used, regardless of product quality, they would not purchase the product. In the second focus group, familiar brand, lower cost, convenience, taste preference, and nutritional content had a substantial influence on food purchases.

It was important to determine those variables that affected food purchase decisions and to incorporate them into the final study. As a result, brand, price, and nutrition content variables were incorporated into Phase I of the study.

Nutrition Label Formats

During the second half of the focus group sessions, the participants were divided into five groups and each group was given a different label format on an 8 1/2 inch X 11 inch posterboard. They were asked to give their reactions, whether or not they liked it and why, and what kind of information the label conveyed to them. This information was presented to the total group with the remaining participants given a chance to react.

Traditional Label (Figure 18)

Participants discussed the information of each label format. The traditional label, Figure 18, portrayed the nutrient content of water packed canned peaches. Focus Group I participants indicated the grams were difficult to understand, along with the daily allowances. The participants suggested it would be useful to know the amount of natural and added sugar. Some participants assumed if a vitamin or mineral did not appear on the label, it was not contained in the product. One participant was unable to locate

Canned Peaches, Water Packed

Nutrition Information Per Serving	
Serving Size	1/2C
Servings per Container	4
Calories	29
Protein	1g
Carbohydrate	7g
Fat	0g
Percentage of U.S. Recommended Daily Allowances (U.S. RDA)	
Protein	*
Vitamin A	16%
Vitamin C	6%
Riboflavin	2%
Thiamin	*
Niacin	4%
Calcium	*
Iron	2%

*Contains less than 2% of the U.S. RDA for this nutrient

Figure 18. Traditional label.

calories on this label.

The participants in Focus Group II indicated the format for serving size and number of servings per container was unclear. The majority of the participants indicated the U.S. RDA was useful to them; however, some wanted to know the absolute amounts versus the percentage amounts. Considerable discussion centered on the asterix symbol representing less than two percent of the U.S. RDA. Some participants preferred knowing the exact amount and others felt an ingredient should not be listed if less than two percent of the U.S. RDA was present.

Modified Traditional (Figure 19)

The modified traditional label, Figure 19, depicted the nutrient content of a three ounce hamburger. The participants in Focus Group I suggested this label was easier to read than the first label due to the break between the nutrition information. The format was well-received, because the calories were listed first and because of the division between the macro- and micronutrients. Participants suggested percentages were more easily understood than grams. The group responded positively to the listing of cholesterol on the label.

Focus Group II displayed considerable approval for this label format because of the division between the macro- and micronutrients and the listing of sodium and cholesterol. The group suggested the division made the label appear less confusing. This focus group reiterated their desire for vitamin and mineral information in absolute amounts.

Nutrients Per 3 oz. Regular Hamburger	
Calories	294
Fat	24g
Protein	18g
Carbohydrate	0g
Sodium	39mg
Cholesterol	81mg
Percent of Daily Allowance	
Vitamin A	*
Vitamin C	*
Vitamin B_6	14%
Calcium	*
Iron	11%
Zinc	21%
Potassium	10%

*Less than 2% U.S. RDA

Figure 19. Modified traditional label.

Simplified Numberical Graphical (Figure 20)

The simplified numerical graphical format, Figure 20, was used to depict the nutrient content of a brownie. It was well-received by Focus Group I because of the priority placement of the calories and the bar graph. One respondent commented "the graph was something you could look at and get your information really fast." The bar graph conveyed the minimal nutrient content in the brownie. The group suggested it would be beneficial to extend the bar graph to the upper portion of the label. Focus Group I reiterated their desire to have amounts expressed as percentages versus absolute numbers/grams. The group liked the added sugar listing on the label; however, they decided sugar was sugar, so it really did not matter.

Focus Group II was different from Focus Group I in their reactions. The participants suggested the graph did not add anything to the label. They felt it occupied too much space and was misleading as it only went to 50 percent and could be misinterpreted. They also mentioned they were able to read numbers and were not "functional illiterates."

Only a few of the participants approved of the bar graph because it conveyed the minimal nutrient content of the brownie. Some participants liked having the calories separated, while to others it did not matter. Only 50 percent of the focus group looked for calories on nutrition labels.

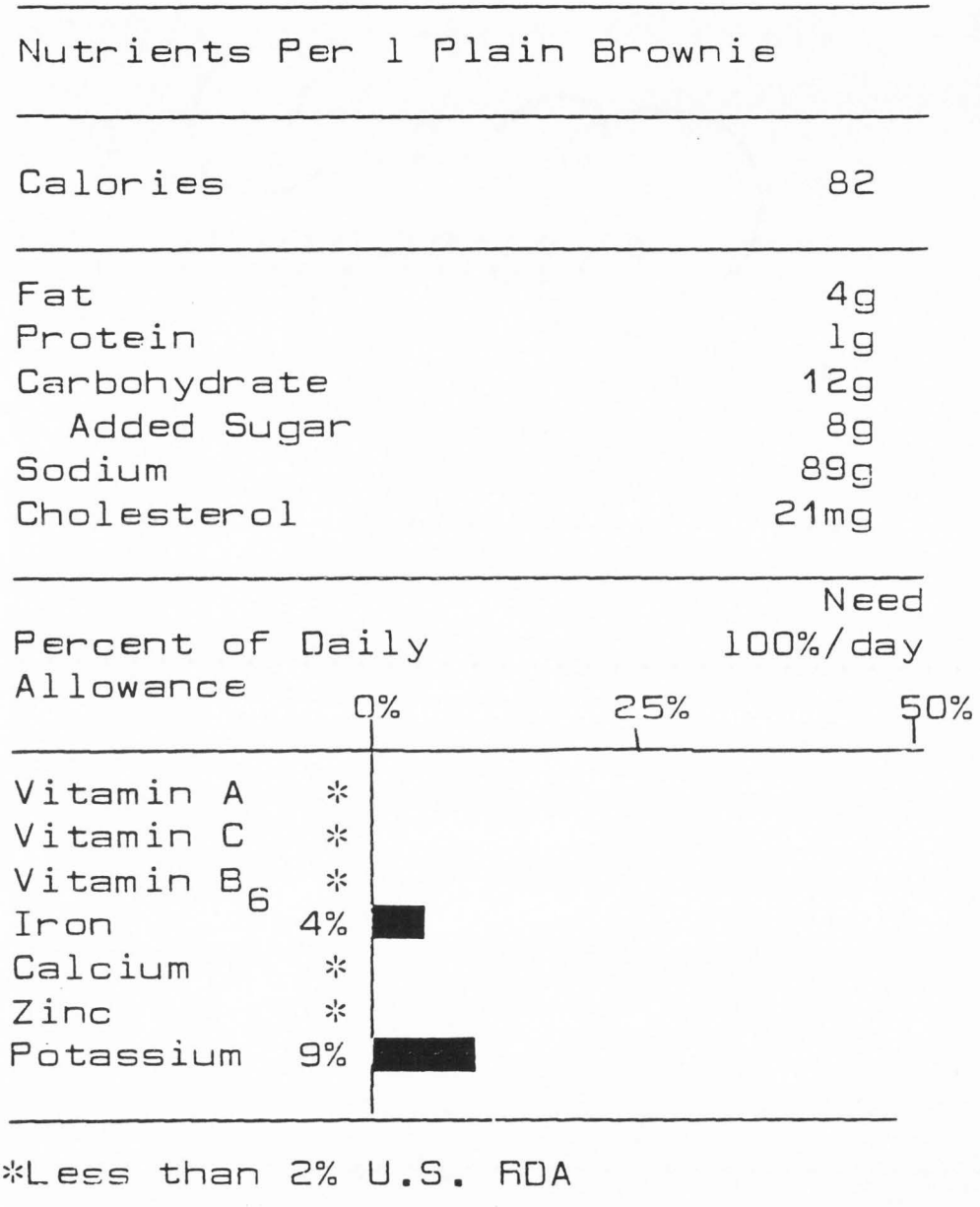


Figure 20. Simplified numerical graphical label.

Simplified Graphical/Graphical I (Figure 21)

The simplified graphical/graphical I label, Figure 21, portraying two percent milk, received very positive comments from Focus Group I. The information "stood right out." They indicated approval for highlighted calories.

There was some initial confusion as to why the chart changed halfway down from percentages to grams and the meaning of the arrow with the calories at the bottom of the label. Both of these areas of confusion became clear as the group discussed them.

Participants preferred the order of nutrition information in the simplified numerical graphical label, but the total bar graph approach received more support. The majority of the group approved use of grams for protein, carbohydrate, fat, sodium, and cholesterol if there was a bar graph showing percentages.

The highlighted or gray section conveyed the following: if a nutrient bar was longer than the gray section, the food was a good source of that nutrient, and if the nutrient bar was in the gray section, it was an average source of the nutrient.

Focus Group II did not appear to like the division of the information on this label. They also suggested the format should be standardized in terms of the use of grams or percentages and they preferred grams. This focus group was unable to understand the reason for the calorie line; however, they understood the relationship between the length of the bar graph and the amount of a nutrient present.

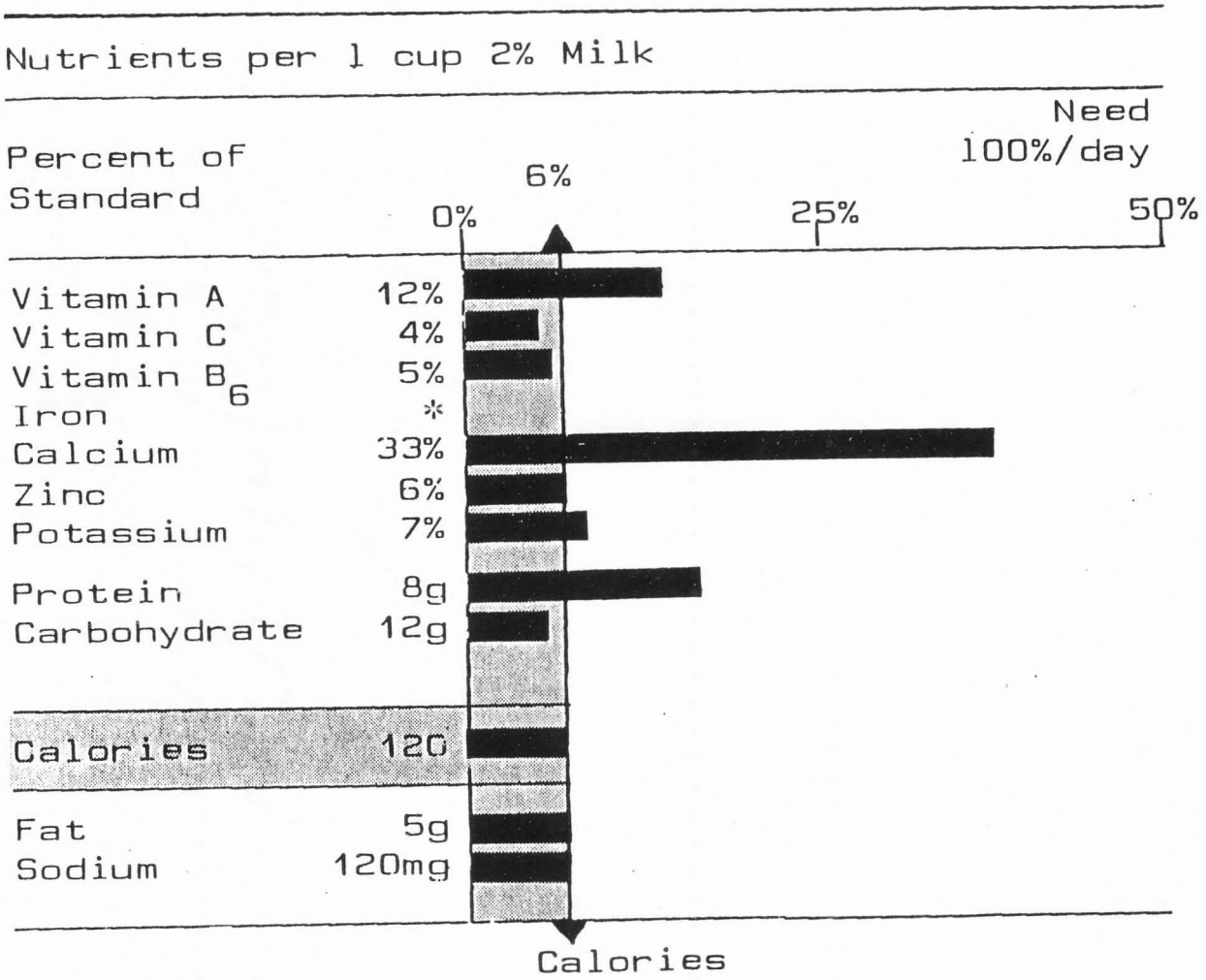


Figure 21. Simplified graphical/graphical I label.

Simplified Graphical/Graphical II (Figure 22)

The next label format, representing the nutrient content of a fresh tomato, was simplified graphical/graphical II (see Figure 22). Focus Group I participants showed a strong preference for this format over the simplified graphical/graphical I. They also preferred the order of the nutrients. The label conveyed to the group, "for the amount of calories, these are the nutrients that would be received." This format was extremely well-received, appeared simpler, and very rapidly conveyed a considerable amount of information.

The majority of Focus Group II responded negatively to this approach, as mentioned previously, "we can read, we don't need a graph to show us information." They preferred the space for the bar graph to be used to show both grams and percentages.

The order of nutrients in this format was preferred over the previous format. The participants did not want to have grams and milligrams shown on the same label, as it could be confusing, i.e., 900 mg looks like more than five grams. Some participants believed the bar graph approach was acceptable if the chart went to 100 percent. After some discussion, one participant was able to interpret the purpose of the calorie line. One participant indicated he would prefer a number indicating the relationship between calories and each nutrient. This would be the Index of Nutritional Quality (INQ).

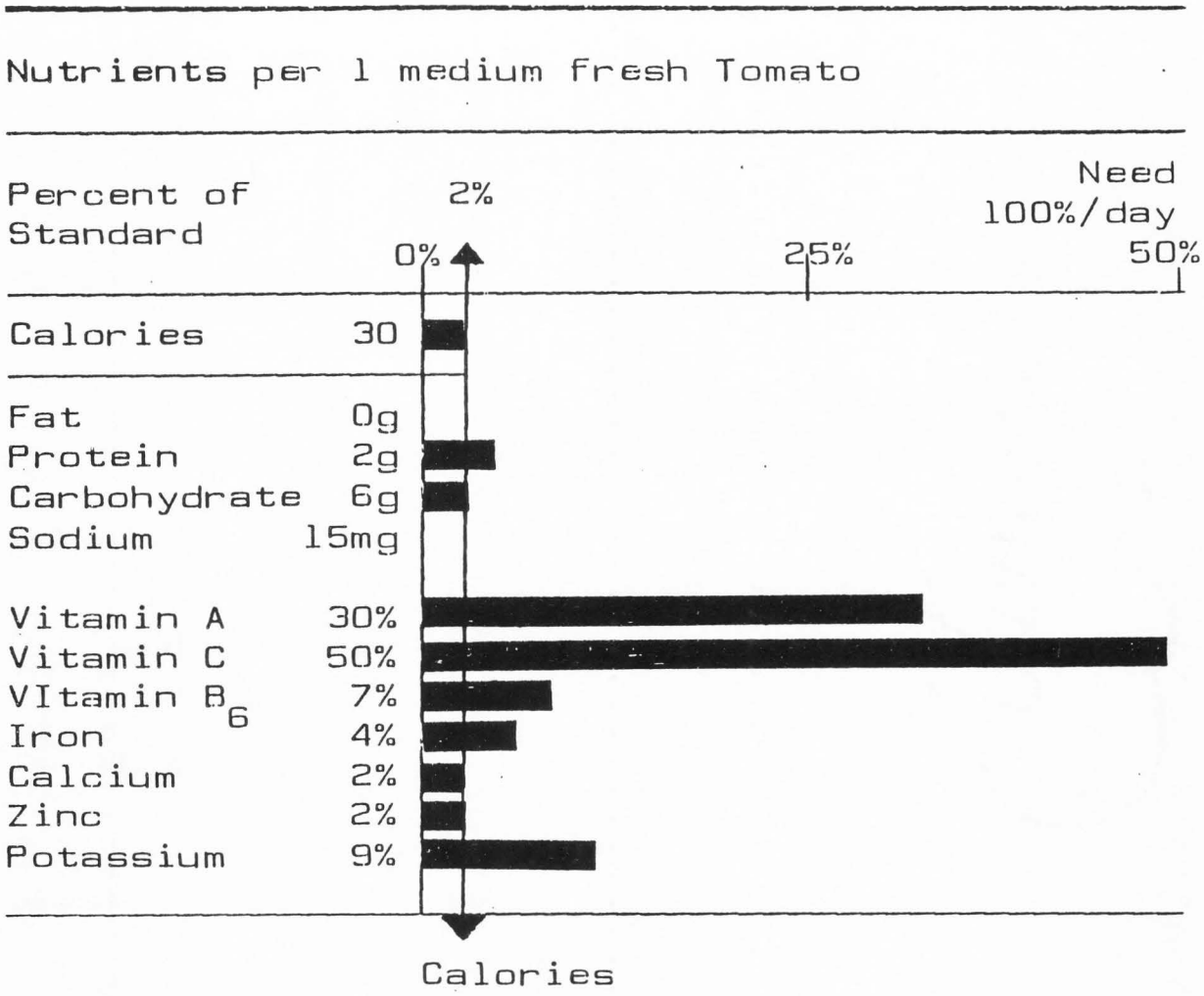


Figure 22. Simplified graphical/graphical II label.

Appendix D

Fractional Factorial Design

Basic Plan Phase One - 9 Level (3 X 3 X 2 X 3)

Factorial Format

1.	1	1	1	1
2.	1	2	2	3
3.	1	3	1	2
4.	2	1	2	2
5.	2	2	1	1
6.	2	3	1	3
7.	3	1	1	3
8.	3	2	1	2
9.	3	3	2	1

Profile One
Campbell's
High Price
Traditional
Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol

Profile Two
Campbell's
Medium Price
Graphical
Calories, Sodium, Protein, Carbohydrate, Simple Sugar, Complex Carbohydrate, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin

Profile Three
Campbell's
Low Price
Traditional
Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A

Profile Four
Store Brand
Medium Price
Traditional Format
Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A

Profile Five
Store Brand
Medium Price
Traditional Format
Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol

Profile Six
Store Brand
Low Price
Traditional Format
Calories, Sodium, Protein, Carbohydrate, Simple Sugars, Complex Carbohydrate, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin.

Profile Seven
Generic Brand
High Price
Traditional Format
Calories, Sodium, Protein, Carbohydrate, Simple Sugars, Complex Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin

Profile Eight
Generic Brand
Medium Price
Traditional Format
Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol, Calcium, Thiamin, Vitamin C, Vitamin A

Profile Nine
Generic Brand
Low Price
Graphical Format
Calories, Sodium, Protein, Carbohydrate, Fat, Cholesterol

Basic Plan Phase Two - 9 Level (3 X 3 X 3 X 2)

Factorial Format

1.	1	1	1	1
2.	1	2	2	1
3.	1	3	3	2
4.	2	1	2	2
5.	2	2	3	1
6.	2	3	1	1
7.	3	1	3	1
8.	3	2	1	2
9.	3	3	2	1

Profile One
Traditional Format
Calories, Sodium, Protein, Carbohydrates, Fat, Cholesterol
Absolute Numbers
Traditional Nutrition Information Order

Profile Two
Traditional Format
Calories, Sodium, Protein, Carbohydrate, Fats, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A
Percentages
Traditional Nutrition Information Order

Profile Three
Traditional Format
Calories, Sodium, Protein, Carbohydrates, Simple Sugars, Complex Carbohydrates, Cat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin
Absolute Numbers + Percentages
Rearrangement of Nutrition Information

Profile Four
Graphical Label Format
Calories, Sodium, Protein, Carbohydrates, Fat, Cholesterol
Percentages
Rearrangement of Nutrition Information

Profile Five
Graphical Label Format
Calories, Sodium, Protein, Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A
Absolute Numbers + Percentages
Traditional Nutrition Information Order

Profile Six
Graphical Label Format
Calories, Sodium, Protein, Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin
Absolute Numbers
Traditional Nutrition Information Order

Profile Seven
Nutrient Density Label Format
Calories, Sodium, Protein, Carbohydrates, Fat, Cholesterol
Absolute Numbers + Percentages
Traditional Nutrition Information Order

Profile Eight
Nutrient Density Label Format
Calories, Sodium, Protein, Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A
Absolute Numbers
Rearrangement Nutrition Information Order

Profile Nine
Nutrient Density Label Format
Calories, Sodium, Protein, Carbohydrates, Simple Sugars, Complex Carbohydrates, Fat, Cholesterol, Calcium, Iron, Vitamin C, Vitamin A, Thiamin, Riboflavin, Niacin
Percentages
Traditional Nutrition Information Order

Appendix E

Pretesting Procedures for Questionnaire

This appendix describes the pretesting of the survey questionnaire. The computerized questionnaire was developed during the summer and early fall of 1987.

The initial survey instrument was presented on computer to committee members (n = 2) for suggestions to improve clarity and relevancy of questions, opinions of the amount of time necessary to complete the survey, and reactions to the computerized format. Suggestions were made at this time to either shorten the questionnaire and split the two ACA modules (Johnson, 1986) between two groups or to proceed with the questionnaire in its present form. It was also recommended some of the questions regarding usefulness of nutrition label information be reformatted.

The next pretest was performed on two faculty and staff in the Division of Foods and Nutrition in the College of Health. The response on the whole was positive; however, concern was expressed about questionnaire length. A third pretest was conducted the week of September 28, 1987. Seven drafts of the questionnaire were revised before this test. Respondents were asked to make recommendations on improvement in clarity and relevancy of questions, the amount of time necessary to complete the questionnaire, colors used on the computer monitor for questions, and overall reactions to the conjoint analysis modules, the interviewing modules, and the nutrition label formats. This pretest was conducted on two faculty members, six graduate students, and two administrative assistants. The pretest was planned to be performed on a larger group of consumers; however, test computers were not

available from IBM at that time.

As a result of the pretest respondent comments, several changes were made. The most frequently mentioned questions that caused confusion were frames 17 and 35 of both ACA (Johnson, 1986) modules. These frames gave instructions for the conjoint analysis, trade-off decisions. The instructions were modified and were characterized by pretest participants as more understandable (see Appendix H, Frames 17 and 35). It was clear to the principal investigator the interviewers would need to explain this particular task during the survey.

Wording was also changed for entering data from, "Please Press Any Key To Continue" to "Please Press Enter to Continue." There was less risk of a respondent pressing a function key that could affect programming. In the actual study, the computer keyboard had an enter label placed on the return key.

In the first ACA program, the actual nutrients for the variable, information loads, were programmed for each level as follows:

Level 1 - Calories, sodium, protein, carbohydrate, fat, cholesterol.

Level 2 - Same as Level 1 plus calcium, iron, Vitamins A and C.

Level 3 - Same as Level 2 plus simple sugars, complex carbohydrates, Vitamins B_1, B_2, B_3.

There was a limited amount of space in which to print this information, and it appeared confusing to survey participants.

Because this information was printed on product labels, the recommendation was made to change this information as follows for ACA 1:

Level 1 - Some information, See Exhibit C

Level 2 - More information, See Exhibit D

Level 3 - Most information, See Exhibit E

It was also changed in a similar manner for ACA II as this variable was a component of this module:

Level 1 - Some information, See Exhibit 4

Level 2 - More information, See Exhibit 5

Level 3 - Most information, See Exhibit 6

This information was also printed in yellow on the Campbell's nutrition label to indicate which information to view.

The Unacceptables section of ACA 1 and ACA 2 was also eliminated after the pretest in order to portray a more realistic purchase decision. This is discussed in Appendix G.

One question was eliminated from the questionnaire because it did not measure an important concept. This was question 180, "Using the arrow keys, move the box along the scale to indicate how informative you feel nutrition information is today."

Numerous other programming changes were made to correct for minor questionnaire administration errors. Programming changes included assuring if respondents answered no to a question, they did not view questions that were only meant for a yes response. It also included assuring the analog rating scales matched the distance the

arrows were moving and the numbers pressed for responses actually coded in the correct response.

Appendix F

Description of the CI2 Program

This appendix contains a more indepth description of the Ci2 Computer Program. As mentioned, there are five components to the program: Frames, Logic, Run Questionnaire, Print Questions, and Examine Data (Johnson, 1987b).

The wording of the questions was composed and stored in the Frames Section. The system has the capability of composing 250 different frames in either a 40 or 8 column format. Twenty-four special characters are also available to augment questionnaire presentation (Johnson, 1987b).

The Logic Section consists of six components that essentially govern the logistics of the questions. These six sections include composing and editing, presenting text, dealing with respondent answers, special question types, special capabilities, and logical and arithmetic instructions. The Logic Section actually provides the "instructions" for the functioning of the questionnaire. The logic instructions are developed for each frame to result in various types of questions such as multiple choice, analog rating scales, open-ended questions, and many others (Johnson, 1987b).

The Run Questionnaire component generates the questionnaire by combining the Frames and the Logic Sections. The Print Questionnaire Section provides a hard copy of the questionnaire (Johnson, 1987b).

The Examine or Work with Data Files component provides the individual respondent data and the marginal tabulation of results by question number. The data file can be converted to an ASCII file for further data manipulation. It can also be merged, nine

variables at a time with the ACA program (Johnson, 1986), in order to run market simulations. The merged files are also in an ASCII format for use with SPSS/PC+ (Norusis, 1986).

Appendix G

Description of the ACA Program

This appendix provides an indepth discussion of the ACA program. The ACA program consists of three components: an Interviewing System, a Utility Calculator, and a Market Simulator (Johnson, 1986).

The Interviewing System contains seven subsections: Introduction, Unacceptables, Preference Ranking, Most Likely, Importance Rating, Paired Concepts, and Calibration (Johnson, 1986).

The Introduction Section contains frames that welcome the respondent and provide questionnaire instructions. The Unacceptables Section appears next in this module; however, it was not used in this questionnaire. The Unacceptables Section questions which, if any, of the levels of a variable are so unacceptable that the respondent would never consider them in a purchase decision (see Figures 23 and 24). As a result, the utilities would never be estimated for the respective levels of the variables. This would result in more efficient calculations of the remaining utilities and shortening of the questionnaire length. However, the unacceptable level could be considered in the context of an actual purchase decision; therefore it may be unrealistic to eliminate before any choices could be made (Klein, 1986).

The Preference Rating Section requires the survey participant to rank order the levels of each variable (see Figures 25, 26). In the Importance Rating Section, one question was asked per variable, resulting in the relative importance of the variable (see Figure 27 and 28). Initial utilities were calculated based on the Unacceptables, Preference Ranking, and Importance Rating Sections

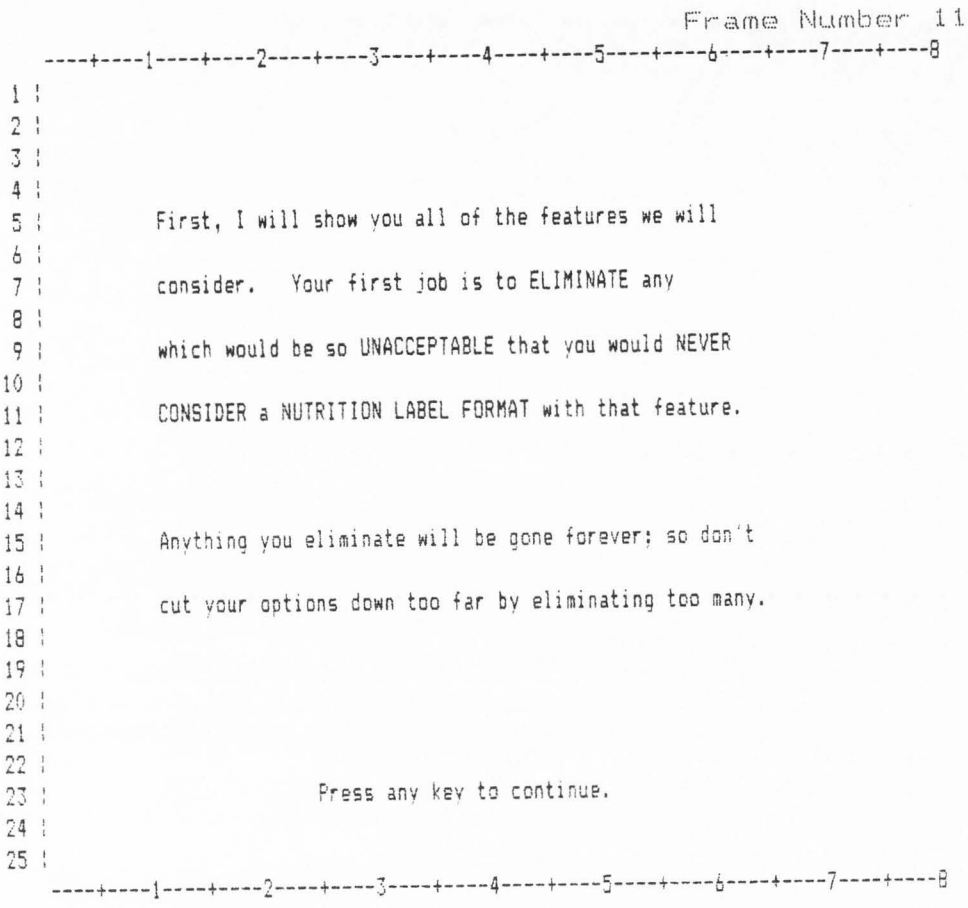


Figure 23. ACA system unacceptables section.

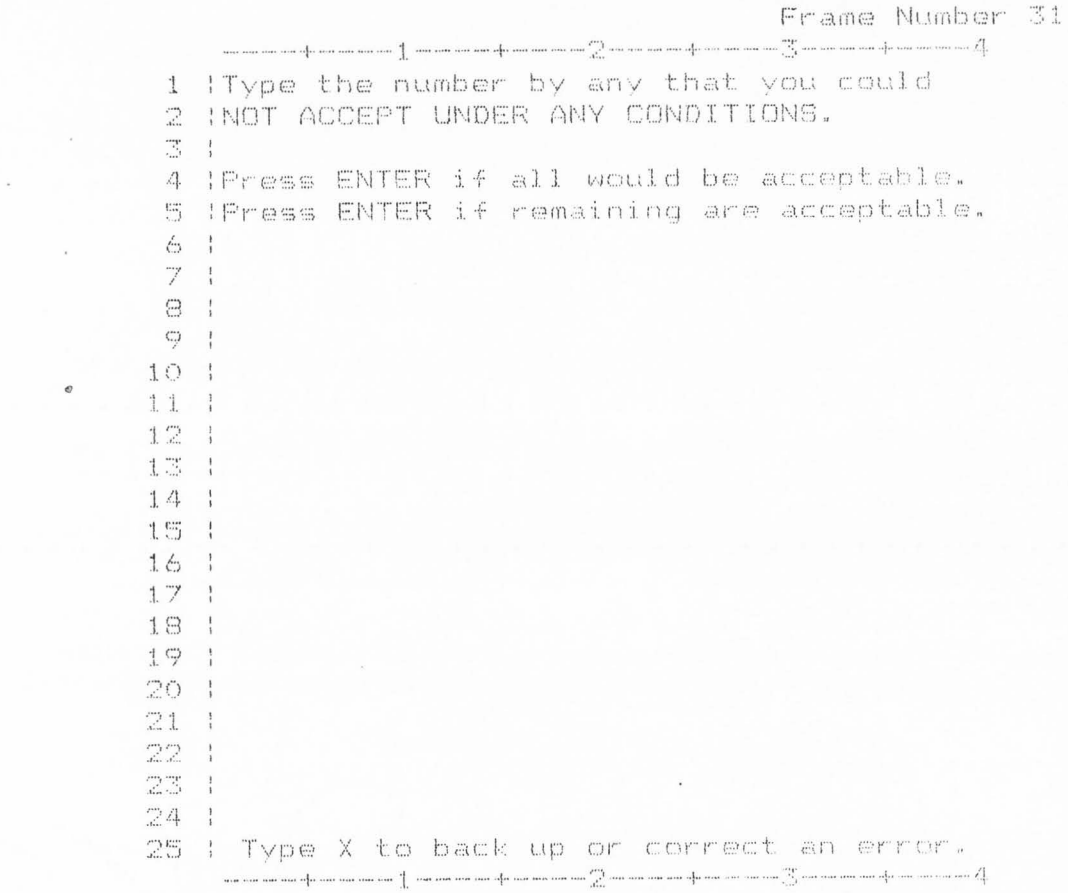


Figure 24. ACA system unacceptables question.

```
                                                        Frame Number 12
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦
 2 ¦
 3 ¦
 4 ¦
 5 ¦          I  would like to know your preferences for some
 6 ¦
 7 ¦          features of vegetable beef soup.
 8 ¦
 9 ¦
10 ¦
11 ¦          For each of these features separately, I will ask you to
12 ¦
13 ¦          choose the option that you would like most, then the one
14 ¦
15 ¦          you like next most, etc., until you have ranked every
16 ¦
17 ¦          option.
18 ¦
19 ¦
20 ¦
21 ¦
22 ¦                          PRESS ENTER TO CONTINUE.
23 ¦
24 ¦
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Figure 25. ACA system preference rating section.

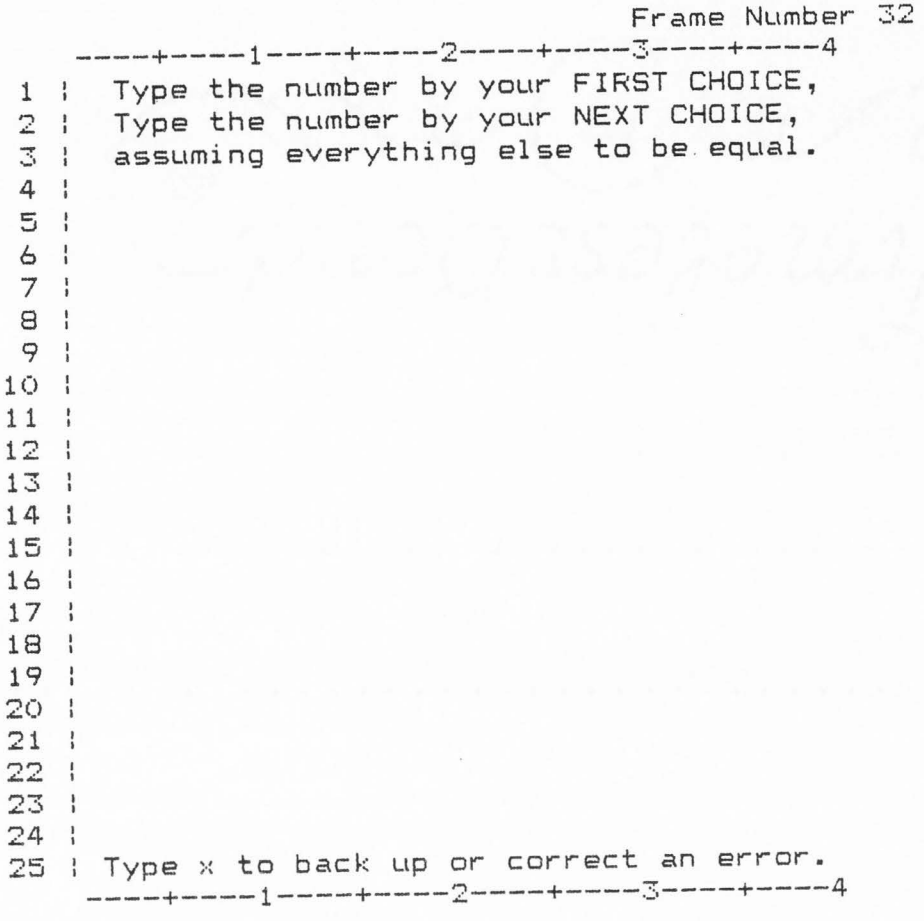


Figure 26. ACA system preference rating question.

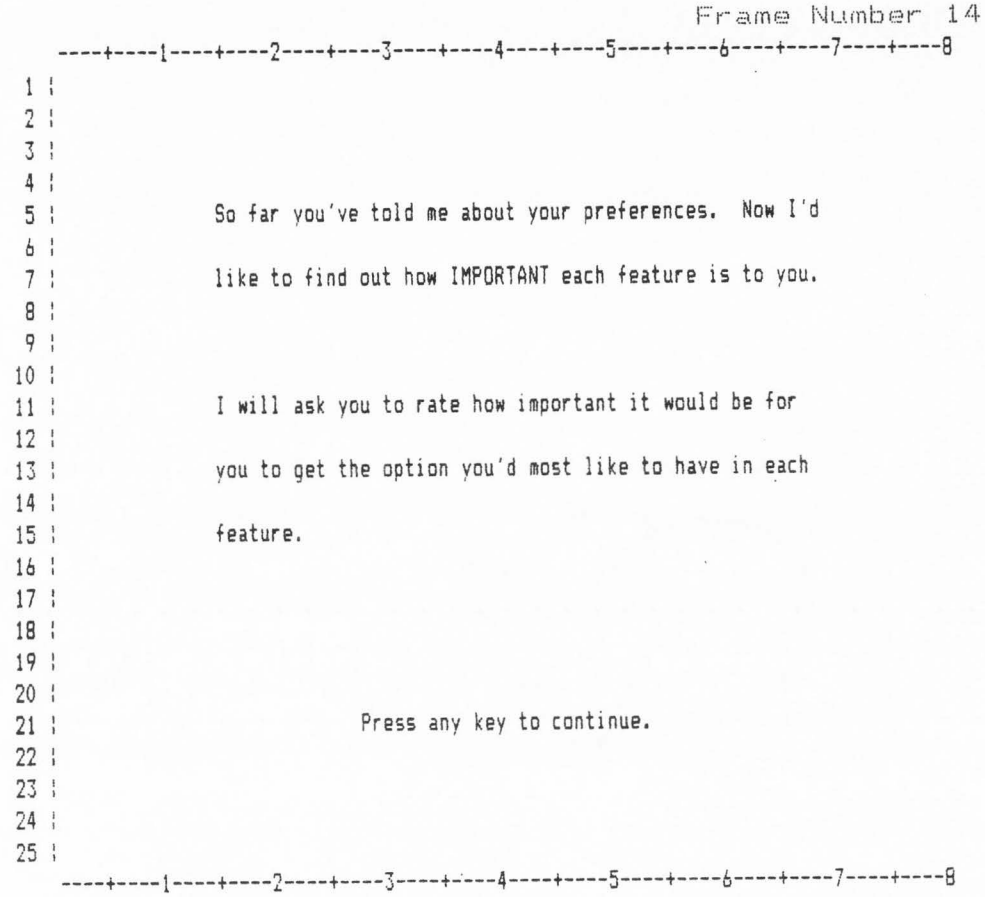


Figure 27. ACA system importance rating section.

```
                                        Frame Number 34
    ----+----1----+----2----+----3----+----4
 1 |If two vegetable beef soups were both
 2 |acceptable in all other ways, how
 3 |important would this difference be?
 4 |
 5 | A:
 6 |
 7 |
 8 |       versus
 9 |
10 | B:
11 |
12 |
13 |    4 = Extremely important
14 |        (I could almost never accept B.)
15 |
16 |    3 = Very important (B would have to
17 |        be outstanding in other ways.)
18 |
19 |    2 = Somewhat important (But I would
20 |        not base my decision on this.)
21 |
22 |    1 = Not important at all.
23 |
24 |To answer type a number from the scale.
25 | Type x to back up or correct an error.
    ----+----1----+----2----+----3----+----4
```

Figure 28. ACA system importance rating question.

(Johnson, 1986).

The Paired Concepts portion of the interview was the conjoint section of the questionnaire. The screen for this section appeared as in Figure 29. The paired concepts were derived from each participant's responses, utilities, to the previous sections. After each paired concept selection, the utilities were recalculated by the use of a Bayesian algorithm. The pairs illustrated in Figure 30 allowed up to five variables (Johnson, 1986).

The Calibration Section is the closing portion of the ACA module. It derives three calibration concepts based on the respondents' utilities from the previous questions. The concepts are presented in ascending order to determine the degree of the respondent's preferences. The respondent was intentionally informed of this progression (Johnson, 1986) (see Figures 31 and 32).

The Utility Calculator derives each respondent's utilities for each level of each variable tested. The Market Simulator allows the testing of product scenarios based on variable levels and respondent utilities to determine market share. Segmentation variables such as sex, income, and age can be merged from the Ci2 system. Only nine such variables can be merged at one time (Johnson, 1986).

The Market Simulator allows the weighting of respondent subgroups to represent the market/population. It also allows the application of external effects, which are a set of numbers that contributed to market share, but were not tested in the conjoint analysis module (Johnson, 1986).

Four "Choice Model Types" are available in the market

```
                                                          Frame Number 16
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 ¦
  2 ¦
  3 ¦
  4 ¦           Based on what you've told me, I'm going to make up some
  5 ¦
  6 ¦           vegetable beef sooups that differ in these features.
  7 ¦
  8 ¦
  9 ¦           In each question I present two vegetable beef soups, both
 10 ¦
 11 ¦           described by combinations of features.  One is shown
 12 ¦
 13 ¦           at the top of the screen, and the other is shown at the
 14 ¦
 15 ¦           bottom.
 16 ¦
 17 ¦
 18 ¦           I ask you which vegetable beef soup you'd prefer, and how
 19 ¦
 20 ¦           strong your preference is.
 21 ¦
 22 ¦
 23 ¦                          Press any key to continue.
 24 ¦
 25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Figure 29. ACA system paired concepts section.

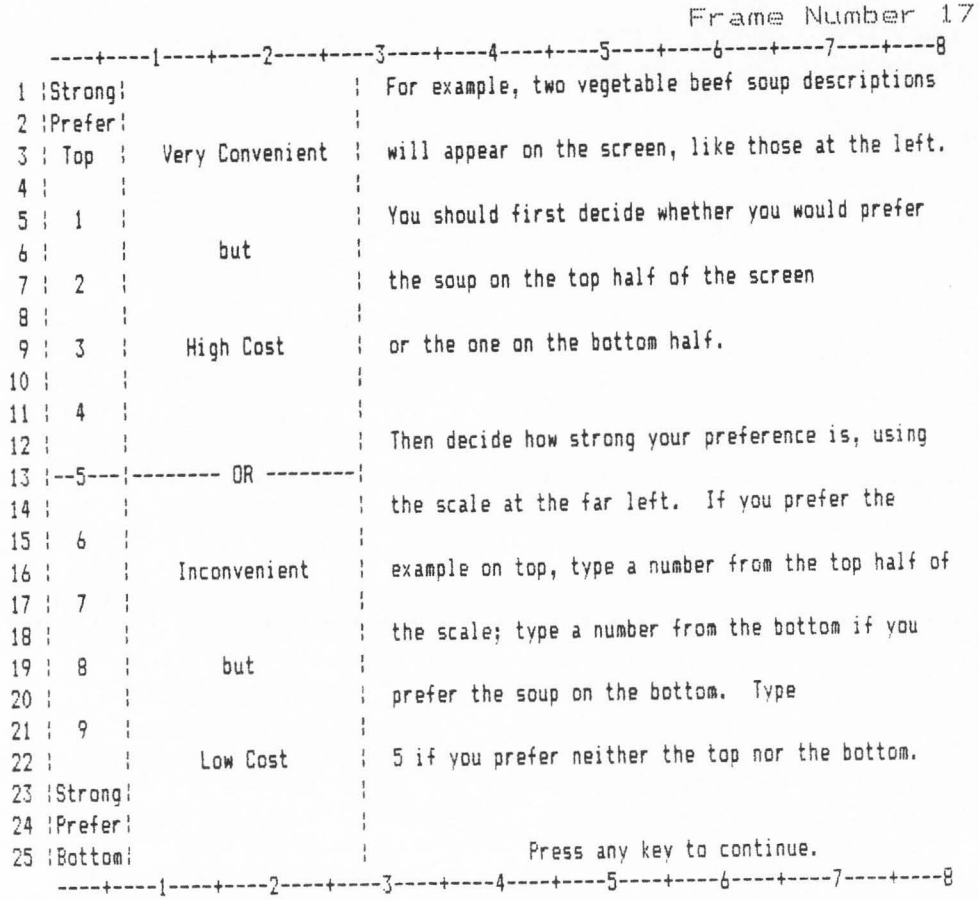


Figure 30. ACA system paired concepts question.

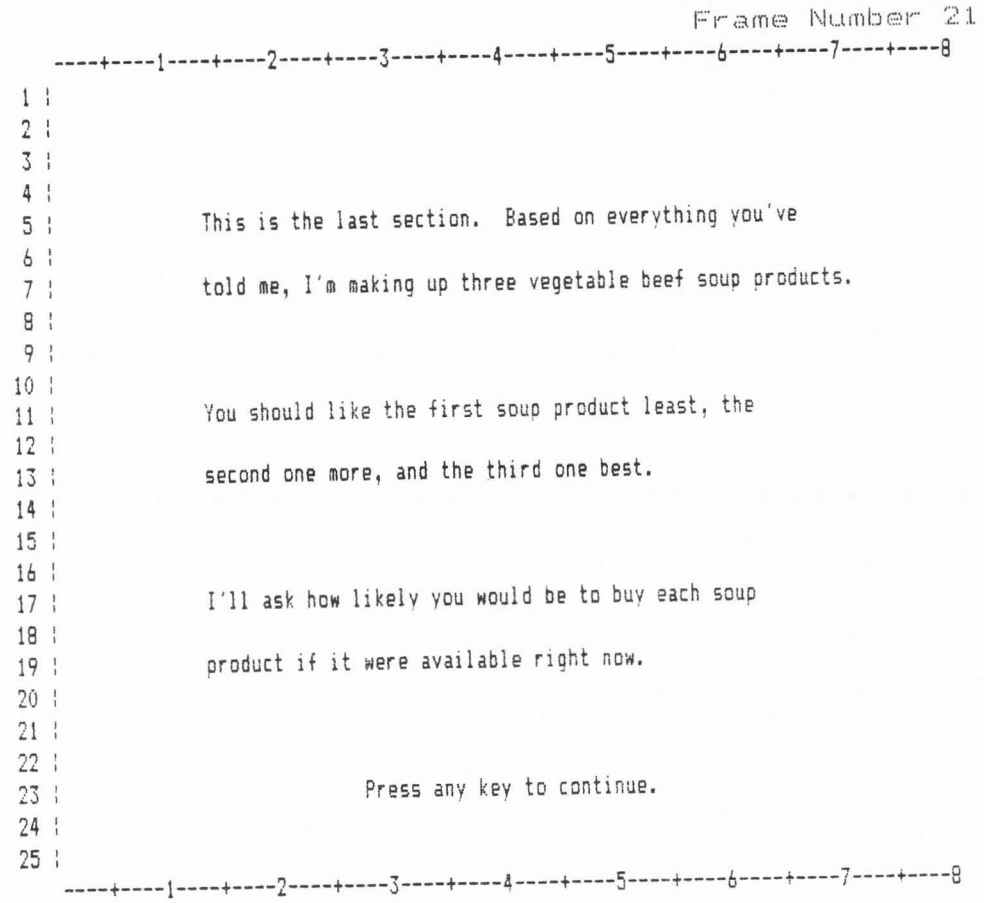


Figure 31. ACA system calibration section.

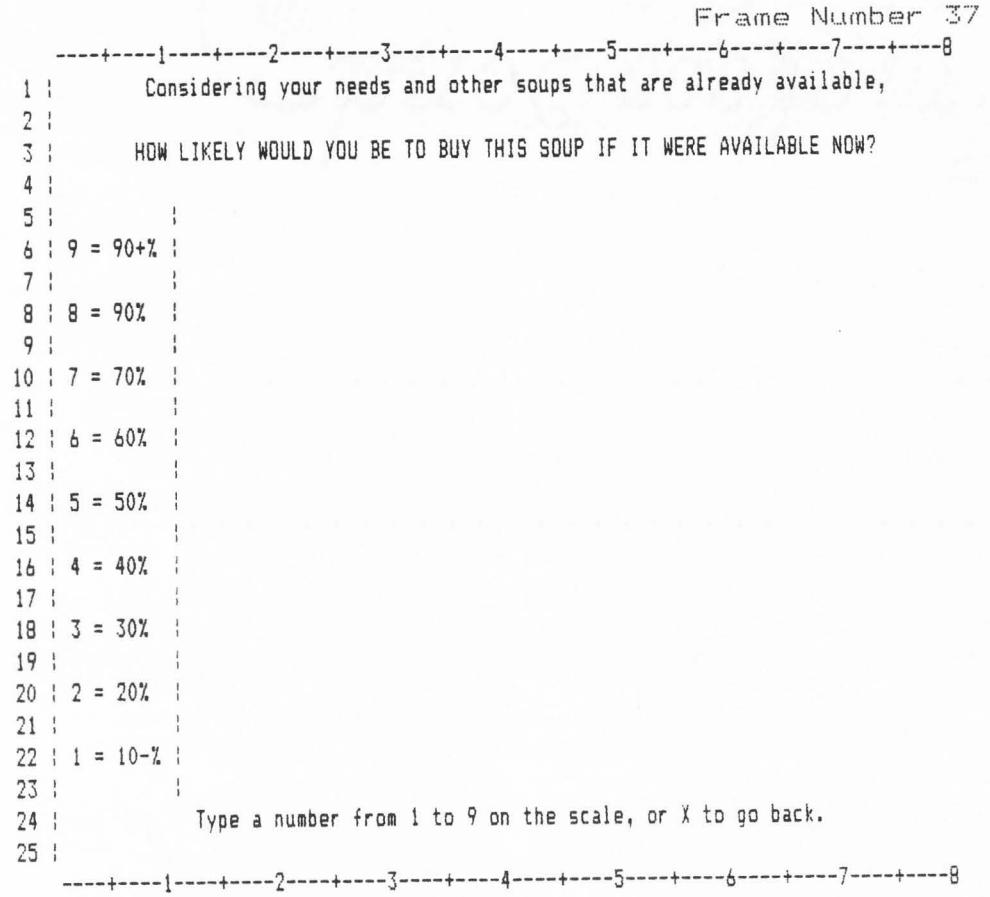


Figure 32. ACA system calibration question.

simulation program. The "Share of Preference with Corrections" was the one used in this project. It divided the respondents' choices among the designated products based on their calculated utility values. Corrections were made for similar products.

Each respondent's data were available in raw or normalized form. The data were tabulated and printed in a machine readable ASCII format for further statistical analysis (Johnson, 1986).

Appendix H

Final Copy Nutrition Labeling Questionnaire

Question Number 1

```
    ----+----1----+----2----+----3----+----4
 1| ****************************************
 2|    Hello, thanks for participating in
 3|
 4|   our survey. It is sponsored by Utah
 5|
 6|   State U. and the University of Utah.
 7|
 8|  To answer, use the keys at the top of
 9|
10|  of the keyboard.  If you ever want to
11|
12|   review a question or change an answer
13|
14|
15|                 just press x.
16|
17|
18| ****************************************
19|
20|           Press ENTER to begin.
21|
22|    It will take a few seconds for the
23|
24|               program to start.
25|
    ----+----1----+----2----+----3----+----4
```

1	GET	1
2	ANY	
3	COL	121
4	COB	9
5	TIM	

```
                                                    Question Number 2
    ----+----1----+----2----+----3----+----4
 1! ****************************************
 2!    Hello, thanks for participating in
 3!
 4!   our survey. It is sponsored by Utah
 5!
 6!   State U. and the University of Utah.
 7!
 8!  To answer, use the keys at the top of
 9!
10!  of the keyboard.  If you ever want to
11!
12!   review a question or change an answer
13!
14!
15!                 just press x.
16!
17!
18! ****************************************
19!
20!           Press ENTER to begin.
21!
22!     It will take a few seconds for the
23!
24!               program to start.
25!
    ----+----1----+----2----+----3----+----4
```

1 OUT 1

Frame Number 1

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 ¦
  2 ¦
  3 ¦
  4 ¦
  5 ¦
  6 ¦
  7 ¦                                Hello!
  8 ¦
  9 ¦
 10 ¦           I'd like to ask some questions about VEGETABLE BEEF SOUP.
 11 ¦
 12 ¦
 13 ¦           You can answer all my questions by typing numbers from
 14 ¦
 15 ¦           the top row of the keyboard.
 16 ¦
 17 ¦
 18 ¦
 19 ¦                      PLEASE PRESS ENTER TO CONTINUE.
 20 ¦
 21 ¦
 22 ¦
 23 ¦
 24 ¦
 25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 2

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦
 2 ¦
 3 ¦
 4 ¦
 5 ¦              That's right!  You shouldn't have any trouble, but
 6 ¦
 7 ¦              if you do there is someone nearby to help you.  IF
 8 ¦
 9 ¦              YOU WANT TO GO BACK AND REVIEW A QUESTION OR CHANGE
10 ¦
11 ¦              AN ANSWER, JUST PRESS the X KEY.
12 ¦
13 ¦
14 ¦              I'm going to ask you to evaluate different kinds of
15 ¦
16 ¦              VEGETABLE BEEF SOUPS. Some of these soups
17 ¦
18 ¦              are currently offered, and others may be offered
19 ¦
20 ¦              in the future.
21 ¦
22 ¦
23 ¦                        PLEASE PRESS ENTER TO CONTINUE
24 ¦
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 12

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 |
 2 |
 3 |
 4 |
 5 |          I  would like to know your preferences for some
 6 |
 7 |          features of vegetable beef soup.
 8 |
 9 |
10 |
11 |          For each of these features separately, I will ask you to
12 |
13 |          choose the option that you would like most, then the one
14 |
15 |          you like next most, etc., until you have ranked every
16 |
17 |          option.
18 |
19 |
20 |
21 |
22 |                          PRESS ENTER TO CONTINUE.
23 |
24 |
25 |
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 32

```
    ----+----1----+----2----+----3----+----4
 1  |  Type the number by your FIRST CHOICE,
 2  |  Type the number by your NEXT CHOICE,
 3  |  assuming everything else to be equal.
 4  |
 5  |
 6  |
 7  |
 8  |
 9  |
10  |
11  |
12  |
13  |
14  |
15  |
16  |
17  |
18  |
19  |
20  |
21  |
22  |
23  |
24  |
25  |  Type x to back up or correct an error.
    ----+----1----+----2----+----3----+----4
```

Frame Number 14

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦
 2 ¦
 3 ¦
 4 ¦
 5 ¦              So far you've told me about your preferences.  Now I'd
 6 ¦
 7 ¦              like to find out how IMPORTANT each feature is to you.
 8 ¦
 9 ¦
10 ¦
11 ¦              I will ask you to rate how important it would be for
12 ¦
13 ¦              you to get the option you'd most like to have in each
14 ¦
15 ¦              feature.
16 ¦
17 ¦
18 ¦
19 ¦
20 ¦
21 ¦                           PRESS ENTER TO CONTINUE.
22 ¦
23 ¦
24 ¦
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 34

```
    ----+----1----+----2----+----3----+----4
 1  |If two VEGETABLE BEEF SOUPS were both
 2  |acceptable in all other ways, how
 3  |important would this difference be?
 4  |
 5  | A:
 6  |
 7  |
 8  |       versus
 9  |
10  | B:
11  |
12  |
13  |    4 = Extremely important
14  |         (I could almost never accept B.)
15  |
16  |    3 = Very important (B would have to
17  |         be outstanding in other ways.)
18  |
19  |    2 = Somewhat important (But I would
20  |         not base my decision on this.)
21  |
22  |    1 = Not important at all.
23  |
24  |To answer type a number from the scale.
25  | Type x to back up or correct an error.
    ----+----1----+----2----+----3----+----4
```

Frame Number 13

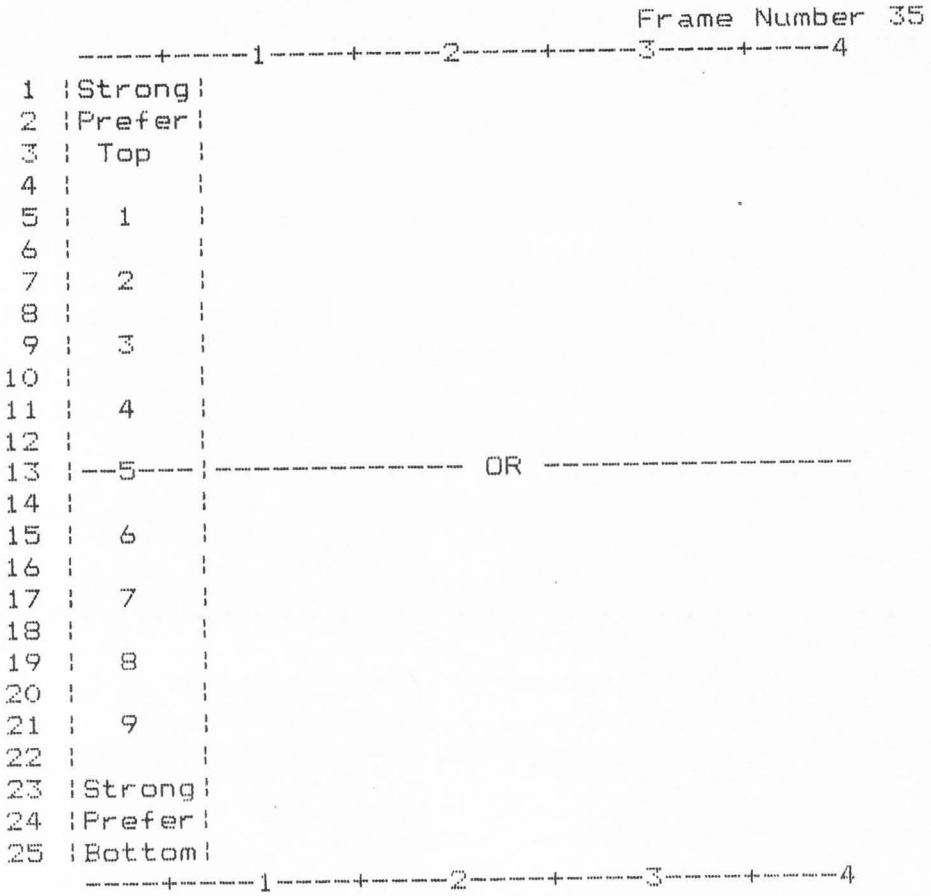
```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 ¦
  2 ¦
  3 ¦
  4 ¦
  5 ¦
  6 ¦
  7 ¦            My next question will be different.  I will NOT be
  8 ¦
  9 ¦            asking about what you prefer.
 10 ¦
 11 ¦
 12 ¦
 13 ¦
 14 ¦            Instead, I would like to know about what you are
 15 ¦
 16 ¦            MOST LIKELY TO CHOOSE next time you buy this type
 17 ¦
 18 ¦            of product.
 19 ¦
 20 ¦
 21 ¦
 22 ¦
 23 ¦                          PRESS ENTER TO CONTINUE
 24 ¦
 25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 16

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦
 2 ¦
 3 ¦
 4 ¦           Based on what you've told me, I'm going to make up some
 5 ¦
 6 ¦           VEGETABLE BEEF SOUPS that differ in these features.
 7 ¦
 8 ¦
 9 ¦           In each question I present two VEGETABLE BEEF SOUPS, WHICH ARE
10 ¦
11 ¦           EACH DESCRIBED BY A COMBINATIONS OF FEATURES.  ONE COMBINATION
12 ¦
13 ¦           OF FEATURES IS SHOWN AT THE TOP OF THE SCREEN AND THE OTHER IS
14 ¦
15 ¦           SHOWN AT THE BOTTOM OF THE SCREEN.  You will see about 5 of these
16 ¦
17 ¦           questions.
18 ¦
19 ¦           I ask you which VEGETABLE BEEF SOUP you'd prefer, and how
20 ¦
21 ¦           strong your preference is.
22 ¦
23 ¦
24 ¦                        PLEASE PRESS ENTER TO CONTINUE
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 17

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 |Strong|                    |  For example, two VEGETABLE BEEF SOUP descriptions
 2 |Prefer|  GENERIC           |
 3 | Top  |                    |  will appear on the screen, like those at the left
 4 |      |   $.57             |
 5 |  1   |                    |  You should first decide whether you would prefer
 6 |      |  MORE NUTRITION    |
 7 |  2   |    INFORMATION     | the SOUP on the top half of the screen
 8 |      |                    |
 9 |  3   |  GRAPHICAL NUTRI-  |  or the one on the bottom half.
10 |      |    TION LABEL      |
11 |  4   |                    |
12 |      |                    |  Then decide how strong your preference is, using
13 |--5---|-------- OR --------|
14 |      |                    |  the scale at the far left.  If you prefer the
15 |  6   |                    |
16 |      |    ALBERTSONS      |  example on top, type a number from the top half of
17 |  7   |                    |
18 |      |    $.37            |  the scale, 1-4; type a number from the bottom, 6-9
19 |  8   |                    |
20 |      |    SOME NUTRITION  |  if you  prefer the SOUP on the bottom.  Type
21 |  9   |      INFORMATION   |
22 |      |                    |  5 if you prefer neither the top nor the bottom.
23 |Strong|    TRADITIONAL     |
24 |Prefer|      NUTRITION     |
25 |Bottom|      LABEL         |             PRESS ENTER TO CONTINUE.
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```


Frame Number 35
1
2
3
4
Strong
Prefer
Top
1
2
3
4
5
OR
6
7
8
9
Strong
Prefer
Bottom

Frame Number 21

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 ¦
  2 ¦
  3 ¦
  4 ¦
  5 ¦            This is the last section.  Based on everything you've
  6 ¦
  7 ¦            told me, I'm making up three VEGETABLE BEEF SOUP product
  8 ¦
  9 ¦            descriptions.
 10 ¦
 11 ¦            You should like the first soup product least, the
 12 ¦
 13 ¦            second one more, and the third one best.
 14 ¦
 15 ¦
 16 ¦
 17 ¦            I'll ask how LIKELY you would be TO BUY each SOUP
 18 ¦
 19 ¦            product if it were available right now.
 20 ¦
 21 ¦
 22 ¦
 23 ¦                          Press any key to continue.
 24 ¦
 25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 37

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦        Considering your needs and other soups that are already available,
 2 ¦
 3 ¦       HOW LIKELY WOULD YOU BE TO BUY THIS SOUP IF IT WERE AVAILABLE NOW?
 4 ¦
 5 ¦           ¦
 6 ¦ 9 = 90+% ¦
 7 ¦           ¦
 8 ¦ 8 = 90%  ¦
 9 ¦           ¦
10 ¦ 7 = 70%  ¦
11 ¦           ¦
12 ¦ 6 = 60%  ¦
13 ¦           ¦
14 ¦ 5 = 50%  ¦
15 ¦           ¦
16 ¦ 4 = 40%  ¦
17 ¦           ¦
18 ¦ 3 = 30%  ¦
19 ¦           ¦
20 ¦ 2 = 20%  ¦
21 ¦           ¦
22 ¦ 1 = 10-% ¦
23 ¦           ¦
24 ¦             Type a number from 1 to 9 on the scale, or X to go back.
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 24

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 ¦
  2 ¦
  3 ¦
  4 ¦
  5 ¦
  6 ¦
  7 ¦
  8 ¦
  9 ¦
 10 ¦
 11 ¦                    Thanks very much for your help!
 12 ¦
 13 ¦             Please Wait a moment until the next section appears.
 14 ¦
 15 ¦             It will be similar to the section you just completed.
 16 ¦
 17 ¦
 18 ¦
 19 ¦
 20 ¦
 21 ¦
 22 ¦
 23 ¦
 24 ¦
 25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 1

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 |
  2 |
  3 |
  4 |
  5 |
  6 |
  7 |                                  Hello!
  8 |
  9 |
 10 |              I'd like to ask some questions about the usefulness of
 11 |
 12 |              NUTRITION LABEL FORMATS.
 13 |
 14 |              You can answer all my questions by typing numbers from
 15 |
 16 |              the top row of the keyboard.
 17 |
 18 |
 19 |
 20 |                             PRESS ENTER TO CONTINUE.
 21 |
 22 |
 23 |
 24 |
 25 |
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 2

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 ¦
  2 ¦
  3 ¦
  4 ¦
  5 ¦              That's right!  You shouldn't have any trouble, but
  6 ¦
  7 ¦              if you do there is someone nearby to help you.  If
  8 ¦
  9 ¦              you want to go back and review a question or change
 10 ¦
 11 ¦              an answer, just press the X key.
 12 ¦
 13 ¦
 14 ¦              I'm going to ask you to evaluate different kinds of
 15 ¦
 16 ¦              NUTRITION LABEL FORMATS. Some of these formats
 17 ¦
 18 ¦              are currently offered, and others may be offered
 19 ¦
 20 ¦              in the future.
 21 ¦
 22 ¦
 23 ¦                              PRESS ENTER TO CONTINUE.
 24 ¦
 25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 12

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 |
 2 |
 3 |
 4 |
 5 |          I would like to know your preferences for some
 6 |
 7 |          features of NUTRITION LABELS.
 8 |
 9 |
10 |
11 |          For each of these features separately, I will ask you to
12 |
13 |          choose the option that you would like most, then the one
14 |
15 |          you like next most, etc., until you have ranked every
16 |
17 |          option.
18 |
19 |
20 |
21 |
22 |                       PRESS ENTER TO CONTINUE.
23 |
24 |
25 |
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 32

```
    ----+----1----+----2----+----3----+----4
  1 |  Type the number by your FIRST CHOICE,
  2 |  Type the number by your NEXT CHOICE,
  3 |  assuming everything else to be equal.
  4 |
  5 |
  6 |
  7 |
  8 |
  9 |
 10 |
 11 |
 12 |
 13 |
 14 |
 15 |
 16 |
 17 |
 18 |
 19 |
 20 |
 21 |
 22 |
 23 |
 24 |
 25 | Type x to back up or correct an error.
    ----+----1----+----2----+----3----+----4
```

Frame Number 14

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 |
 2 |
 3 |
 4 |
 5 |              So far you've told me about your preferences.  Now I'd
 6 |
 7 |              like to find out how IMPORTANT each feature is to you.
 8 |
 9 |
10 |
11 |              I will ask you to rate how important it would be for
12 |
13 |              you to get the option you'd most like to have in each
14 |
15 |              feature.
16 |
17 |
18 |
19 |
20 |
21 |                          Press any key to continue.
22 |
23 |
24 |
25 |
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 34

```
    ----+----1----+----2----+----3----+----4
 1 !If two NUTRITION LABEL FORMATS were both
 2 !acceptable in all other ways, how
 3 !important would this difference be?
 4 !
 5 ! A:
 6 !
 7 !
 8 !       versus
 9 !
10 ! B:
11 !
12 !
13 !    4 = Extremely important
14 !        (I could almost never accept B.)
15 !
16 !    3 = Very important (B would have to
17 !        be outstanding in other ways.)
18 !
19 !    2 = Somewhat important (But I would
20 !        not base my decision on this.)
21 !
22 !    1 = Not important at all.
23 !
24 !To answer type a number from the scale.
25 ! Type x to back up or correct an error.
    ----+----1----+----2----+----3----+----4
```

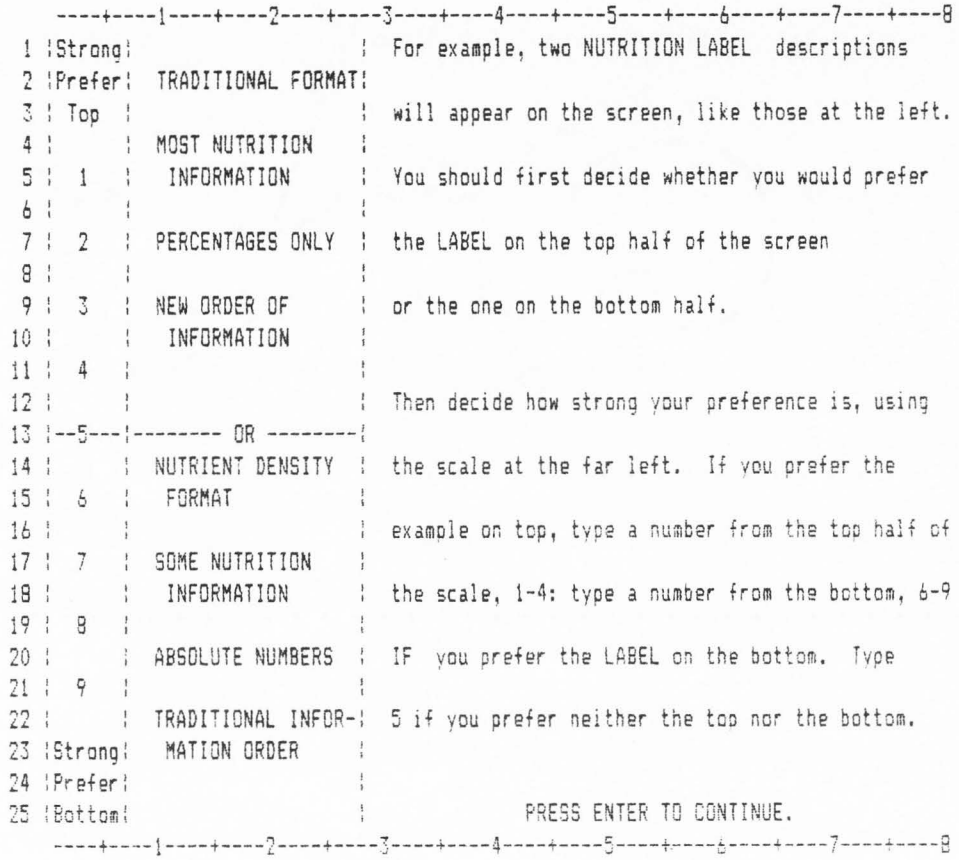
Frame Number 13

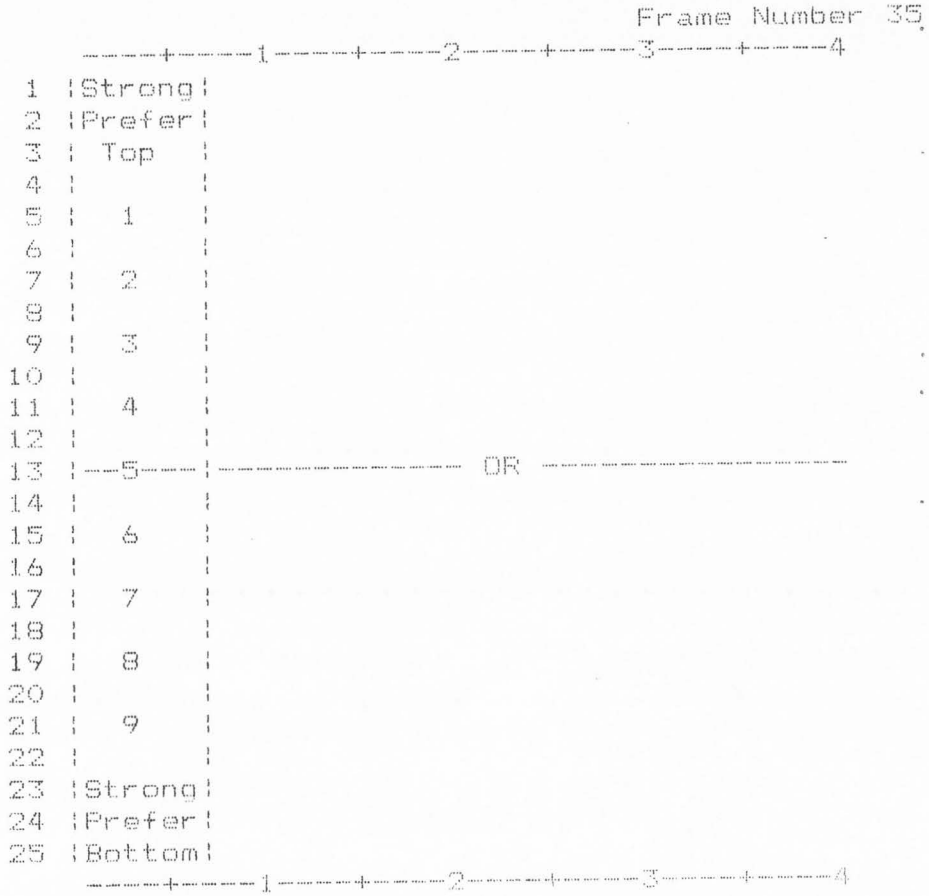
```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦
 2 ¦
 3 ¦
 4 ¦
 5 ¦
 6 ¦
 7 ¦            My next question will be different.  I will NOT be
 8 ¦
 9 ¦            asking about what you prefer.
10 ¦
11 ¦
12 ¦
13 ¦
14 ¦            Instead, I would like to know about what you are
15 ¦
16 ¦            MOST LIKELY TO CHOOSE next time you buy this type
17 ¦
18 ¦            of product.
19 ¦
20 ¦
21 ¦
22 ¦
23 ¦                        Press any key to continue.
24 ¦
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 16

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  1 |
  2 |
  3 |
  4 |          Based on what you've told me, I'm going to make up some
  5 |
  6 |          NUTRITION LABEL FORMATS  that differ in these features.
  7 |
  8 |
  9 |          In each question I present two NUTRITION LABEL FORMATS, WHICH ARE
 10 |
 11 |          EACH DESCRIBED BY A COMBINATION OF FEATURES.  ONE COMBINATION
 12 |
 13 |          OF FEATURES IS SHOWN AT THE TOP OF THE SCREEN AND THE OTHER IS
 14 |
 15 |          SHOWN AT THE BOTTOM OF THE SCREEN.  You will see about 5 of these
 16 |
 17 |          questions.
 18 |
 19 |          I ask you which NUTRITION LABEL FORMAT you'd prefer, and how
 20 |
 21 |          strong your preference is.
 22 |
 23 |
 24 |                          PRESS ENTER TO CONTINUE .
 25 |
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 17




Frame Number 35
1
2
3
4
1 Strong
2 Prefer
3 Top
4
5 1
6
7 2
8
9 3
10
11 4
12
13 5
OR
14
15 6
16
17 7
18
19 8
20
21 9
22
23 Strong
24 Prefer
25 Bottom

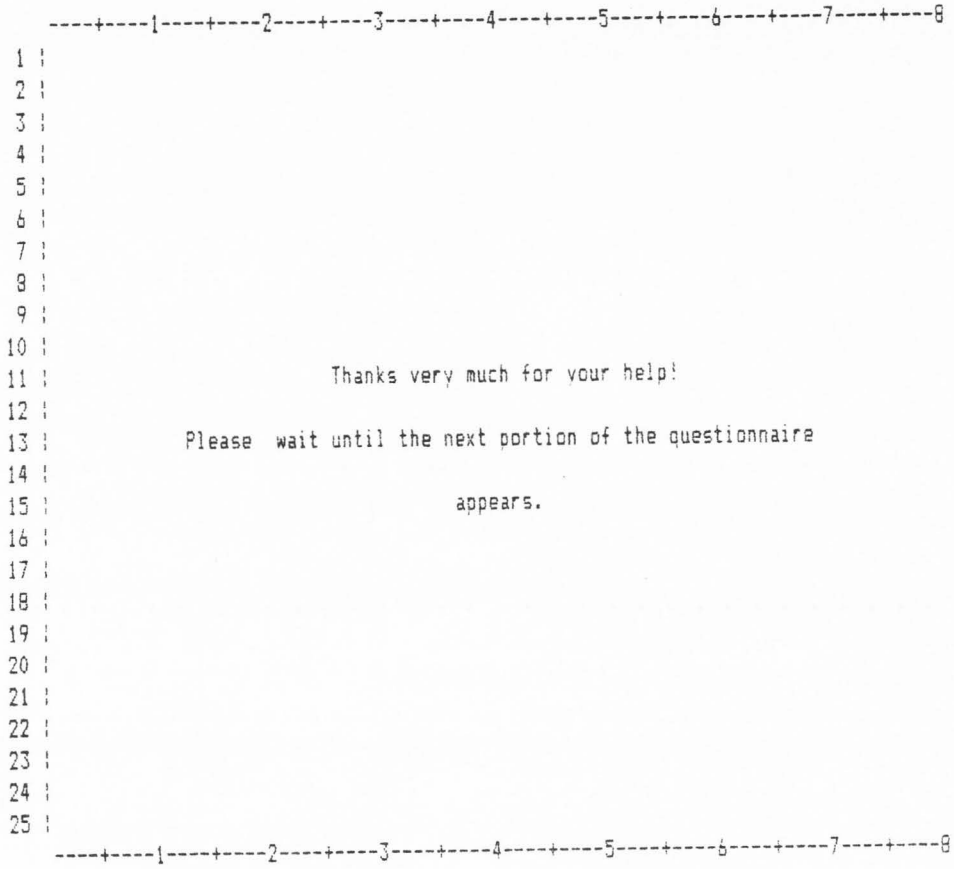
Frame Number 21

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦
 2 ¦
 3 ¦
 4 ¦
 5 ¦            This is the last section.  Based on everything you've
 6 ¦
 7 ¦            told me, I'm making up three NUTRITION LABEL FORMAT
 8 ¦
 9 ¦            DESCRIPTIONS.
10 ¦
11 ¦            You should like the first LABEL FORMAT least, the
12 ¦
13 ¦            second one more, and the third one best.
14 ¦
15 ¦
16 ¦
17 ¦            I'll ask how LIKELY you would be to USE each NUTRITION LABEL
18 ¦
19 ¦            FORMAT if it were available right now.
20 ¦
21 ¦
22 ¦
23 ¦                        PLEASE PRESS ENTER TO CONTINUE.
24 ¦
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Frame Number 37

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1 ¦        Considering your needs and other NUTRITION LABEL FORMATS available,
 2 ¦
 3 ¦       HOW LIKELY WOULD YOU BE TO USE THIS FORMAT IF IT WERE AVAILABLE NOW?
 4 ¦
 5 ¦             ¦
 6 ¦ 9 = 90+%    ¦
 7 ¦             ¦
 8 ¦ 8 = 90%     ¦
 9 ¦             ¦
10 ¦ 7 = 70%     ¦
11 ¦             ¦
12 ¦ 6 = 60%     ¦
13 ¦             ¦
14 ¦ 5 = 50%     ¦
15 ¦             ¦
16 ¦ 4 = 40%     ¦
17 ¦             ¦
18 ¦ 3 = 30%     ¦
19 ¦             ¦
20 ¦ 2 = 20%     ¦
21 ¦             ¦
22 ¦ 1 = 10-%    ¦
23 ¦             ¦
24 ¦             Type a number from 1 to 9 on the scale, or X to go back.
25 ¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

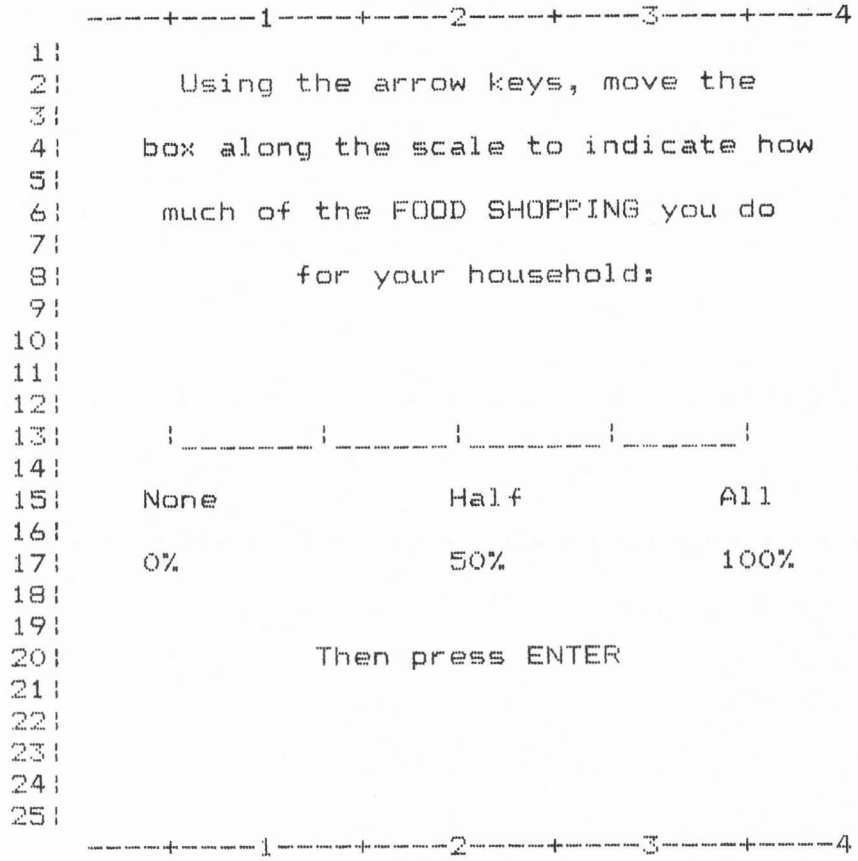
Frame Number 24



Question Number 3

1 CLR
2 NOA

Question Number 4



1	GET	4			
2	ANA	13	5	35	20
3	COV	43			
4	COB	11			

Question Number 5

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦
 4¦    How many years have you been doing
 5¦
 6¦  the grocery shopping as the major food
 7¦
 8¦          buyer for your household?
 9¦
10¦
11¦          1.  not a major food buyer
12¦          2.  less than 1 year
13¦          3.  1 - 2 years
14¦          4.  3 - 5 years
15¦          5.  6 -10 years
16¦          6.  11-15 years
17¦          7.  16-20 years
18¦          8.  greater than 20 years
19¦
20¦
21¦       TO ANSWER, USE THE NUMBER KEYS
22¦
23¦         AT THE TOP OF THE KEYBOARD.
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	5			
2	RNG	8			
3	HLA	11	1		
4	COV	31			
5	COL	120	21	6	35
6	COL	120	23	8	34
7	INO				

Question Number 6

```
    ----+----1----+----2----+----3----+----4
 1!
 2!
 3!
 4!      How many people do you buy food
 5!
 6!           for in your household?
 7!
 8!
 9!           1.  NONE
10!           2.  1
11!           3.  2
12!           4.  3
13!           5.  4
14!           6.  5
15!           7.  6 or more
16!
17!
18!
19!
20!
21!
22!
23!
24!
25!
    ----+----1----+----2----+----3----+----4
```

1	GET	6	
2	RNG	7	
3	HLA	9	1
4	COV	31	
5	COB	15	
6	SKP	1	16

Question Number 7

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦
 4¦     Does anyone for whom you buy have
 5¦
 6¦    special dietary needs, i.e. weight
 7¦
 8¦     loss, medical conditions, sports?
 9¦
10¦                 1  Yes
11¦
12¦                 2  No
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	63	
2	RNG	2	
3	SKP	2	16
4	COV	121	
5	COB	9	
6	HLA	10	

Question Number 8

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦            PRESS ALL THAT APPLY.
 8¦
 9¦
10¦               1.  weight reduction
11¦               2.  diabetes
12¦               3.  heart disease
13¦               4.  high blood pressure
14¦               5.  kidney disease
15¦               6.  weight gain
16¦               7.  other
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	8	
2	HLA	10	1
3	DLA		
4	OTH	7	
5	RNG	8	
6	SKP	8	16
7	COV	15	
8	COL	14	7
9	COL	14	20
10	COB	7	

Question Number 9

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦            PRESS ALL THAT APPLY.
 8¦
 9¦
10¦               1.  weight reduction
11¦               2.  diabetes
12¦               3.  heart disease
13¦               4.  high blood pressure
14¦               5.  kidney disease
15¦               6.  weight gain
16¦               7.  other
17¦
18¦
19¦
20¦         PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 10

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦           PRESS ALL THAT APPLY.
 8¦
 9¦
10¦              1.  weight reduction
11¦              2.  diabetes
12¦              3.  heart disease
13¦              4.  high blood pressure
14¦              5.  kidney disease
15¦              6.  weight gain
16¦              7.  other
17¦
18¦
19¦
20¦         PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 11

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦            PRESS ALL THAT APPLY.
 8¦
 9¦
10¦               1.  weight reduction
11¦               2.  diabetes
12¦               3.  heart disease
13¦               4.  high blood pressure
14¦               5.  kidney disease
15¦               6.  weight gain
16¦               7.  other
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 12

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦           PRESS ALL THAT APPLY.
 8¦
 9¦
10¦              1.  weight reduction
11¦              2.  diabetes
12¦              3.  heart disease
13¦              4.  high blood pressure
14¦              5.  kidney disease
15¦              6.  weight gain
16¦              7.  other
17¦
18¦
19¦
20¦         PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 13

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦            PRESS ALL THAT APPLY.
 8¦
 9¦
10¦               1.  weight reduction
11¦               2.  diabetes
12¦               3.  heart disease
13¦               4.  high blood pressure
14¦               5.  kidney disease
15¦               6.  weight gain
16¦               7.  other
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 14

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦            PRESS ALL THAT APPLY.
 8¦
 9¦
10¦               1.  weight reduction
11¦               2.  diabetes
12¦               3.  heart disease
13¦               4.  high blood pressure
14¦               5.  kidney disease
15¦               6.  weight gain
16¦               7.  other
17¦
18¦
19¦
20¦         PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

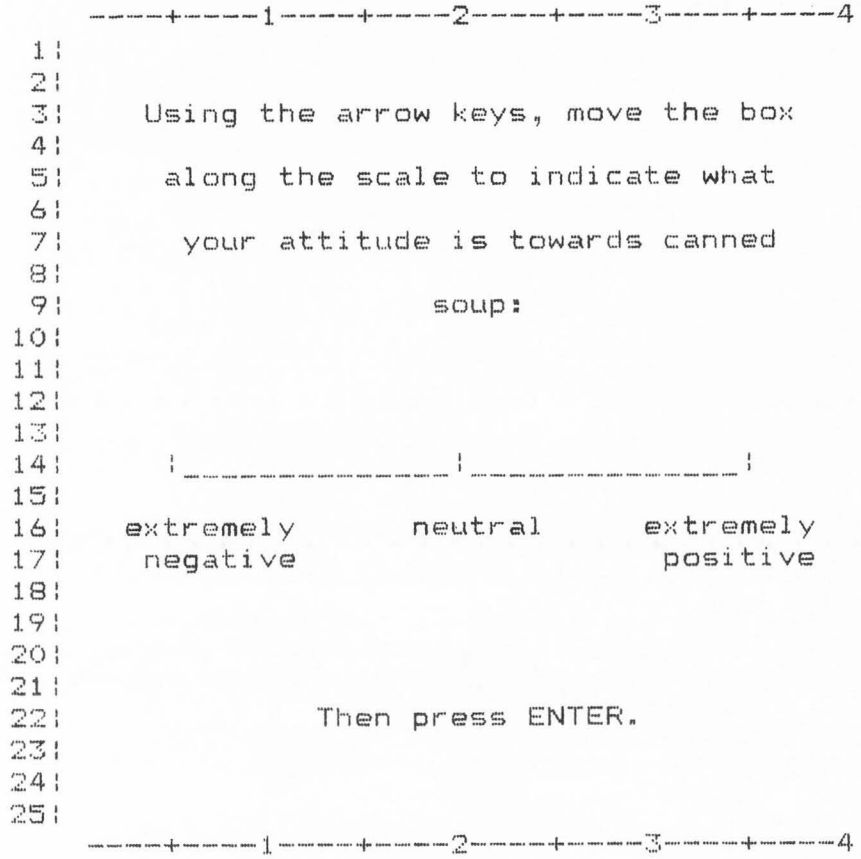
1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 15

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    For what purpose/s are any of your
 3¦
 4¦    family members following this diet.
 5¦
 6¦
 7¦           PRESS ALL THAT APPLY.
 8¦
 9¦
10¦              1.  weight reduction
11¦              2.  diabetes
12¦              3.  heart disease
13¦              4.  high blood pressure
14¦              5.  kidney disease
15¦              6.  weight gain
16¦              7.  other
17¦
18¦
19¦
20¦         PRESS 8 WHEN NO MORE APPLY
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	HLA	10	1
2	DLA		
3	OTH	7	
4	RNG	8	
5	SKP	8	16
6	REJ	8	15

Question Number 16



1	GET	9			
2	ANA	14	5	35	20
3	COL	15			
4	COL	10	14		
5	COB	7			
6	COL	10	22	12	29

Question Number 17

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦     How often do you purchase canned
 4¦
 5¦        soup at your grocery store?
 6¦
 7¦        1. usually every week
 8¦
 9¦        2. usually every other week
10¦
11¦        3. usually once a month
12¦
13¦        4. usually every other month
14¦
15¦        5. three or four times a year
16¦
17¦        6. once or twice a year
18¦
19¦        7. never
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	10	
2	RNG	7	
3	HLA	7	2
4	COL	33	
5	COB	1	
6	SKP	7	40

Question Number 18

```
    ----+----1----+----2----+----3----+----4
  1¦
  2¦
  3¦        How many cans of soup do you
  4¦
  5¦             usually buy a month?
  6¦
  7¦
  8¦             1.  less than 1
  9¦             2.  1 - 5
 10¦             3.  6 - 10
 11¦             4.  11- 15
 12¦             5.  16- 20
 13¦             6.  21- 25
 14¦             7.  over 25 cans per month
 15¦
 16¦
 17¦
 18¦
 19¦
 20¦
 21¦
 22¦
 23¦
 24¦
 25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	64	
2	HLA	8	1
3	RNG	7	
4	COL	88	
5	COB	8	

Question Number 19

```
    ----+----1----+----2----+----3----+----4
 1|
 2|        What brand(s) of soup do you
 3|                usually buy?
 4|
 5|
 6|             PRESS ALL THAT APPLY.
 7|
 8|
 9|             1.  Lipton
10|             2.  Campbells
11|             3.  Swiss Knorr
12|             4.  Store brand (Smith's, )
13|             5.  Progesso
14|             6.  Generic
15|             7.  Other
16|
17|
18|
19|
20|          PRESS 8 WHEN NO MORE APPLY.
21|
22|
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	GET	11	
2	RNG	8	
3	DLA	9	1
4	HLA		
5	COL	88	
6	COB	8	
7	OTH	7	
8	SKP	8	30

Question Number 20

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦             1.  Lipton
10¦             2.  Campbells
11¦             3.  Swiss Knorr
12¦             4.  Store brand (Smith's, )
13¦             5.  Progesso
14¦             6.  Generic
15¦             7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	26
7	COL	88	
8	COB	8	

Question Number 21

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦             1.  Lipton
10¦             2.  Campbells
11¦             3.  Swiss Knorr
12¦             4.  Store brand (Smith's, )
13¦             5.  Progesso
14¦             6.  Generic
15¦             7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	26
7	COL	88	
8	COB	8	

Question Number 22

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦             1.  Lipton
10¦             2.  Campbells
11¦             3.  Swiss Knorr
12¦             4.  Store brand (Smith's, )
13¦             5.  Progesso
14¦             6.  Generic
15¦             7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	24
7	COL	88	
8	COB	8	

Question Number 23

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                 usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦               1.  Lipton
10¦               2.  Campbells
11¦               3.  Swiss Knorr
12¦               4.  Store brand (Smith's, )
13¦               5.  Progesso
14¦               6.  Generic
15¦               7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	26
7	COL	88	
8	COB	8	

Question Number 24

```
     +----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦             1.  Lipton
10¦             2.  Campbells
11¦             3.  Swiss Knorr
12¦             4.  Store brand (Smith's, )
13¦             5.  Progesso
14¦             6.  Generic
15¦             7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
     +----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	26
7	COL	88	
8	COB	8	

Question Number 25

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                 usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦             1.  Lipton
10¦             2.  Campbells
11¦             3.  Swiss Knorr
12¦             4.  Store brand (Smith's, )
13¦             5.  Progesso
14¦             6.  Generic
15¦             7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	26
7	COL	88	
8	COB	8	

Question Number 26

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        What brand(s) of soup do you
 3¦                 usually buy?
 4¦
 5¦
 6¦             PRESS ALL THAT APPLY.
 7¦
 8¦
 9¦             1.  Lipton
10¦             2.  Campbells
11¦             3.  Swiss Knorr
12¦             4.  Store brand (Smith's, )
13¦             5.  Progesso
14¦             6.  Generic
15¦             7.  Other
16¦
17¦
18¦
19¦
20¦          PRESS 8 WHEN NO MORE APPLY.
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1
2	HLA		
3	RNG	8	
4	SKP	8	30
5	OTH	7	
6	REJ	19	26
7	COL	88	
8	COB	8	

Question Number 30

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦            PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦            1.  Bouillon,Broth,Consumme
10¦            2.  Chicken Noodle
11¦            3.  Cream Soups
12¦            4.  Tomato
13¦            5.  Vegetable Mixtures
14¦            6.  Vegetable Meat Mixtures
15¦            7.  Other
16¦
17¦
18¦
19¦          PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	12			
2	DLA	9	1		
3	HLA				
4	RNG	8			
5	OTH	7			
6	SKP	8	40		
7	REJ	30	36		
8	COL	40			
9	COB	8			
10	COL	14	5	10	31
11	COL	14	19	8	35

Question Number 31

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦            PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦            1.  Bouillon,Broth,Consumme
10¦            2.  Chicken Noodle
11¦            3.  Cream Soups
12¦            4.  Tomato
13¦            5.  Vegetable Mixtures
14¦            6.  Vegetable Meat Mixtures
15¦            7.  Other
16¦
17¦
18¦
19¦          PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1		
2	HLA				
3	RNG	8			
4	OTH	7			
5	SKP	8	40		
6	REJ	30	36		
7	COL	40			
8	COB	8			
9	COL	14	5	10	31
10	COL	14	19	8	35

Question Number 32

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦             PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦             1.  Bouillon,Broth,Consumme
10¦             2.  Chicken Noodle
11¦             3.  Cream Soups
12¦             4.  Tomato
13¦             5.  Vegetable Mixtures
14¦             6.  Vegetable Meat Mixtures
15¦             7.  Other
16¦
17¦
18¦
19¦          PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1		
2	HLA				
3	RNG	8			
4	OTH	7			
5	SKP	8	40		
6	REJ	30	36		
7	COL	40			
8	COB	8			
9	COL	14	5	10	31
10	COL	14	19	8	35

Question Number 33

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦            PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦          1.  Bouillon,Broth,Consumme
10¦          2.  Chicken Noodle
11¦          3.  Cream Soups
12¦          4.  Tomato
13¦          5.  Vegetable Mixtures
14¦          6.  Vegetable Meat Mixtures
15¦          7.  Other
16¦
17¦
18¦
19¦        PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1		
2	HLA				
3	RNG	8			
4	OTH	7			
5	SKP	8	40		
6	REJ	30	36		
7	COL	40			
8	COB	8			
9	COL	14	5	10	31
10	COL	14	19	8	35

Question Number 34

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦            PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦            1.  Bouillon,Broth,Consumme
10¦            2.  Chicken Noodle
11¦            3.  Cream Soups
12¦            4.  Tomato
13¦            5.  Vegetable Mixtures
14¦            6.  Vegetable Meat Mixtures
15¦            7.  Other
16¦
17¦
18¦
19¦          PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1		
2	HLA				
3	RNG	8			
4	OTH	7			
5	SKP	8	40		
6	REJ	30	36		
7	COL	40			
8	COB	8			
9	COL	14	5	10	31
10	COL	14	19	8	35

Question Number 35

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦            PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦            1.  Bouillon,Broth,Consumme
10¦            2.  Chicken Noodle
11¦            3.  Cream Soups
12¦            4.  Tomato
13¦            5.  Vegetable Mixtures
14¦            6.  Vegetable Meat Mixtures
15¦            7.  Other
16¦
17¦
18¦
19¦          PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1		
2	HLA				
3	RNG	8			
4	OTH	7			
5	SKP	8	40		
6	REJ	30	36		
7	COL	40			
8	COB	8			
9	COL	14	5	10	31
10	COL	14	19	8	35

Question Number 36

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦   What kinds of soup do you usually buy?
 4¦
 5¦            PRESS ALL THAT APPLY.
 6¦
 7¦
 8¦
 9¦            1.  Bouillon,Broth,Consumme
10¦            2.  Chicken Noodle
11¦            3.  Cream Soups
12¦            4.  Tomato
13¦            5.  Vegetable Mixtures
14¦            6.  Vegetable Meat Mixtures
15¦            7.  Other
16¦
17¦
18¦
19¦          PRESS 8 WHEN NO MORE APPLY.
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	DLA	9	1		
2	HLA				
3	RNG	8			
4	OTH	7			
5	SKP	8	40		
6	REJ	30	36		
7	COL	40			
8	COB	8			
9	COL	14	5	10	31
10	COL	14	19	8	35

Question Number 40

```
    ----+----1----+----2----+----3----+----4
  1|
  2|
  3|
  4|      In the past MONTH, have you read
  5|
  6|     any NUTRITION INFORMATION on a food
  7|
  8|                product label?
  9|
 10|
 11|                1  Yes
 12|
 13|                2  No
 14|
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	13	
2	RNG	2	
3	HLA	11	
4	SKP	2	155
5	COL	121	
6	COB	9	
7	INO		

Question Number 41

```
    ----+----1----+----2----+----3----+----4
 1|      What nutrition information do you
 2|      look for on the nutritional label?
 3|
 4|  PRESS ALL LETTERS & NUMBERS THAT APPLY
 5|         PRESS W WHEN NO MORE APPLY
 6|
 7|   1 CALORIES                 K VITAMIN B6
 8|   2 PROTEIN                  L VITAMIN B12
 9|   3 TOTAL CARBOHYDRATE       M VITAMIN C
10|   4 COMPLEX CARBOHYDRATE     N FOLIC ACID
11|   5 ADDED SUGAR              O CALCIUM
12|   6 SIMPLE SUGARS            P IRON
13|   7 DIETARY FIBER            Q SODIUM
14|   8 FAT                      R POTASSIUM
15|   9 SATURATED FAT            S PHOSPHORUS
16|   A MONOUNSATURATED FAT      T MAGNESIUM
17|   B POLYUNSATURATED FAT      U ZINC
18|   C CHOLESTEROL              V COPPER
19|   D VITAMIN A                W NONE/NO OTHER
20|   E VITAMIM D
21|   F VITAMIN E
22|   G VITAMIN K
23|   H VITAMIN B1-THIAMIN
24|   I VITAMIN B2-RIBOFLAVIN
25|   J NIACIN
    ----+----1----+----2----+----3----+----4
```

1	MUL	32	7	1	32
2	GET	14			
3	COL	31			
4	COB	15			
5	COL	14	4	2	39
6	COL	14	5	8	33
7	COV	14	2	7	25
8	COV	14	25	7	19
9	COL	14	19	27	39

Question Number 73

```
    ----+----1----+----2----+----3----+----4
  1|
  2|     IS THERE ANY OTHER INFORMATION YOU
  3|
  4|      LOOK FOR ON THE NUTRITION LABEL?
  5|
  6|
  7|                  1.   YES
  8|
  9|                  2.   NO
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	72	
2	RNG	2	
3	HLA	7	
4	SKP	2	79
5	COL	11	
6	COB	11	

Question Number 74

```
     ----+----1----+----2----+----3----+----4
  1¦
  2¦      PLEASE LIST THE OTHER INFORMATION
  3¦     YOU LOOK FOR ON THE NUTRITION LABEL
  4¦        PLEASE USE ONE ITEM PER LINE.
  5¦
  6¦           PLEASE TYPE YOUR COMMENT.
  7¦     PRESS ENTER AT THE END OF EACH LINE.
  8¦    PRESS X AND ENTER TOGETHER TO GO BACK
  9¦              TO A PREVIOUS LINE.
 10¦
 11¦
 12¦
 13¦
 14¦
 15¦
 16¦
 17¦
 18¦
 19¦
 20¦
 21¦
 22¦
 23¦
 24¦
 25¦
     ----+----1----+----2----+----3----+----4
```

```
1  GET   73
2  COL   11
3  COB   11
4  COL   63   12
5  OPN   12   10   40
```

Question Number 75

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦     PLEASE LIST THE OTHER INFORMATION
 3¦    YOU LOOK FOR ON THE NUTRITION LABEL
 4¦       PLEASE USE ONE ITEM PER LINE.
 5¦
 6¦          PLEASE TYPE YOUR COMMENT.
 7¦    PRESS ENTER AT THE END OF EACH LINE.
 8¦   PRESS X AND ENTER TOGETHER TO GO BACK
 9¦             TO A PREVIOUS LINE.
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	74	0	79
2	OPN	14	10	40
3	COL	79	14	
4	COB	11		
5	IFX	74		

Question Number 76

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      PLEASE LIST THE OTHER INFORMATION
 3¦     YOU LOOK FOR ON THE NUTRITION LABEL
 4¦        PLEASE USE ONE ITEM PER LINE.
 5¦
 6¦           PLEASE TYPE YOUR COMMENT.
 7¦     PRESS ENTER AT THE END OF EACH LINE.
 8¦    PRESS X AND ENTER TOGETHER TO GO BACK
 9¦              TO A PREVIOUS LINE.
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	75	0	79
2	OPN	16	10	40
3	COL	95	16	
4	IFX	75		
5	COB	11		

Question Number 77

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦     PLEASE LIST THE OTHER INFORMATION
 3¦    YOU LOOK FOR ON THE NUTRITION LABEL
 4¦       PLEASE USE ONE ITEM PER LINE.
 5¦
 6¦          PLEASE TYPE YOUR COMMENT.
 7¦    PRESS ENTER AT THE END OF EACH LINE.
 8¦   PRESS X AND ENTER TOGETHER TO GO BACK
 9¦             TO A PREVIOUS LINE.
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	76	0	79
2	OPN	18	10	40
3	COL	47	18	
4	IFX	76		
5	COB	11		

Question Number 79

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                   CALORIES
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least           Somewhat          Most
19|     Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	143			
2	FLG	41	72	1	143
3	JIN	143	1	80	
4	GET	28			
5	ANA	16	5	35	20
6	COL	10			
7	COB	10			
8	COL	14	3	12	24
9	COL	14	22	13	29

Question Number 80

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    PROTEIN
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦                Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	144			
2	FLG	41	72	2	144
3	JIN	144	1	81	
4	GET	28			
5	GET	29	4	5	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	18	24
10	COL	14	22	13	29

Question Number 81

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦             TOTAL CARBOHYDRATE
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	145			
2	FLG	41	72	3	145
3	JIN	145	1	82	
4	GET	28			
5	GET	29	7	8	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	12	29
10	COL	14	22	13	29

Question Number 82

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦            COMPLEX CARBOHYDRATE
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	146			
2	FLG	41	72	4	146
3	JIN	146	1	83	
4	GET	28			
5	GET	29	10	11	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	11	30
10	COL	14	22	13	29

Question Number 83

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                  ADDED SUGAR
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	115			
2	FLG	41	72	5	115
3	JIN	115	1	84	
4	GET	28			
5	GET	29	13	14	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	14	26
10	COL	14	22	13	29

Question Number 84

```
    ----+-----1----+-----2----+-----3----+-----4
 1¦            You said you look for:
 2¦
 3¦                 SIMPLE SUGAR
 4¦
 5¦              on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦       ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat          Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+-----1----+-----2----+-----3----+-----4
```

1	SET	116			
2	FLG	41	72	6	116
3	JIN	116	1	85	
4	GET	28			
5	GET	29	16	17	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	15	26
10	COL	14	22	13	29

Question Number 85

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                 DIETARY FIBER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	117			
2	FLG	41	72	7	117
3	JIN	117	1	86	
4	GET	28			
5	GET	29	19	20	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	15	27
10	COL	14	22	13	29

Question Number 86

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦                    FAT
 4¦
 5¦          on the nutrition label
 6¦
 7¦   Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦     ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	118			
2	FLG	41	72	8	118
3	JIN	118	1	87	
4	GET	28			
5	GET	30	2	3	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	20	23
10	COL	14	22	13	29

Question Number 87

```
    ----+----1----+----2----+----3----+----4
 1|           You said you look for:
 2|
 3|                SATURATED FAT
 4|
 5|          on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|     |_____________|_____________|
17|
18|     Least          Somewhat          Most
19|    Useful          Useful          Useful
20|
21|
22|              Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	119			
2	FLG	41	72	9	119
3	JIN	119	1	88	
4	GET	28			
5	GET	30	4	5	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	15	27
10	COL	14	22	13	29

Question Number 88

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦             MONOUNSATURATED FAT
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	120			
2	FLG	41	72	10	120
3	JIN	120	1	89	
4	GET	28			
5	GET	30	6	7	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	12	30
10	COL	14	22	13	29

Question Number 89

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦              POLYUNSATURATED FAT
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	121			
2	FLG	41	72	11	121
3	JIN	121	1	90	
4	GET	28			
5	GET	30	8	9	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	12	30
10	COL	14	22	13	29

Question Number 90

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                  CHOLESTEROL
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	122			
2	FLG	41	72	12	122
3	JIN	122	1	91	
4	GET	28			
5	GET	30	10	11	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	16	26
10	COL	14	22	13	29

Question Number 91

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦                  VITAMIN A
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦     ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful         Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	123			
2	FLG	41	72	13	123
3	JIN	123	1	92	
4	GET	28	16	19	16
5	GET	30	12	13	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 92

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    VITAMIN D
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat         Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	124			
2	FLG	41	72	14	124
3	JIN	124	1	93	
4	GET	28			
5	GET	30	14	15	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 93

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦                  VITAMIN E
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful         Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	125			
2	FLG	41	72	15	125
3	JIN	124	1	94	
4	GET	28			
5	GET	30	16	17	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 94

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                   VITAMIN K
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat         Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	126			
2	FLG	41	72	16	126
3	JIN	126	1	95	
4	GET	28			
5	GET	30	18	19	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 95

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|              VITAMIN B1-THIAMIN
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least          Somewhat          Most
19|    Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

```
 1  SET  127
 2  FLG   41   72   17  127
 3  JIN  127    1   96
 4  GET   28
 5  GET   30   20   21    3
 6  ANA   16    5   35
 7  COL   10
 8  COB   10
 9  COL   14    3   12   29
10  COL   14   22   13   29
```

Question Number 96

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦           VITAMIN B2-RIBOFLAVIN
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦     ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	128			
2	FLG	41	72	18	128
3	JIN	128	1	97	
4	GET	28			
5	GET	30	22	23	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	11	31
10	COL	14	22	13	29

Question Number 97

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    NIACIN
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦       ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat         Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	129			
2	FLG	41	72	19	129
3	JIN	129	1	98	
4	GET	28			
5	GET	31	1	2	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	18	23
10	COL	14	22	13	29

Question Number 98

```
----+----1----+----2----+----3----+----4
1|          You said you look for:
2|
3|               VITAMIN B6
4|
5|         on the nutrition label
6|
7|   Using the arrow keys, move the box
8| along the scale to show how useful this
9|  piece of nutrition information is to
10|       you in a purchase decision.
11|
12|
13|
14|
15|
16|    |______________|______________|
17|
18|    Least          Somewhat         Most
19|   Useful          Useful          Useful
20|
21|
22|            Then press ENTER.
23|
24|
25|
----+----1----+----2----+----3----+----4
```

1	SET	130			
2	FLG	41	72	20	130
3	JIN	130	1	99	
4	GET	28			
5	GET	31	3	4	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	16	25
10	COL	14	22	13	29

Question Number 99

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                  VITAMIN B12
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	131			
2	FLG	41	72	21	131
3	JIN	131	1	100	
4	GET	28			
5	GET	31	5	6	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	16	26
10	COL	14	22	13	29

Question Number 100

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                   VITAMIN C
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	132			
2	FLG	41	72	22	132
3	JIN	132	1	101	
4	GET	28			
5	GET	31	7	8	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 101

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                  FOLIC ACID
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	133			
2	FLG	41	72	23	133
3	JIN	133	1	102	
4	GET	28			
5	GET	31	9	10	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	16	25
10	COL	14	22	13	29

Question Number 102

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    CALCIUM
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	134			
2	FLG	41	72	24	134
3	JIN	134	1	103	
4	GET	28			
5	GET	31	11	12	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	18	24
10	COL	14	22	13	29

Question Number 103

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                      IRON
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	135			
2	FLG	41	72	25	135
3	JIN	135	1	104	
4	GET	28			
5	GET	31	13	14	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	19	22
10	COL	14	22	13	29

Question Number 104

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    SODIUM
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	SET	136			
2	FLG	41	72	26	136
3	JIN	136	1	105	
4	GET	28			
5	GET	31	15	16	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	18	23
10	COL	14	22	13	29

Question Number 105

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    POTASSIUM
 4¦
 5¦             on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat        Most
19¦     Useful          Useful         Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	137			
2	FLG	41	72	27	137
3	JIN	137	1	106	
4	GET	28			
5	GET	31	17	18	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 106

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                  PHOSPHORUS
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	138			
2	FLG	41	72	28	138
3	JIN	138	1	107	
4	GET	28			
5	GET	31	19	20	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	16	25
10	COL	14	22	13	29

Question Number 107

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                   MAGNESIUM
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	139			
2	FLG	41	72	29	139
3	JIN	139	1	108	
4	GET	28			
5	GET	31	21	22	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	17	25
10	COL	14	22	13	29

Question Number 108

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                     ZINC
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	140			
2	FLG	41	72	30	140
3	JIN	140	1	109	
4	GET	28			
5	GET	31	23	24	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	19	22
10	COL	14	22	13	29

Question Number 109

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                     COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦       ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat          Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	SET	141			
2	FLG	41	72	31	141
3	JIN	141	1	142	
4	GET	28			
5	GET	31	25	25	3
6	ANA	16	5	35	
7	COL	10			
8	COB	10			
9	COL	14	3	18	23
10	COL	14	22	13	29

Question Number 110

```
    ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                    COPPER
  4|
  5|           on the nutrition label
  6|
  7|     Using the arrow keys, move the box
  8|   along the scale to show how useful this
  9|    piece of nutrition information is to
 10|         you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|      Least          Somewhat          Most
 19|     Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 111

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____|_____|_____|
17|
18|     Least          Somewhat          Most
19|    Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 112

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦       ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat          Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 113

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful         Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 114

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 115

```
     ----+----1----+----2----+----3----+----4
  1¦            You said you look for:
  2¦
  3¦                    COPPER
  4¦
  5¦           on the nutrition label
  6¦
  7¦    Using the arrow keys, move the box
  8¦  along the scale to show how useful this
  9¦   piece of nutrition information is to
 10¦        you in a purchase decision.
 11¦
 12¦
 13¦
 14¦
 15¦
 16¦      ¦_____________¦_____________¦
 17¦
 18¦     Least          Somewhat          Most
 19¦    Useful          Useful          Useful
 20¦
 21¦
 22¦               Then press ENTER.
 23¦
 24¦
 25¦
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 116

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least          Somewhat          Most
19|     Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 117

```
     ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                    COPPER
  4|
  5|           on the nutrition label
  6|
  7|    Using the arrow keys, move the box
  8|  along the scale to show how useful this
  9|   piece of nutrition information is to
 10|        you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|     Least          Somewhat          Most
 19|    Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 118

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 119

```
     ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                    COPPER
  4|
  5|           on the nutrition label
  6|
  7|     Using the arrow keys, move the box
  8|   along the scale to show how useful this
  9|    piece of nutrition information is to
 10|         you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|      Least          Somewhat          Most
 19|     Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 120

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 121

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|          on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____|_____|_____|
17|
18|     Least          Somewhat          Most
19|    Useful          Useful          Useful
20|
21|
22|              Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 122

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦     Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦      Least          Somewhat          Most
19¦     Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 123

```
     ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                   COPPER
  4|
  5|           on the nutrition label
  6|
  7|    Using the arrow keys, move the box
  8|  along the scale to show how useful this
  9|   piece of nutrition information is to
 10|        you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|     Least          Somewhat          Most
 19|    Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 124

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least          Somewhat          Most
19|     Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 125

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 126

```
    ----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦                   COPPER
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦     ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful         Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 127

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least          Somewhat          Most
19|     Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 128

```
    ----+-----1----+-----2----+-----3----+-----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+-----1----+-----2----+-----3----+-----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 129

```
     ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                    COPPER
  4|
  5|           on the nutrition label
  6|
  7|    Using the arrow keys, move the box
  8|  along the scale to show how useful this
  9|   piece of nutrition information is to
 10|        you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|      Least          Somewhat          Most
 19|     Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 130

```
     ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                    COPPER
  4|
  5|           on the nutrition label
  6|
  7|    Using the arrow keys, move the box
  8|  along the scale to show how useful this
  9|   piece of nutrition information is to
 10|        you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|     Least           Somewhat          Most
 19|    Useful           Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 131

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 132

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦   along the scale to show how useful this
 9¦    piece of nutrition information is to
10¦         you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat          Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 133

```
----+----1----+----2----+----3----+----4
 1¦           You said you look for:
 2¦
 3¦                   COPPER
 4¦
 5¦          on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦     ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦              Then press ENTER.
23¦
24¦
25¦
----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 134

```
----+----1----+----2----+----3----+----4
          You said you look for:

                  COPPER

         on the nutrition label

   Using the arrow keys, move the box
 along the scale to show how useful this
  piece of nutrition information is to
       you in a purchase decision.



    |______________|______________|

    Least          Somewhat         Most
   Useful          Useful         Useful


             Then press ENTER.



----+----1----+----2----+----3----+----4
```

```
1  JIF    1    0  142
2  NUM 9999
```

Question Number 135

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 136

```
    ----+----1----+----2----+----3----+----4
 1¦            You said you look for:
 2¦
 3¦                    COPPER
 4¦
 5¦           on the nutrition label
 6¦
 7¦    Using the arrow keys, move the box
 8¦  along the scale to show how useful this
 9¦   piece of nutrition information is to
10¦        you in a purchase decision.
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦     Least          Somewhat         Most
19¦    Useful          Useful          Useful
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 137

```
     ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3|                    COPPER
  4|
  5|           on the nutrition label
  6|
  7|    Using the arrow keys, move the box
  8|  along the scale to show how useful this
  9|   piece of nutrition information is to
 10|        you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|     Least          Somewhat          Most
 19|    Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
     ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 138

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least           Somewhat          Most
19|     Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 139

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 140

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                     COPPER
 4|
 5|           on the nutrition label
 6|
 7|     Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least           Somewhat          Most
19|     Useful           Useful          Useful
20|
21|
22|                Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 141

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3|                    COPPER
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least           Somewhat          Most
19|    Useful           Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1 JIF 1 0 142
2 NUM 9999

Question Number 142

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3| ****
 4|
 5|           on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|      Least          Somewhat        Most
19|     Useful          Useful         Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	JIF	73	2	146	
2	JIF	74	0	146	
3	GET	28			
4	CLR	3			
5	RES	74	3	1	
6	ANA	16	5	35	20
7	COL	10			
8	COB	10			
9	COL	14	3		
10	COL	14	22	13	29

Question Number 143

```
    ----+----1----+----2----+----3----+----4
  1|            You said you look for:
  2|
  3| ****
  4|
  5|           on the nutrition label
  6|
  7|    Using the arrow keys, move the box
  8|  along the scale to show how useful this
  9|   piece of nutrition information is to
 10|         you in a purchase decision.
 11|
 12|
 13|
 14|
 15|
 16|      |_____________|_____________|
 17|
 18|     Least          Somewhat          Most
 19|    Useful          Useful          Useful
 20|
 21|
 22|               Then press ENTER.
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	JIF	73	2	146	
2	JIF	75	0	146	
3	GET	28			
4	CLR	3			
5	RES	75	3	1	
6	ANA	16	5	35	20
7	COL	10			
8	COB	10			
9	COL	14	3		
10	COL	14	22	13	29

Question Number 144

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3| ****
 4|
 5|          on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|  along the scale to show how useful this
 9|   piece of nutrition information is to
10|        you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least          Somewhat          Most
19|    Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	JIF	73	2	146	
2	JIF	76	0	146	
3	GET	28			
4	CLR	3			
5	RES	76	3	1	
6	ANA	16	5	35	20
7	COL	10			
8	COB	10			
9	COL	14	3		
10	COL	14	22	13	29

Question Number 145

```
    ----+----1----+----2----+----3----+----4
 1|            You said you look for:
 2|
 3| ****
 4|
 5|          on the nutrition label
 6|
 7|    Using the arrow keys, move the box
 8|   along the scale to show how useful this
 9|    piece of nutrition information is to
10|         you in a purchase decision.
11|
12|
13|
14|
15|
16|      |_____________|_____________|
17|
18|     Least          Somewhat          Most
19|    Useful          Useful          Useful
20|
21|
22|               Then press ENTER.
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

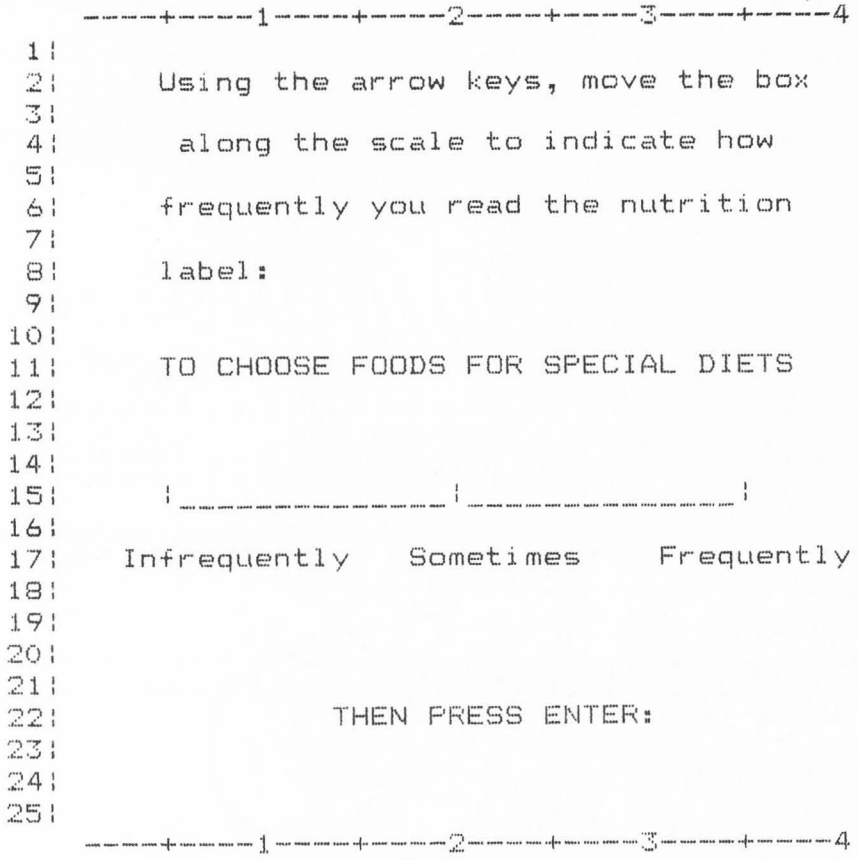
1	JIF	73	2	146	
2	JIF	77	0	146	
3	GET	28			
4	CLR	3			
5	RES	77	3	1	
6	ANA	16	5	35	20
7	COL	10			
8	COB	10			
9	COL	14	3		
10	COL	14	22	13	29

Question Number 155

```
    ----+----1----+----2----+----3----+----4
 1|
 2|
 3|          THE NEXT SET OF QUESTIONS,
 4|
 5|   HAVE THE SAME INSTRUCTIONS, HOWEVER THE
 6|
 7|    LINE WHICH YOU HAVE TO RATE CHANGES
 8|
 9|        AFTER YOU ENTER YOUR RESPONSE.
10|
11|
12|
13|
14|        PLEASE PRESS ENTER TO CONTINUE
15|
16|
17|
18|
19|
20|
21|
22|
23|
24|
25|
    ----+----1----+----2----+----3----+----4
```

1	GET	71
2	COL	47
3	COB	15
4	ANY	

Question Number 156



1	GET	17			
2	ANA	15	5	35	20
3	COL	47			
4	COB	8			
5	COL	14	11	5	37
6	COL	14	22	14	30

Question Number 157

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      Using the arrow keys, move the box
 3¦
 4¦       along the scale to indicate how
 5¦
 6¦      frequently you read the nutrition
 7¦
 8¦      label:
 9¦
10¦
11¦    TO CHECK ON THE QUALITY OF FOOD THAT
12¦     HAS BEEN ADVERTISED AS NUTRITIOUS:
13¦
14¦
15¦       ¦_____________¦_____________¦
16¦
17¦    Infrequently    Sometimes     Frequently
18¦
19¦
20¦
21¦
22¦                 THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	18	11	12	11
3	ANA	15	5	35	20
4	COL	47			
5	COB	8			
6	COL	14	11	3	38
7	COL	14	12	4	38
8	COL	14	22	14	30

Question Number 158

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦     Using the arrow keys, move the box
 3¦
 4¦      along the scale to indicate how
 5¦
 6¦     frequently you read the nutrition
 7¦
 8¦     label:
 9¦
10¦
11¦   TO SELECT LOW CALORIE AND DIET FOODS:
12¦
13¦
14¦
15¦     ¦_____________¦_____________¦
16¦
17¦   Infrequently    Sometimes     Frequently
18¦
19¦
20¦
21¦
22¦                THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	19	11	11	
3	CLR	12			
4	ANA	15	5	35	20
5	COL	47			
6	COB	8			
7	COL	14	11	2	39
8	COL	14	22	14	30

Question Number 159

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      Using the arrow keys, move the box
 3¦
 4¦       along the scale to indicate how
 5¦
 6¦      frequently you read the nutrition
 7¦
 8¦      label:
 9¦
10¦
11¦      TO SELECT A FOOD PRODUCT OR BRAND
12¦      THAT YOU HAVE NEVER TRIED BEFORE:
13¦
14¦
15¦      ¦_____________¦_____________¦
16¦
17¦    Infrequently    Sometimes     Frequently
18¦
19¦
20¦
21¦
22¦                 THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	20	11	12	11
3	ANA	15	5	35	20
4	COL	47			
5	COB	8			
6	COL	14	11	5	37
7	COL	14	12	5	37

Question Number 160

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      Using the arrow keys, move the box
 3¦
 4¦       along the scale to indicate how
 5¦
 6¦      frequently you read the nutrition
 7¦
 8¦      label:
 9¦
10¦
11¦     TO COMPARE THE NUTRITIONAL QUALITY
12¦          OF TWO DIFFERENT BRANDS:
13¦
14¦
15¦      ¦_____________¦_____________¦
16¦
17¦    Infrequently   Sometimes    Frequently
18¦
19¦
20¦
21¦
22¦                THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	21	11	12	11
3	ANA	15	5	35	20
4	COL	47			
5	COB	8			
6	COL	14	11	4	37
7	COL	14	12	9	32

Question Number 161

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦     Using the arrow keys, move the box
 3¦
 4¦      along the scale to indicate how
 5¦
 6¦     frequently you read the nutrition
 7¦
 8¦     label:
 9¦
10¦
11¦  TO HELP PLAN MEALS FOR A BALANCED DIET:
12¦
13¦
14¦
15¦     ¦_____________¦_____________¦
16¦
17¦   Infrequently   Sometimes    Frequently
18¦
19¦
20¦
21¦
22¦                THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	22	11	11	
3	CLR	12			
4	ANA	15	5	35	20
5	COL	47			
6	COB	8			
7	COL	14	11	2	40

Question Number 162

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      Using the arrow keys, move the box
 3¦
 4¦       along the scale to indicate how
 5¦
 6¦      frequently you read the nutrition
 7¦
 8¦      label:
 9¦
10¦
11¦   TO HELP PLAN MORE NUTRITIOUS MEALS FOR
12¦              MYSELF OR FAMILY:
13¦
14¦
15¦      ¦_____________¦_____________¦
16¦
17¦    Infrequently    Sometimes     Frequently
18¦
19¦
20¦
21¦
22¦                THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	23	11	12	11
3	ANA	15	5	35	20
4	COL	47			
5	COB	8			
6	COL	14	11	1	39
7	COL	14	12	13	29

Question Number 163

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      Using the arrow keys, move the box
 3¦
 4¦       along the scale to indicate how
 5¦
 6¦      frequently you read the nutrition
 7¦
 8¦      label:
 9¦
10¦
11¦      TO AVOID CERTAIN NUTRIENTS, I.E.,
12¦         SUGAR, CALORIES, FAT, ETC.
13¦
14¦
15¦      ¦_____________¦_____________¦
16¦
17¦   Infrequently   Sometimes    Frequently
18¦
19¦
20¦
21¦
22¦                THEN PRESS ENTER:
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	17	15	17	15
2	GET	24	11	12	11
3	ANA	15	5	35	20
4	COL	47			
5	COB	8			
6	COL	14	11	5	37
7	COL	14	12	8	33

Question Number 164

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦      Are there any other reasons why
 4¦       you read the nutrition label?
 5¦
 6¦
 7¦              1.  Yes
 8¦
 9¦              2.  No
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	65	
2	RNG	2	
3	HLA	7	
4	SKP	2	169
5	COL	11	
6	COB	11	

Question Number 165

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       What are the other reasons why
 3¦        you read the nutrition label.
 4¦
 5¦            PLEASE TYPE YOUR COMMENT.
 6¦    PRESS ENTER AT THE END OF EACH LINE.
 7¦    PRESS X AND ENTER TOGETHER TO GO BACK
 8¦               TO A PREVIOUS LINE.
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦     PRESS ENTER WHEN YOU HAVE FINISHED
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	66		
2	COL	11		
3	COB	11		
4	COL	63	12	
5	OPN	12	5	40

Question Number 166

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       What are the other reasons why
 3¦        you read the nutrition label.
 4¦
 5¦            PLEASE TYPE YOUR COMMENT.
 6¦     PRESS ENTER AT THE END OF EACH LINE.
 7¦     PRESS X AND ENTER TOGETHER TO GO BACK
 8¦               TO A PREVIOUS LINE.
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦      PRESS ENTER WHEN YOU HAVE FINISHED
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	165	0	169
2	OPN	14		
3	COL	79	14	
4	COB	11		

Question Number 167

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       What are the other reasons why
 3¦        you read the nutrition label.
 4¦
 5¦            PLEASE TYPE YOUR COMMENT.
 6¦    PRESS ENTER AT THE END OF EACH LINE.
 7¦    PRESS X AND ENTER TOGETHER TO GO BACK
 8¦               TO A PREVIOUS LINE.
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦     PRESS ENTER WHEN YOU HAVE FINISHED
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	166	0	169
2	OPN	16		
3	COL	95	16	
4	IFX	166		
5	COB	11		

Question Number 168

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       What are the other reasons why
 3¦        you read the nutrition label.
 4¦
 5¦            PLEASE TYPE YOUR COMMENT.
 6¦    PRESS ENTER AT THE END OF EACH LINE.
 7¦    PRESS X AND ENTER TOGETHER TO GO BACK
 8¦               TO A PREVIOUS LINE.
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦     PRESS ENTER WHEN YOU HAVE FINISHED
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	167	0	169
2	OPN	18		
3	COL	47	18	
4	IFX	167		
5	COB	11		

Question Number 169

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦     If you are not using the nutrition
 4¦   information on a food product label,
 5¦                  why not?
 6¦
 7¦             PRESS ALL THAT APPLY
 8¦
 9¦
10¦        1.  I think the information is
11¦            confusing
12¦        2.  I do not understand the
13¦            information
14¦        3.  I do not have time to read it
15¦
16¦        4.  I do not think the information
17¦            is important
18¦        5.  I already eat a balanced diet
19¦
20¦        6.  Other
21¦
22¦
23¦          PRESS 7 WHEN NO MORE APPLY
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	40	1	178	
2	GET	26			
3	HLA	10	2		
4	DLA				
5	RNG	7			
6	OTH	6			
7	SKP	7	178		
8	REJ	169	174		
9	COL	47			
10	COB	8			
11	COL	40	7	11	30
12	COL	40	21	8	33

Question Number 170

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦    If you are not using the nutrition
 4¦   information on a food product label,
 5¦                  why not?
 6¦
 7¦            PRESS ALL THAT APPLY
 8¦
 9¦
10¦       1.  I think the information is
11¦           confusing
12¦       2.  I do not understand the
13¦           information
14¦       3.  I do not have time to read it
15¦
16¦       4.  I do not think the information
17¦           is important
18¦       5.  I already eat a balanced diet
19¦
20¦       6.  Other
21¦
22¦
23¦         PRESS 7 WHEN NO MORE APPLY
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	40	1	178	
2	HLA	10	2		
3	DLA				
4	RNG	7			
5	OTH	6			
6	SKP	7	178		
7	REJ	169	174		
8	COL	47			
9	COB	8			
10	COL	40	7	11	30
11	COL	40	21	8	33

Question Number 171

```
----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦    If you are not using the nutrition
 4¦   information on a food product label,
 5¦                  why not?
 6¦
 7¦            PRESS ALL THAT APPLY
 8¦
 9¦
10¦       1.  I think the information is
11¦           confusing
12¦       2.  I do not understand the
13¦           information
14¦       3.  I do not have time to read it
15¦
16¦       4.  I do not think the information
17¦           is important
18¦       5.  I already eat a balanced diet
19¦
20¦       6.  Other
21¦
22¦
23¦         PRESS 7 WHEN NO MORE APPLY
24¦
25¦
----+----1----+----2----+----3----+----4
```

1	JIF	40	1	178	
2	HLA	10	2		
3	DLA				
4	RNG	7			
5	OTH	6			
6	SKP	7	178		
7	REJ	169	174		
8	COL	47			
9	COB	8			
10	COL	40	7	11	30
11	COL	40	21	8	33

Question Number 172

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦    If you are not using the nutrition
 4¦   information on a food product label,
 5¦                  why not?
 6¦
 7¦             PRESS ALL THAT APPLY
 8¦
 9¦
10¦       1.  I think the information is
11¦           confusing
12¦       2.  I do not understand the
13¦           information
14¦       3.  I do not have time to read it
15¦
16¦       4.  I do not think the information
17¦           is important
18¦       5.  I already eat a balanced diet
19¦
20¦       6.  Other
21¦
22¦
23¦          PRESS 7 WHEN NO MORE APPLY
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	40	1	178	
2	HLA	10	2		
3	DLA				
4	RNG	7			
5	OTH	6			
6	SKP	7	178		
7	REJ	169	174		
8	COL	47			
9	COB	8			
10	COL	40	7	11	30
11	COL	40	21	8	33
12	JIF	40	1	178	

Question Number 173

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦    If you are not using the nutrition
 4¦   information on a food product label,
 5¦                  why not?
 6¦
 7¦            PRESS ALL THAT APPLY
 8¦
 9¦
10¦       1.  I think the information is
11¦           confusing
12¦       2.  I do not understand the
13¦           information
14¦       3.  I do not have time to read it
15¦
16¦       4.  I do not think the information
17¦           is important
18¦       5.  I already eat a balanced diet
19¦
20¦       6.  Other
21¦
22¦
23¦         PRESS 7 WHEN NO MORE APPLY
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

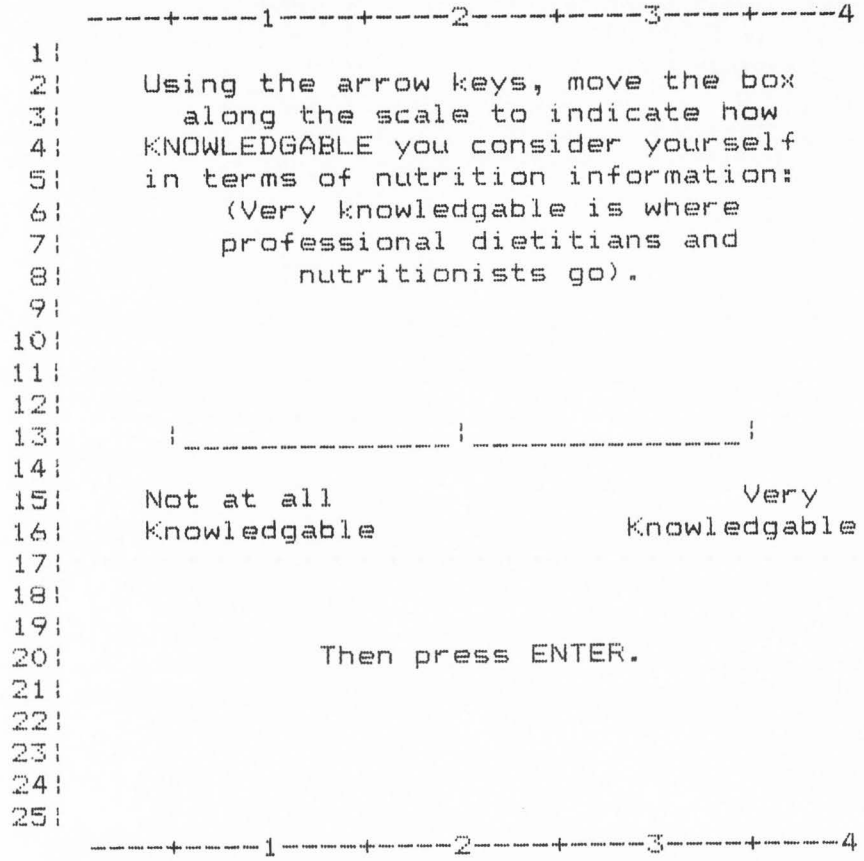
1	JIF	40	1	178	
2	HLA	10	2		
3	DLA				
4	RNG	7			
5	OTH	6			
6	SKP	7	178		
7	REJ	169	174		
8	COL	47			
9	COB	8			
10	COL	40	7	11	30
11	COL	40	21	8	33

Question Number 174

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦    If you are not using the nutrition
 4¦   information on a food product label,
 5¦                  why not?
 6¦
 7¦             PRESS ALL THAT APPLY
 8¦
 9¦
10¦       1.  I think the information is
11¦           confusing
12¦       2.  I do not understand the
13¦           information
14¦       3.  I do not have time to read it
15¦
16¦       4.  I do not think the information
17¦           is important
18¦       5.  I already eat a balanced diet
19¦
20¦       6.  Other
21¦
22¦
23¦          PRESS 7 WHEN NO MORE APPLY
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	JIF	40	1	178	
2	HLA	10	2		
3	DLA				
4	RNG	7			
5	OTH	6			
6	SKP	7	178		
7	REJ	169	174		
8	COL	47			
9	COB	8			
10	COL	40	7	11	30
11	COL	40	21	8	33

Question Number 178



1	GET	33			
2	ANA	13	5	35	20
3	COL	31			
4	COB	15			
5	COL	20	13	29	

Question Number 179

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦
 4¦
 5¦         HAVE YOU SEEN THE GRAPHICAL
 6¦    NUTRITION LABEL ALBERTSON'S PUTS ON
 7¦              THEIR FRESH MEATS?
 8¦
 9¦
10¦                 1.   YES
11¦
12¦                 2.   NO
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	76	
2	RNG	2	
3	HLA	10	2
4	COL	47	
5	COB	8	

Question Number 182

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1¦
 2¦   Peoples' shopping behaviors are related to certain values.  Each  of
 3¦   these is positive and important but people will try to emphasize one over the
 4¦   others.  Using the arrow keys move the box to show how YOU would rank the
 5¦   following VALUES  as descriptive of your DAY-TO-DAY activities and your
 6¦   dealings with others.  THE VALUE TO BE RANKED WILL BE HIGHLIGHTED.  Please
 7¦   do not use the same position on the scale twice.
 8¦
 9¦
10¦                        COMPETENCE         SOCIABLE
11¦
12¦                        COMPASSION         RESPONSIBLE
13¦
14¦
15¦
16¦
17¦   Important      |___|___|___|___|___|___|___|___|    Most
18¦   but not as
19¦   important                                           Important
20¦
21¦
22¦
23¦                     PLEASE PRESS ENTER AFTER EACH RANKING
24¦
25¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

1	GET	69			
2	ANA	17	18	58	
3	COL	47			
4	COB	8			
5	COL	14	10	26	35
6	COL	14	23	22	58

Question Number 184

```
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1¦
 2¦   Peoples' shopping behaviors are related to certain values.  Each  of
 3¦   these is positive and important but people will try to emphasize one over the
 4¦   others.  Using the arrow keys move the box to show how YOU would rank the
 5¦   following VALUES  as descriptive of your DAY-TO-DAY activities and your
 6¦   dealings with others.  THE VALUE TO BE RANKED WILL BE HIGHLIGHTED.  Please
 7¦   do not use the same position on the scale twice.
 8¦
 9¦
10¦                        COMPETENCE         SOCIABLE
11¦
12¦                        COMPASSION         RESPONSIBLE
13¦
14¦
15¦
16¦
17¦   Important      ¦___¦___¦___¦___¦___¦___¦___¦___¦    Most
18¦   but not as
19¦   important                                          Important
20¦
21¦
22¦
23¦                     PLEASE PRESS ENTER AFTER EACH RANKING
24¦
25¦
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

1	GET	69	17	19	17
2	ANA	17	18	58	
3	COL	47			
4	COB	8			
5	COL	14	12	26	35
6	COL	14	23	22	58

Question Number 185

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1¦
 2¦   Peoples' shopping behaviors are related to certain values.  Each  of
 3¦   these is positive and important but people will try to emphasize one over the
 4¦   others.  Using the arrow keys move the box to show how YOU would rank the
 5¦   following VALUES  as descriptive of your DAY-TO-DAY activities and your
 6¦   dealings with others.  THE VALUE TO BE RANKED WILL BE HIGHLIGHTED.  Please
 7¦   do not use the same position on the scale twice.
 8¦
 9¦
10¦                        COMPETENCE         SOCIABLE
11¦
12¦                        COMPASSION         RESPONSIBLE
13¦
14¦
15¦
16¦
17¦   Important      ¦___¦___¦___¦___¦___¦___¦___¦___¦    Most
18¦   but not as
19¦   important                                          Important
20¦
21¦
22¦
23¦                     PLEASE PRESS ENTER AFTER EACH RANKING
24¦
25¦
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

1	GET	69	17	19	17
2	ANA	17	18	58	
3	COL	47			
4	COB	8			
5	COL	14	10	45	52
6	COL	14	23	22	58

Question Number 186

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
 1¦
 2¦   Peoples' shopping behaviors are related to certain values.  Each  of
 3¦   these is positive and important but people will try to emphasize one over the
 4¦   others.  Using the arrow keys move the box to show how YOU would rank the
 5¦   following VALUES  as descriptive of your DAY-TO-DAY activities and your
 6¦   dealings with others.  THE VALUE TO BE RANKED WILL BE HIGHLIGHTED.  Please
 7¦   do not use the same position on the scale twice.
 8¦
 9¦
10¦                        COMPETENCE         SOCIABLE
11¦
12¦                        COMPASSION         RESPONSIBLE
13¦
14¦
15¦
16¦
17¦   Important      ¦___¦___¦___¦___¦___¦___¦___¦___¦    Most
18¦   but not as
19¦   important                                          Important
20¦
21¦
22¦
23¦                     PLEASE PRESS ENTER AFTER EACH RANKING
24¦
25¦
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

1	GET	69	17	19	17
2	ANA	17	18	58	
3	COL	47			
4	COB	8			
5	COL	14	12	45	55
6	COL	14	23	22	58

Question Number 197

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    Using the arrow keys, move the  box
 3¦
 4¦  along the scale to indicate the extent
 5¦
 6¦    to which you agree or disagree with
 7¦
 8¦          the following statements:
 9¦
10¦
11¦
12¦      I like introducing new brands and
13¦
14¦            products to my friends:
15¦
16¦
17¦
18¦      ¦_____________¦_____________¦
19¦
20¦    Strongly      Neutral          Strongly
21¦    Disagree                       Agree
22¦
23¦               Then press ENTER.
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	58			
2	ANA	18	5	35	20
3	COL	27			
4	COB	11			
5	COL	15	12	5	39
6	COL	15	14	10	32
7	COL	15	23	13	28

Question Number 198

```
    ----+-----1-----+-----2-----+-----3-----+-----4
 1¦
 2¦    Using the arrow keys, move the  box
 3¦
 4¦  along the scale to indicate the extent
 5¦
 6¦    to which you agree or disagree with
 7¦
 8¦          the following statements:
 9¦
10¦
11¦
12¦    I like helping people by providing
13¦     them with information about many
14¦             kinds of products:
15¦
16¦
17¦
18¦     ¦_____________¦_____________¦
19¦
20¦    Strongly      Neutral          Strongly
21¦    Disagree                       Agree
22¦
23¦               Then press ENTER.
24¦
25¦
    ----+-----1-----+-----2-----+-----3-----+-----4
```

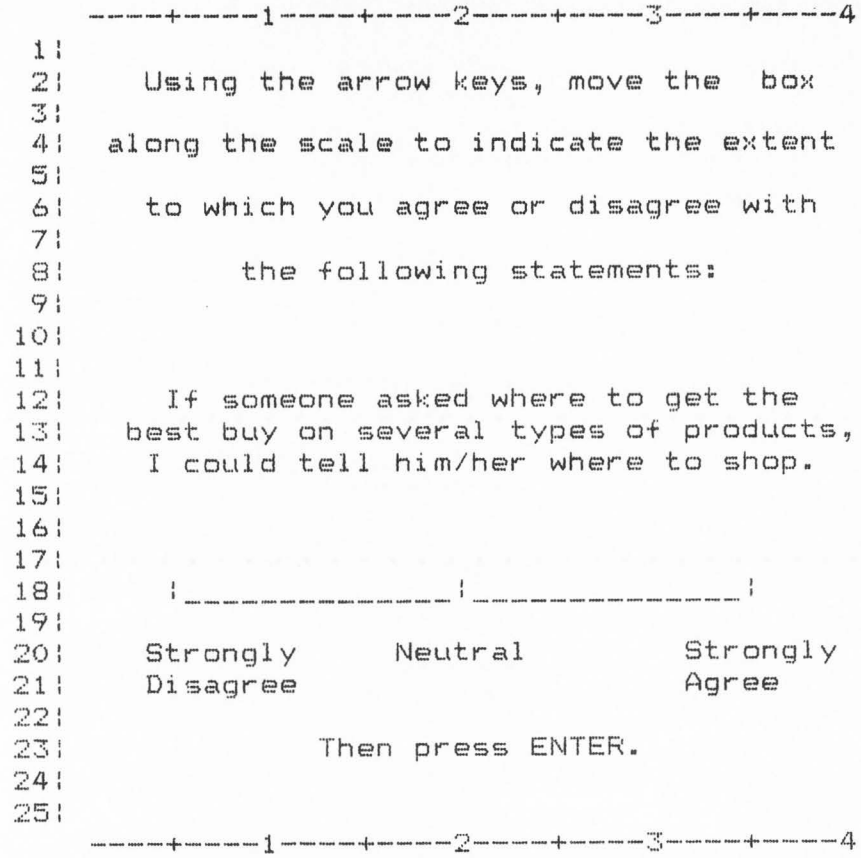
1	GET	58	18	21	18
2	GET	59	4	6	12
3	ANA	18	5	35	20
4	COL	27			
5	COB	11			
6	COL	15	12	4	37
7	COL	15	13	5	36
8	COL	15	14	12	29

Question Number 199

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    Using the arrow keys, move the  box
 3¦
 4¦  along the scale to indicate the extent
 5¦
 6¦    to which you agree or disagree with
 7¦
 8¦          the following statements:
 9¦
10¦
11¦
12¦    People ask me for information about
13¦    products, places to shop, or sales:
14¦
15¦
16¦
17¦
18¦      ¦_____________¦_____________¦
19¦
20¦    Strongly      Neutral          Strongly
21¦    Disagree                       Agree
22¦
23¦               Then press ENTER.
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	58	18	21	18
2	GET	59	9	10	12
3	CLR	14			
4	ANA	18	5	35	20
5	COL	27			
6	COB	11			
7	COL	15	12	4	38
8	COL	15	13	4	38

Question Number 200



1	GET	58	18	21	18
2	GET	59	13	15	12
3	ANA	18	5	35	20
4	COL	27			
5	COB	11			
6	COL	15	12	5	37
7	COL	15	13	3	40
8	COL	15	14	4	38

Question Number 201

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    Using the arrow keys, move the  box
 3¦
 4¦  along the scale to indicate the extent
 5¦
 6¦    to which you agree or disagree with
 7¦
 8¦         the following statements:
 9¦
10¦
11¦
12¦     My friends think of me as a good
13¦    source of information when it comes
14¦         to new products or sales:
15¦
16¦
17¦
18¦      ¦_____________¦_____________¦
19¦
20¦    Strongly      Neutral          Strongly
21¦    Disagree                       Agree
22¦
23¦              Then press ENTER.
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

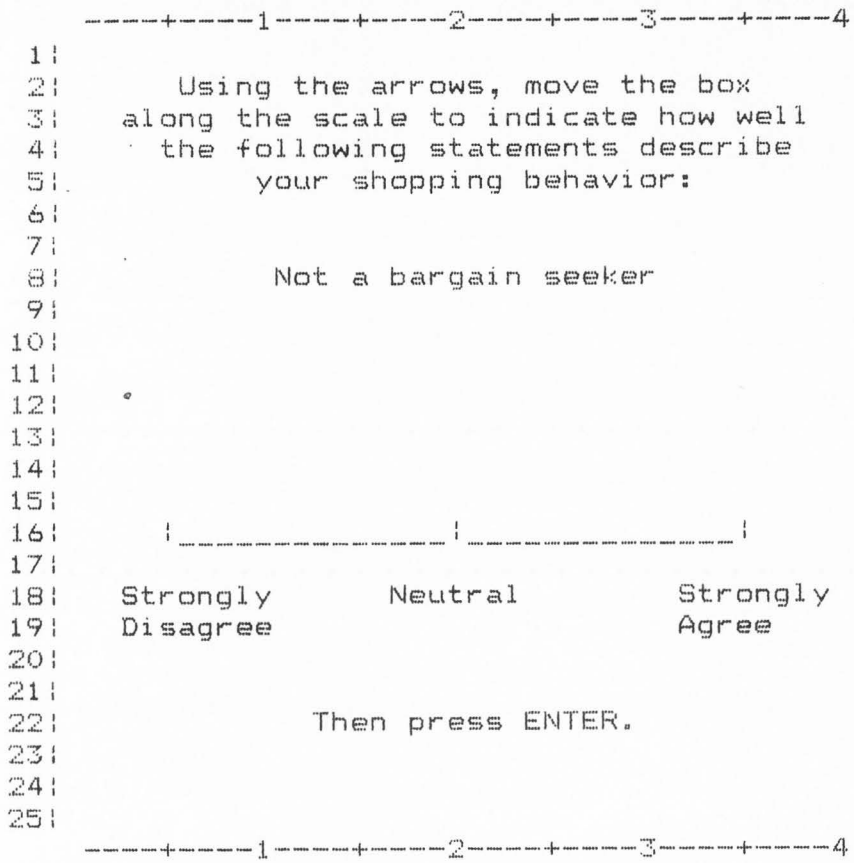
1	GET	58	18	21	18
2	GET	59	18	20	12
3	ANA	18	5	35	20
4	COL	27			
5	COB	11			
6	COL	15	12	5	36
7	COL	15	13	4	38
8	COL	15	14	9	33

Question Number 202

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦    Using the arrow keys, move the  box
 3¦
 4¦  along the scale to indicate the extent
 5¦
 6¦    to which you agree or disagree with
 7¦
 8¦          the following statements:
 9¦
10¦        Think about a person who has
11¦       information about a variety of
12¦      products and likes to share this
13¦   information with others.  This person
14¦  knows about new products, sales, stores
15¦  and so on,but does not necessarily feel
16¦   he/she is an expert on one particular
17¦   product.  How well would you say that
18¦        this description fits you?
19¦
20¦
21¦      ¦_____________¦_____________¦
22¦
23¦    Strongly      Neutral          Strongly
24¦    Disagree                       Agree
25¦               Then press ENTER.
    ----+----1----+----2----+----3----+----4
```

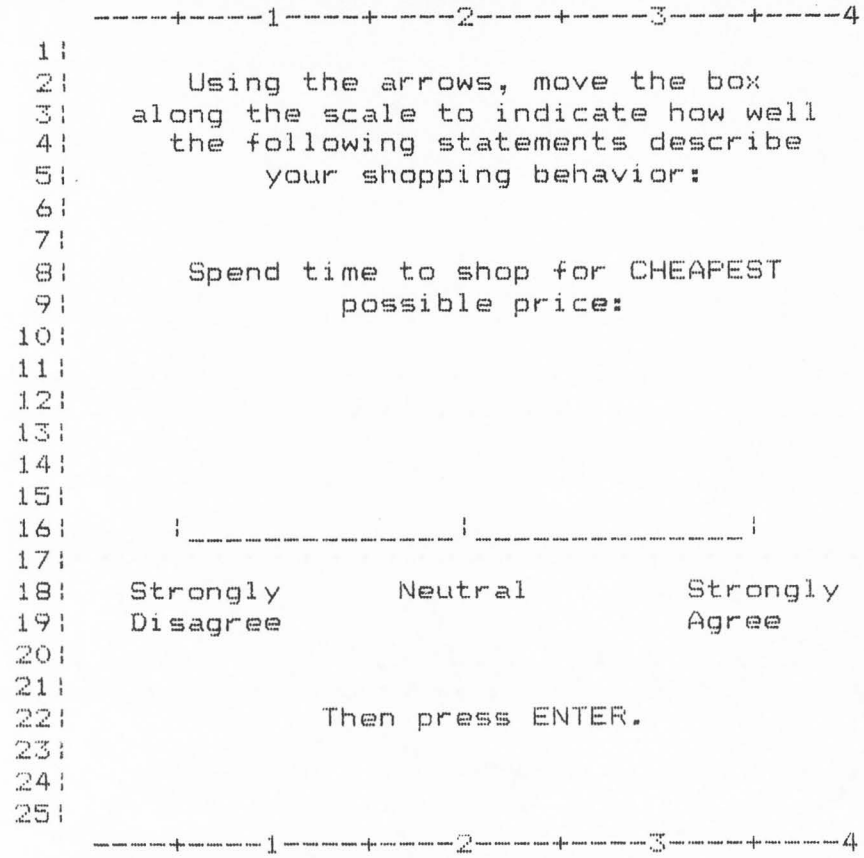
1	CLR	20			
2	GET	58	18	22	21
3	GET	60	2	10	10
4	GET	58	23	23	25
5	GET	58	21	21	24
6	ANA	21	5	35	20
7	COL	27			
8	COB	11			
9	COL	15	10	7	34
10	COL	15	11	6	35
11	COL	15	12	5	36
12	COL	15	13	3	39
13	COL	15	14	2	40
14	COL	15	15	2	40
15	COL	15	16	2	39
16	COL	15	17	3	39
17	COL	15	18	8	33

Question Number 207



1	GET	61			
2	ANA	16	5	35	20
3	COL	10			
4	COB	10			
5	COL	7	8	10	30
6	COL	7	22	13	29

Question Number 208



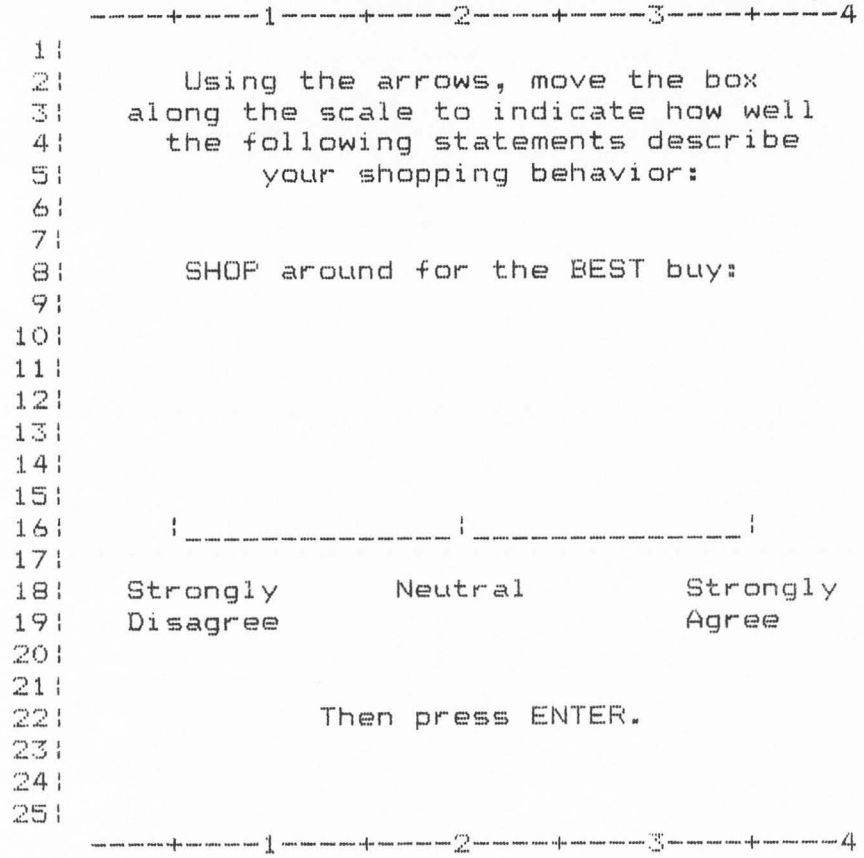
1	GET	61	16	19	16
2	GET	62	2	3	8
3	ANA	16	5	35	20
4	COL	10			
5	COB	10			
6	COL	7	8	6	36
7	COL	7	9	14	28
8	COL	7	22	13	29

Question Number 209

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       Using the arrows, move the box
 3¦    along the scale to indicate how well
 4¦      the following statements describe
 5¦           your shopping behavior:
 6¦
 7¦
 8¦       PURCHASING goods and services
 9¦         is a RATHER PETTY activity:
10¦
11¦
12¦
13¦
14¦
15¦
16¦      ¦_____________¦_____________¦
17¦
18¦    Strongly       Neutral         Strongly
19¦    Disagree                       Agree
20¦
21¦
22¦               Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	61	16	19	16
2	GET	62	6	7	8
3	ANA	16	5	35	20
4	COL	10			
5	COB	10			
6	COL	7	8	6	34
7	COL	7	9	8	34
8	COL	7	22	13	29

Question Number 210



1	GET	61	16	19	16
2	GET	62	10	11	8
3	CLR	9			
4	ANA	16	5	35	20
5	COL	10			
6	COB	10			
7	COL	7	8	6	34
8	COL	7	22	'13	29

Question Number 211

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       Using the arrows, move the box
 3¦    along the scale to indicate how well
 4¦      the following statements describe
 5¦            your shopping behavior:
 6¦
 7¦
 8¦           NOT interested in SALES:
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
16¦       ¦_____________¦_____________¦
17¦
18¦    Strongly        Neutral          Strongly
19¦    Disagree                         Agree
20¦
21¦
22¦                Then press ENTER.
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

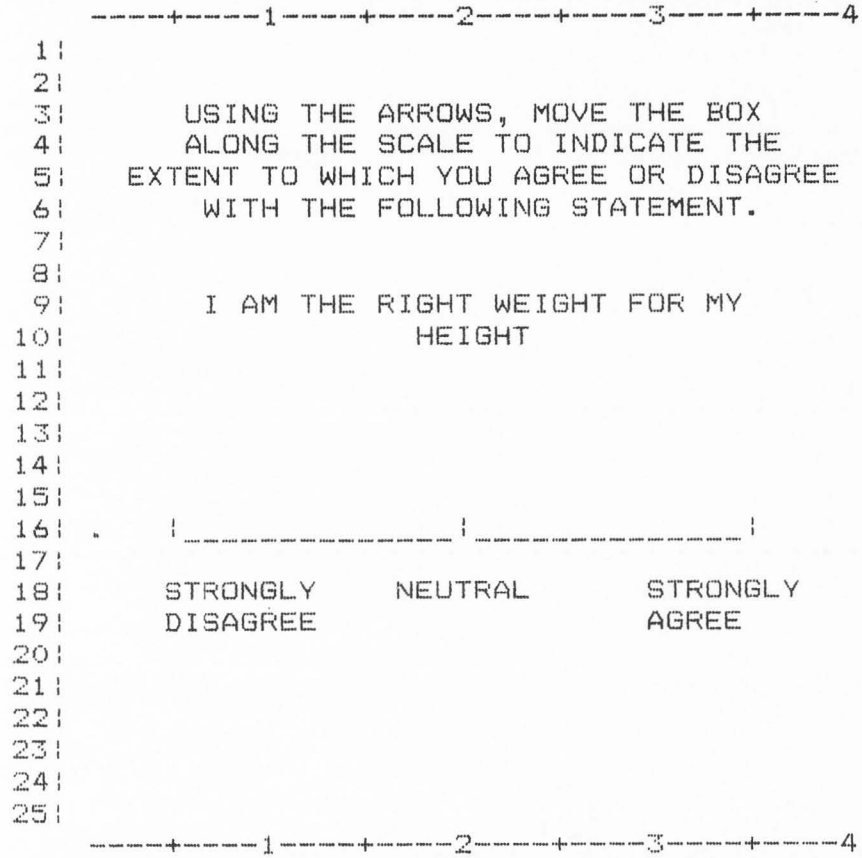
1	GET	61	16	19	16
2	GET	62	13	14	8
3	ANA	16	5	35	20
4	COL	10			
5	COB	10			
6	COL	7	8	9	32
7	COL	7	22	13	29

Question Number 212

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦    This is the last set of questions.
 4¦
 5¦      These are very important to our
 6¦
 7¦   research.  Please be assured you will
 8¦
 9¦    will not be identified in any way.
10¦
11¦
12¦      To answer, press the appropriate
13¦
14¦    number or letter key.  To review a
15¦
16¦       question or change an answer,
17¦
18¦                just press X.
19¦
20¦
21¦         Press any key to continue.
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	42
2	ANY	
3	COL	13
4	COB	13

Question Number 213



1	GET	74			
2	ANA	16	5	35	
3	COL	47			
4	COB	8			
5	COL	46	9	6	36
6	COL	46	10	18	23

Question Number 214

```
     ----+----1----+----2----+----3----+----4
  1¦
  2¦
  3¦
  4¦       Would you tell me how much you
  5¦
  6¦          weigh at the present time?
  7¦
  8¦       (If you are pregnant, please type
  9¦
 10¦         in your prepregnant weight.)
 11¦
 12¦
 13¦                    **      **
 14¦
 15¦
 16¦
 17¦
 18¦      USING THE NUMBER KEYS, TYPE YOUR
 19¦
 20¦          ANSWER AND THEN PRESS ENTER
 21¦
 22¦
 23¦
 24¦
 25¦
     ----+----1----+----2----+----3----+----4
```

1	GET	77			
2	NUM	700	50	13	18
3	COL	47			
4	COB	8			

Question Number 215

```
    ----+----1----+----2----+----3----+----4
 1|                HOW TALL ARE YOU?
 2|
 3|        PLEASE PRESS THE CORRECT NUMBER
 4|                    OR LETTER.
 5|
 6|
 7|      1.  4' 8"        K.  6' 3"
 8|      2.  4' 9"        L.  6' 4"
 9|      3.  4' 10"       M.  6' 5"
10|      4.  4' 11"       N.  6' 6"
11|      5.  5'           O.  6' 7"
12|      6.  5' 1"        P.  6' 8"
13|      7.  5' 2"        Q.  6' 90"
14|      8.  5' 3"        R.  6' 10"
15|      9.  5' 4"        S.  6' 11"
16|      A.  5' 5"        T.  7'
17|      B.  5' 6"        U.  7' 1"
18|      C.  5' 7"        V.  7' 2"
19|      D.  5' 8"        W.  7' 3"
20|      E.  5' 9"
21|      F.  5' 10"
22|      G.  5' 11"
23|      H.  6'
24|      I.  6' 1"
25|      J.  6' 2"
    ----+----1----+----2----+----3----+----4
```

1	GET	75
2	RNG	32
3	COL	47
4	COB	8

Question Number 216

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦
 4¦
 5¦        PLEASE TYPE IN YOUR ZIPCODE
 6¦
 7¦
 8¦
 9¦                  **       **
10¦
11¦
12¦
13¦
14¦
15¦
16¦      USING THE NUMBER KEYS, TYPE YOUR
17¦
18¦        ANSWER AND THEN PRESS ENTER
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

```
1  GET    78
2  NUM 99999      1     9    19
3  COL    47
4  COB     8
```

Question Number 219

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦           What is your age:
 3¦
 4¦       1   18 - 24 years
 5¦
 6¦       2   25 - 34 years
 7¦
 8¦       3   35 - 44 years
 9¦
10¦       4   45 - 54 years
11¦
12¦       5   55 - 64 years
13¦
14¦       6   65 - 69 years
15¦
16¦       7   70 - 74 years
17¦
18¦       8   75 - 79 years
19¦
20¦       9   80 - 84 years
21¦
22¦       a   85 years and over
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	43	
2	RNG	10	
3	HLA	4	2
4	COL	13	
5	COB	13	

Question Number 220

```
    ----+----1----+----2----+----3----+----4
  1|
  2|
  3|              What is your sex:
  4|
  5|              1  Male
  6|
  7|              2  Female
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	44	
2	RNG	2	
3	HLA	5	2
4	COL	13	
5	COB	13	
6	INO		

Question Number 221

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦
 3¦
 4¦            What is your race?
 5¦
 6¦
 7¦          1.  White/Caucasian
 8¦
 9¦          2.  Black
10¦
11¦          3.  Asian and Pacific Islander
12¦
13¦          4.  Hispanic
14¦
15¦          5.  Native American Indian
16¦
17¦          6.  Other
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	67	
2	HLA	7	2
3	RNG	6	
4	OTH	6	
5	COL	11	
6	COB	11	
7	INO		

Question Number 222

```
    ----+----1----+----2----+----3----+----4
  1|
  2|        Please indicate your current
  3|                marital status:
  4|
  5|
  6|              1  single
  7|              2  married, not separated
  8|              3  separated
  9|              4  widowed
 10|              5  divorced
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	45	
2	RNG	5	
3	HLA	6	1
4	COL	9	
5	COB	9	
6	INO		

Question Number 223

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       Do you have any children living
 3¦                  with you?
 4¦
 5¦
 6¦                  1  Yes
 7¦
 8¦                  2  No
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
16¦
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	46	
2	RNG	2	
3	HLA	6	2
4	SKP	2	225
5	COL	9	
6	COB	9	

Question Number 224

```
    ----+----1----+----2----+----3----+----4
  1|
  2|
  3|       How many children are living
  4|
  5|                  with you?
  6|
  7|
  8|                1.  1
  9|
 10|                2.  2
 11|
 12|                3.  3
 13|
 14|                4.  4
 15|
 16|                5.  5 or more
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	47	
2	HLA	8	2
3	RNG	5	
4	COL	9	
5	COB	9	

Question Number 225

```
    ----+----1----+----2----+----3----+----4
  1|
  2|
  3|      How many years of school have you
  4|
  5|                  completed?
  6|
  7|
  8|            1 Elementary:  0 - 4 years
  9|            2 Elementary:  5 - 8 years
 10|            3 High School: 1 - 3 years
 11|            4 High School: 4 years
 12|            5 College:     1 - 3 Years
 13|            6 College:     4 years (Degree)
 14|            7 College:     5 or more years
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	48	
2	RNG	7	
3	HLA	8	1
4	COL	29	
5	COB	13	

Question Number 226

```
    ----+-----1----+-----2----+-----3----+-----4
  1¦
  2¦
  3¦      Are you employed for pay, either
  4¦
  5¦            part-time or full-time?
  6¦
  7¦
  8¦            1     Yes, full-time
  9¦
 10¦            2     Yes, part-time
 11¦
 12¦            3     No
 13¦
 14¦
 15¦
 16¦
 17¦
 18¦
 19¦
 20¦
 21¦
 22¦
 23¦
 24¦
 25¦
    ----+-----1----+-----2----+-----3----+-----4
```

1	GET	49	
2	RNG	3	
3	HLA	8	2
4	SKP	1	237
5	SKP	2	237
6	COL	29	
7	COB	13	

Question Number 227

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If you are not working, please
 3¦
 4¦ press all of the following that apply:
 5¦
 6¦
 7¦          1     A full-time homemaker
 8¦
 9¦          2     A Student
10¦
11¦          3     Temporarily unemployed
12¦
13¦          4     Retired
14¦
15¦          5     Other
16¦
17¦
18¦        Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	50	
2	RNG	6	
3	HLA	7	2
4	DLA		
5	OTH	5	
6	SKP	6	237
7	REJ	227	232
8	COL	121	
9	COB	9	

Question Number 228

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If you are not working, please
 3¦
 4¦ press all of the following that apply:
 5¦
 6¦
 7¦           1     A full-time homemaker
 8¦
 9¦           2     A Student
10¦
11¦           3     Temporarily unemployed
12¦
13¦           4     Retired
14¦
15¦           5     Other
16¦
17¦
18¦         Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	237
6	REJ	227	232
7	COL	121	
8	COB	9	

Question Number 229

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦        If you are not working, please
 3¦
 4¦  press all of the following that apply:
 5¦
 6¦
 7¦            1     A full-time homemaker
 8¦
 9¦            2     A Student
10¦
11¦            3     Temporarily unemployed
12¦
13¦            4     Retired
14¦
15¦            5     Other
16¦
17¦
18¦          Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	237
6	REJ	227	232
7	COL	121	
8	COB	9	

Question Number 230

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If you are not working, please
 3¦
 4¦  press all of the following that apply:
 5¦
 6¦
 7¦           1     A full-time homemaker
 8¦
 9¦           2     A Student
10¦
11¦           3     Temporarily unemployed
12¦
13¦           4     Retired
14¦
15¦           5     Other
16¦
17¦
18¦         Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	237
6	REJ	227	232
7	COL	121	
8	COB	9	

Question Number 231

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If you are not working, please
 3¦
 4¦ press all of the following that apply:
 5¦
 6¦
 7¦          1     A full-time homemaker
 8¦
 9¦          2     A Student
10¦
11¦          3     Temporarily unemployed
12¦
13¦          4     Retired
14¦
15¦          5     Other
16¦
17¦
18¦        Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	237
6	REJ	227	232
7	COL	121	
8	COB	9	

Question Number 232

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If you are not working, please
 3¦
 4¦ press all of the following that apply:
 5¦
 6¦
 7¦           1     A full-time homemaker
 8¦
 9¦           2     A Student
10¦
11¦           3     Temporarily unemployed
12¦
13¦           4     Retired
14¦
15¦           5     Other
16¦
17¦
18¦         Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	237
6	REJ	227	232
7	COL	121	
8	COB	9	

Question Number 233

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If you are not working, please
 3¦
 4¦  press all of the following that apply:
 5¦
 6¦
 7¦           1     A full-time homemaker
 8¦
 9¦           2     A Student
10¦
11¦           3     Temporarily unemployed
12¦
13¦           4     Retired
14¦
15¦           5     Other
16¦
17¦
18¦         Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	237
6	REJ	227	232
7	COL	121	
8	COB	9	

Question Number 237

```
    ----+----1----+----2----+----3----+----4
  1|
  2|      Please indicate by pressing the
  3|     appropriate letter, which of the
  4|   following best describes what you do
  5|  (or what you did when you were working)
  6|
  7|         a  Professional worker
  8|         b  Technical worker
  9|         c  Farmer/farm worker
 10|         d  Clerical Worker
 11|         e  Manager, offical, proprietor
 12|         f  Sales worker
 13|         g  Craftsman/foreman
 14|         h  Service worker
 15|         i  Farm laborer
 16|         j  Other laborer
 17|         k  Other
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	51	
2	RNG	10	20
3	HLA	7	1
4	OTH	20	
5	COL	121	
6	COB	9	

Question Number 238

```
    ----+----1----+----2----+----3----+----4
  1|
  2|
  3|     What is the highest grade or year
  4|
  5|     of school your spouse completed.
  6|
  7|
  8|          1 Elementary:  0 - 4 years
  9|          2 Elementary:  5 - 8 years
 10|          3 High School: 1 - 3 years
 11|          4 High School: 4 years
 12|          5 College:     1 - 3 Years
 13|          6 College:     4 years (Degree)
 14|          7 College:     5 or more years
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	JIF	222	1	249		
2	JIF	222	4	249		
3	JIF	222	5	249		
4	GET	48				
5	CLR	3	5			
6	GET	52	2	4	3	
7	RNG	7				
8	HLA	8	1			
9	COL	26				
10	COB	10				

Question Number 239

```
    ----+----1----+----2----+----3----+----4
  1|
  2|
  3|     Is your spouse employed for pay,
  4|
  5|      either, part-time or full-time?
  6|
  7|
  8|           1     Yes, full-time
  9|
 10|           2     Yes, part-time
 11|
 12|           3     No
 13|
 14|
 15|
 16|
 17|
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	GET	49				
2	CLR	3	5			
3	GET	53	2	4	3	
4	RNG	3				
5	HLA	8	2			
6	SKP	1	247			
7	SKP	2	247			
8	COL	10				
9	COB	10				

Question Number 240

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If your spouse is not working,
 3¦
 4¦        please press all that apply:
 5¦
 6¦
 7¦            1     A full-time homemaker
 8¦
 9¦            2     A Student
10¦
11¦            3     Temporarily unemployed
12¦
13¦            4     Retired
14¦
15¦            5     Other
16¦
17¦
18¦          Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	50			
2	CLR	2	4		
3	GET	54	2	4	2
4	RNG	6			
5	HLA	7	2		
6	DLA				
7	OTH	5			
8	COL	9			
9	COB	9			

Question Number 241

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If your spouse is not working,
 3¦
 4¦        please press all that apply:
 5¦
 6¦
 7¦            1     A full-time homemaker
 8¦
 9¦            2     A Student
10¦
11¦            3     Temporarily unemployed
12¦
13¦            4     Retired
14¦
15¦            5     Other
16¦
17¦
18¦          Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	248
6	REJ	240	244
7	COL	9	
8	COB	9	

Question Number 242

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If your spouse is not working,
 3¦
 4¦        please press all that apply:
 5¦
 6¦
 7¦            1     A full-time homemaker
 8¦
 9¦            2     A Student
10¦
11¦            3     Temporarily unemployed
12¦
13¦            4     Retired
14¦
15¦            5     Other
16¦
17¦
18¦          Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	248
6	REJ	240	244
7	COL	9	
8	COB	9	

Question Number 243

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦      If your spouse is not working,
 3¦
 4¦       please press all that apply:
 5¦
 6¦
 7¦           1     A full-time homemaker
 8¦
 9¦           2     A Student
10¦
11¦           3     Temporarily unemployed
12¦
13¦           4     Retired
14¦
15¦           5     Other
16¦
17¦
18¦         Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	248
6	REJ	240	244
7	COL	9	
8	COB	9	

Question Number 244

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       If your spouse is not working,
 3¦
 4¦        please press all that apply:
 5¦
 6¦
 7¦            1     A full-time homemaker
 8¦
 9¦            2     A Student
10¦
11¦            3     Temporarily unemployed
12¦
13¦            4     Retired
14¦
15¦            5     Other
16¦
17¦
18¦          Press 6 when no more apply.
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	248
6	REJ	240	244
7	COL	9	
8	COB	9	

Question Number 245

```
    ----+----1----+----2----+----3----+----4
  1|
  2|      If your spouse is not working,
  3|
  4|       please press all that apply:
  5|
  6|
  7|           1     A full-time homemaker
  8|
  9|           2     A Student
 10|
 11|           3     Temporarily unemployed
 12|
 13|           4     Retired
 14|
 15|           5     Other
 16|
 17|
 18|         Press 6 when no more apply.
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

1	RNG	6	
2	HLA	7	2
3	DLA		
4	OTH	5	
5	SKP	6	248
6	REJ	240	244
7	COL	9	
8	COB	9	

Question Number 248

```
    ----+----1----+----2----+----3----+----4
  1|
  2|      Please indicate which of these
  3|   categories comes closest to what your
  4|    spouse does or what your spouse did
  5|       when your spouse was working.
  6|
  7|          a  Professional worker
  8|          b  Technical worker
  9|          c  Farmer/farm worker
 10|          d  Clerical Worker
 11|          e  Manager, offical, proprietor
 12|          f  Sales worker
 13|          g  Craftsman/foreman
 14|          h  Service worker
 15|          i  Farm laborer
 16|          j  Other laborer
 17|          k  Other
 18|
 19|
 20|
 21|
 22|
 23|
 24|
 25|
    ----+----1----+----2----+----3----+----4
```

```
1  GET   51
2  CLR    2     5
3  GET   55     3     6     2
4  RNG   10    20
5  HLA    7     1
6  OTH   20
7  COL   10
8  COB   10
```

Question Number 249

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦       Please indicate which of the
 3¦     following categories describes your
 4¦     total family income, before taxes,
 5¦                 in 1986.
 6¦
 7¦
 8¦           1. less than $5,000
 9¦           2. $5,000 to $7499
10¦           3. $7,500 to $9,999
11¦           4. $10,000 to $14,999
12¦           5. $15,000 to $19,999
13¦           6. $20,000 to $24,999
14¦           7. $25,000 to $34,999
15¦           8. $35,000 to $49,999
16¦           9. $50,000 or more
17¦
18¦
19¦
20¦
21¦
22¦
23¦
24¦
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	56	
2	RNG	9	
3	HLA	8	1
4	COL	11	
5	COB	11	
6	INO		

Question Number 250

```
    ----+----1----+----2----+----3----+----4
 1¦
 2¦ ****************************************
 3¦ ****************************************
 4¦
 5¦
 6¦
 7¦
 8¦
 9¦           Thank you very much for
10¦
11¦        participating in our survey.
12¦
13¦     Please let the attendant know you
14¦
15¦                 are finished.
16¦
17¦
18¦             Please press ENTER.
19¦
20¦
21¦
22¦
23¦ ****************************************
24¦ ************************************
25¦
    ----+----1----+----2----+----3----+----4
```

1	GET	57
2	NOA	9
3	COL	47
4	COB	15

Appendix I

Graphic Production Techniques for the Soup Can Labels

The principal investigator employed a graphics house on the University of Utah campus to produce realistic facsimiles of the various labels involved in the study. The initial problem presented to the designer/artist was to ascertain the feasibility of reproducing the entire label for both the Red and White as well as the Campbell's soup brands. Due to the inherent design complexities of the Campbell's soup label plus time and financial constraints, it was determined that reproduction of the entire label was not a realistic solution. The alternative method was to produce a sectional label to replace the original nutrient information on the existing label.

Replacement could be accomplished either through insertion, removing the existing information and replacing it with the new sectional label, or topical application, covering up the existing material with the sectional label. The former solution presented too wide a margin for error. Adoption of the topical application method required discovering a production procedure conducive to printing on self-adhesive paper that would be opaque enough to mask the existing label section but would not be visibly demarcated from the surface. Once an appropriate reproduction procedure was determined, color and type matching were isolated as critical parameters to lend continuity to the entire label and thus not distract or prejudice the test market. Once these methods and parameters had been established, the artist decided to retain the majority of the production to keep a rein on quality control, time-lines, and finances.

After surveying the project for design and content it became apparent that the nominal amount of certain nutrient measurements made it impossible to initially produce the labels, especially the graphical formats, at final size. The artist produced masters for each of the 17 types of labels at approximately 200% of actual size. This determined the specification direction for typesetting. The size determination for the sectional label was dictated by the Campbell's soup brand, which contained the most information in the least amount of space. The maximum size of the sectional label was 2 1/4 inches horizontally by 1 11/16 inches vertically.

The minimum size was 1 11/16 inches horizontally by 1 9/16 inches vertically. From this information the artist determined the column width for typesetting of the master labels to be 24 picas. The column length was dependent upon the maximum number of lines, the available space, linage, and title/subtitle spacing. These figures in turn determined the type size to be within the range of 11 to 12 points and the leading to be one point for the master labels.

Typography Specifications

The text was prepared by the principle investigator, specified for typesetting by the artists and sent to Twin Typographers in Salt Lake City, Utah. The type specifications were:

Column Width: Overall column width - 24 picas

Titles: 12/13 point, Helvetica Bold Condensed, all capitals, flush left or centered as specified per

format, column width - 24 picas.

Subtitle: 11/12 point, Helvetica Medium Condensed, capitals and lower case, left and right justified to 12 picas (center), column width - 12 picas.

Body Copy: 11/12 point, Helvetica Medium Condensed, all capitals, flush left, ragged right, column width specified for format. [Labels in the nutrient density and traditional formats ran 24 picas; labels in the graphical format ran a maximum of 12 picas in column width.]

Percentages: In the graphical formats the percentage subheads started at 12 picas and ran to 24 picas with equidistant spacing between each value, i.e., left and right justified.

[Note: Helvetica is the name of a sans serif type face.]

Production Methods

Once the type was returned to the graphics studio, the artist began the production of the masters for each label. For the graphical format a super-master was created for the label containing the maximum information. Linage and the percentage bars were inked in. Linage dots, those dots separating a nutrient from its numerical value, were applied using either a transfer sheet, Letraset Dot Rules #556 83-104, or tape transfers, Letraline Border Design 213 1/8 X 324 3.17 mm. Once the super-master was produced, four photomechanical transfers (PMTs) were taken at 100 percent.

Three of the PMTs were modified to provide masters for the smaller labels within the graphical format. The masters for the traditional and nutrient density formats were constructed individually. All of the masters were produced on sheets of 8 1/2 inches X 11 inches 10 point, King James, a cast-coated paper stock commonly known as kromecote.

All of the masters were ganged, grouped on a copy camera, four up and 30 PMTs were taken at a 49 percent reduction of original size to produce a 119 labels at final size.

An extra set of labels was produced in case of damage during the production process. The labels were then pasted-up and butted on separate mechanicals dependent on the color process for each brand.

The Red and White brand label consisted of blue type on a white background. There were 30 of these labels, which took up an image area of 14 inches X 11 inches on a mechanical measuring 17 inches X 14 inches, thus leaving enough surround for the grippers. The "standard" Campbell's soup brand label consisted of white type reversed out of a red background. There were 30 of these labels, taking up an image area of 14 inches X 11 inches on a mechanical measuring 17 inches X 14 inches. The "highlighted" Campbell's soup brand label consisted of white type reversed out of a red background with yellow letters highlighting the pertinent information. There were 42 of these labels taking up an image area of 17 inches X 11 inches on a mechanical measuring 20 inches X 14 inches. The highlighted material was pasted-up on an acetate overlay that

aligned with the mechanical via registration marks. One hundred and two labels were pasted up to allow an overage of one set in case of damages during the application process.

Print Fabrication

The mechanicals were sent to Ramen Winegar Panorama Productions, a specialty printer in Salt Lake City, Utah. The specified method for printing was direct transfer on a 10 point, high gloss, permanent, Crack-and-Peel stock. The ink specifications were as follows:

Blue: PMS Reflex Blue

Yellow: PMS Yellow

Red: Mixed

These are all opaque inks.

Negatives were taken of each mechanical and the overlay. The red ink for the Campbell's soup labels, both standard and highlighted, was mixed, matched, applied to the paper, and sealed with a coat of lacquer. Then a photocoat, a light sensitive substance, was applied and the negative for the type was registered on top. The packet then was exposed to light. The paper was subsequently treated with solvents to remove the ink and lacquer from the exposed areas. The yellow highlight was added by exposure of the negative to a photocoat, ink was applied, and the paper was then treated with solvents to remove the excess yellow ink. Due to the opacity of the ink, registration was not a concern during this process. The Red and White brand labels received a direct photocoat

of the negative, ink was applied, and the excess was removed with solvents. This completed the printing process and the prints were allowed to dry.

Application

Once the sheets of labels were returned to the graphics house, the artist trimmed and applied them to the actual soup cans. Labels that measured less than the minimum size of the standing information were trimmed to minimum size plus a 32nd of an inch surround. Labels measuring minimum size or greater were trimmed to a 32nd of an inch of the image. The backs of the labels were removed and the labels, adhesive side down, were applied to the existing labels. The Campbell's soup brand labels were applied, burnished, and edged with a red felt-tipped marker to hide the white seam. The Red and White brand labels were applied and burnished.

The completed cans were organized into sets of 17, labeled, and delivered to the principal investigator.

Glossary Section

Burnish: A general term for smoothing down self-adhering letters, papers, and shading sheets.

Cast-coating: A process in which the paper is pressed against a heated, polished drum while the coating is in a highly plastic condition. Cast-coating gives the paper an exceptionally high gloss and smoothness similar to that of a glossy photograph.

Grippers: In printing, the mechanical "fingers" on the gripper bar that hold the paper onto the impression cylinder of the press during impression.

Leading: In photo-typesetting, the placement of space between lines of type; also called linespacing or film advance.

Mechanical: Camera-ready paste-up assembly of all type and design elements pasted on an artboard or illustration board in exact position and containing instructions, either in the margins or an overlay, for the platemaker.

(PMT) Pantone Matching System: Brand name for a widely used color-matching system.

(PMT) Photo-mechanical Transfer: Photomechanical papers manufactured by Eastman Kodak: Kodak PMT Negative Paper, for making enlarged or reduced copies in a process camera; Kodak PMT Receiver Paper, a chemically sensitive paper for making positive prints in a diffusion transfer process.

Pica: A typographic unit of measurement: 12 points = 1 pica (1/16 inches or 0.166 inches), and 6 picas = 1 inches (0.996 inches).

Point: A. Smallest typographical unit of measurement: 1

point = 1/12 pica = approximately 1.72 of an inch (0.01383 inches). B. A weight designation for paper stocks.

Sans Serif: Without serifs.

Serifs: The opening and closing cross-strokes in the letter forms of some typefaces. Sans serif type faces, as the name implies, do not have serifs but open and close with no curves or flourishes.

Definitions taken from: Production for the Graphic Designer, James Craig, Watson-Guptill Publications, New York, N. Y., 1979.

Appendix J

Instructions for Interviewers

There are four parts to the questionnaire. Part 1 is a conjoint analysis on vegetable beef soup and Part 2 is a conjoint analysis on nutrition label format. Part 3 is a regular questionnaire regarding shopping habits and behaviors. Part 4 contains questions about demographic information.

In order to run the questionnaire place the floppy disk in the A drive. Turn on the computer on the right hand side. Turn on the screen, with the switch on the right hand side of the screen. If the computer is already running and the A prompt is showing, insert the floppy disk, type Q and then return. This should bring up the questionnaire. If at any time you need to terminate a questionnaire press "control end." You may have to do this more than once depending upon where the respondent is in the questionnaire. If at any time there is a problem with a disk, please terminate the interview immediately and remove the disk. Make a note of this and go on to the next disk.

Please keep disks away from all heat and magnets. Please be very careful with them as they are quite fragile.

Please do not write on a disk with any pens or pencils. If you need to make a notation, please do so with a felt tip pen very lightly. When the disks are removed from the computer they need to be put in their sleeves and housed in the disk holder immediately to prevent damage and potential loss of data.

I have left three copies of master disks for you without automatic respondent numbers. These are only to be used only when those disks without automatic respondent numbers do not work. Master Disk 1 should be started with number 500, Master Disk 2 start with 600 and Master Disk 3 with 700. Respondent numbers will have to be put in manually. The disk will tell you how many respondents are on it. Do not put any more than 20 on one disk.

Should you need to reach me please call the following numbers:

1. 581-8240 University of Utah, my direct line.
2. 581-6730, University of Utah, Jonell Murray, Executive Secretary.
3. 278-4212, Home

You can also reach me by pager which I will have on at all times. Please see the attached sheet of instructions.

Calling Instructions

Display Paging System

Step 1: From a touch tone telephone, dial the security access telephone number "532-3700."

Step 2: Wait thru ringing until hearing single beep tone, then enter "4 digit I.D. Number" of the person you want to reach. 9030

Step 3: Wait thru the second ringing cycle until hearing 3 quick beep tones, then during a 12 second interval enter "telephone number' to be sent to display pager.

Step 4: After entering last digit of number push pound sign "#" (located to the right of 0/operator button) on telephone to send message. Note, you will hear a final confirmation tone at this time to let you know your page was processed correctly.

Appendix K

Screener Form for Nutrition Labeling Project

Date _____

Screener form for Nutrition Labeling Project

1. Would you like to participate in a market research project? It will take 30 - 45 minutes and you will be compensated $3.00 for your time.

_____ Yes

_____ No (Please note sex) and ask the following information)

1. Male _____

2. Female _____

If you cannot participate:

3. Would you please tell me your occupation?

_____

4. How many years of school have you had? _____

6 7 8 9 10 11 12 13 14 15 16 17 18

5. Do you read nutrition labels?

_____ Yes _____ No

Appendix L

Instructions for Interviewer to Give to Participants

Thank you for agreeing to participate in our survey. This is a computerized interview. All instructions necessary to answer the questions are written on the computer; however, I would like to point out a few things to you.

1. You can answer all questions by pressing the number keys one to nine and letter keys A-W. (Please show these to the participant.) Additionally, you may need to use the arrow keys for a graphic scale. (Point out the left and right arrow keys.) Sometimes you will need to use the entire key which is here. (Point out the enter key.)

2. In order to go back to a former question or to change an answer press X.

There are four parts to this study. The first two parts require you to look at exhibits. The instructions in Part I ask you to see exhibits A-E. When asked to refer to these exhibits, please look only at the nutrition label panel. (Point out nutrition label panel.)

In part two, about half of the labels which you will look at will have some yellow print. In those exhibits, specifically exhibits four through band seven, through 10, please only look at this yellow portion. This is the only section the question is referring to.

*Please note as per our training session, that consumers will need the first two parts explained to them where they make a trade-off decision between descriptions of two products.

Appendix M

Nonrespondent Data

Table 48. Sex of nonrespondents. (N = 123)

Sex	Number	(%)
Males	14	11.3
Females	107	87.0
No Answer	2	1.6

Table 49. Label reading of nonrespondents. (N = 123)

Label Reader	Number	(%)
Yes	104	84.6
No	19	15.4

Table 50. Education of nonrespondents. (N = 123)

Years of School	Frequency	(%)
Elementary: 0-4	0	0
Elementary: 5-8	0	0
High School: 1-3	2	1.6
High School: 4	24	19.5
College: 1-3	47	38.2
College: 4	31	25.2
College: 5 or more	19	15.4

Table 51. Occupation of nonrespondents. (N = 123)

Occupation	Frequency	(%)
Professional Worker	38	24.4
Technical Worker	19	15.4
Clerical Worker	15	12.2
Manager	5	4.0
Sales	3	2.4
Craftsman, Foreman	0	0
Other	9	7.3
Student	10	8.1
Housewife	28	22.8
No response	3	2.4

Appendix N

Socioeconomic and Demographic Data on Respondents

Table 52. Race distribution of respondents. (N = 252)

Race/Ethnic Group	Value	Frequency	Percent	Cumulative Percent
White	1	227	90.1	90.1
Black	2	9	3.6	93.7
Asian, Pacific Islander	3	2	.8	94.4
Hispanic	4	2	.8	95.2
Native American Indian	5	6	2.4	97.6
Other	6	6	2.4	100.0
TOTAL		252	100.0	100.0
Mean	1.30			
Std Err	.06			
Std Dev	1.02			
Median	1.00			

Table 53. Marital status of respondents. (N = 252)

Marital Status	Value	Frequency	Percent	Cumulative Percent
Single	1	117	46.4	46.4
Married, not separated	2	107	42.5	88.9
Separated	3	4	1.6	90.5
Widowed	4	4	1.6	92.1
Divorced	5	20	7.9	100.0
	TOTAL	252	100.0	100.0

Mean	1.80
Std Err	.07
Std Dev	1.11
Median	2.00

Table 54. Number of children living with respondents. (N = 252)

Number of Children	Value	Frequency	Percent	Valid Percent	Cumulative Percent
1	1	41	16.3	48.8	48.8
2	2	15	6.0	17.9	66.7
3	3	16	6.3	19.0	85.7
4	4	3	1.2	3.6	89.3
5+	5	9	3.6	10.7	100.0
	0	168	66.7	MISSING*	
	TOTAL	252	100.0	100.0	

Mean	2.095
Std Err	.146
Std Dev	1.341
Median	2.000

* Those without children.

Table 55. Education of respondents. (N = 252)

Years of School	Value	Frequency	Percent	Cumulative Percent
Elementary: 0-4	1	2	.8	.8
5-8	2	4	1.6	2.4
High School 1-3	3	11	4.4	6.7
High School 4	4	61	24.2	31.0
College 1-3	5	96	38.1	69.0
College: 4	6	39	15.5	84.5
College: 5 or more	7	39	15.5	100.0
	TOTAL	252	100.0	

Mean	5.056
Std Err	.076
Std Dev	1.210
Median	5.000

Table 56. Respondent employment. (N = 252)

Value Label	Value	Frequency	Percent	Cumulative Percent
Full-Time	1	140	55.6	55.6
Part-Time	2	43	17.1	72.6
No	3	69	27.4	100.0
	TOTAL	252	100.0	
Mean	1.718			
Std Err	.055			
Std Dev	.868			
Median	1.000			

Table 57. Occupation of respondent when employed. (N = 252)

Value Label	Value	Frequency	Percent	Cumulative Percent
Professional Worker	10	78	31.0	31.0
Technical Worker	11	19	7.5	38.5
Farmer/Farm Worker	12	1	.4	38.9
Clerical Worker	13	38	15.1	54.0
Manager, Official Proprieter	14	15	6.0	59.9
Sales Worker	15	29	11.5	71.4
Craftsman/Foreman	16	6	2.4	73.8
Service Worker	17	25	9.9	83.7
Farm Laborer	19	12	4.8	88.5
Other Laborer	20	29	11.5	100.0
	TOTALS	252	100.0	100.0

Mean	13.766
Std Err	.220
Std Dev	3.497
Median	13.000

Table 58. Years of spouse education. (N = 252)

Education	Value	Frequency	Percent	Valid Percent	Cumulative Percent
Elementary: 0-4	1	2	.8	1.8	1.8
High School: 1-3 years	3	6	2.4	5.4	7.2
High School: 4 years	4	21	8.3	18.9	26.1
College: 1-3 years	5	46	18.3	41.4	67.6
College: 4 years	6	12	4.8	10.8	78.4
College: 5 or more years	7	24	9.5	21.6	100.0
	0	141	56.0	MISSING*	
	TOTAL	252	100.0	100.0	

Mean	5.171
Std Err	.122
Std Dev	1.285
Median	5.000

*Those without a spouse.

Table 59. Spouse employment. (N = 252)

Value Label	Value	Frequency	Percent	Valid Percent	Cumulative Percent
Yes, Full-Time	1	80	31.7	72.1	72.1
Yes, Part-Time	2	13	5.2	11.7	83.8
No	3	18	7.1	16.2	100.0
	0	141	56.0	MISSING*	
	TOTAL	252	100.0	100.0	

Mean	1.441
Std Err	.072
Std Dev	.759
Median	1.000

*Those without a spouse.

Table 60. Occupation of spouse when working. (N = 252)

Occupation	Value	Frequency	Percent	Valid Percent	Cumulative Percent
Professional Worker	10	45	17.9	39.8	39.8
Technical Worker	11	11	4.4	9.7	49.6
Clerical Worker	13	11	4.4	9.7	59.3
Manager, Official Proprietor	14	8	3.2	7.1	66.4
Sales Worker	15	5	2.0	4.4	70.8
Craftsman/Foreman	16	8	3.2	7.1	77.9
Service Worker	17	8	3.2	7.1	85.0
Other Laborer	19	5	2.0	4.4	89.4
Other	20	12	4.8	10.6	100.0
	0	139	55.2	MISSING*	
	TOTAL	252	100.0	100.0	

Mean	13.274
Std Err	.337
Std Dev	3.581
Median	13.000

*Those without a spouse.

Table 61. Age of respondents. (N = 252)

Years	Value	Frequency	Percent	Cumulative Percent
18 - 24	1	93	36.9	36.9
25 - 34	2	66	26.2	63.1
35 - 44	3	45	17.9	81.0
45 - 54	4	14	5.6	86.5
55 - 64	5	23	9.1	95.6
65 - 69	6	6	2.4	98.0
70 - 74	7	4	1.6	99.6
75 - 79	8	1	.4	100.0
	TOTAL	252	100.0	

Mean	2.393
Std Err	.097
Std Dev	1.538
Median	2.000

Table 62. Sex of respondents. (N = 252)

Sex	Value	Frequency	Percent	Cumulative Percent
Male	1	96	38.1	38.1
Female	2	156	61.9	100.0
	TOTAL	252	100.0	100.0
Mean	1.619			
Std Err	.031			
Std Dev	.487			
Median	2.000			

Table 63. Total family income of respondents. (N = 252)

Income	Value	Frequency	Percent	Cumulative Percent
Less than $5000	1	31	12.3	12.3
5999-7499	2	18	7.1	19.4
7500-9999	3	21	8.3	27.8
10000-14999	4	28	11.1	38.9
15000-19999	5	35	13.9	52.8
20000-24999	6	24	9.5	62.3
25000-34999	7	26	10.3	72.6
35000-49999	8	24	9.5	82.1
50000 or more	9	45	17.9	100.0
	TOTAL	252	100.0	

Mean	5.317
Std Err	.169
Std Dev	2.684
Median	5.000

Appendix O

Other Phase I and Phase II Data

Table 64. Three cluster solution of Phase II attribute utilities.#

(N = 178)

Attribute	Cluster 1 N = 101	Cluster 2 N = 23	Cluster 3 N = 54
Format			
Traditional	.1224	-.0377	-.1422
Graphical	.2168	.0650	.0433
Graphical Nutrient Density	.1344	.0303	-.1440
Load			
Some	-.0445	-.6208*	-.3558
More	.1555	.0328	-.0169
Most	.3624	.6458*	.1299
Expression			
Traditional	.1529	-.3776	-.2230
Absolute Numbers	.1171	.2414	-.1946
Percentages	.0971	-.4273	-.1078
Absolute Numbers and Percentages	.2642	.6406*	.2017
Order			
Traditional	.1118	-.2482	-.1779
Rearranged	.2039	.2867	.0160

Values are utilities.

* Primary variables defining clusters.

Table 65. Effects of consumer characteristics on usefulness of graphic nutrient density format. (N = 179)

Variables	Sum of Squares	DF	Mean Square	F	Significance
Main Effects	1.252	9	.139	1.448	.171
Education	.195	1	.195	2.032	.156
Income	1.164	8	.145	1.515	.155
2-Way					
Interactions	.153	3	.051	.531	.662
Education Income	.153	3	.051	.531	.662
Explained	1.405	12	.117	1.219	.274
Residual	15.943	166	.096		
Total	17.347	178	.097		

Table 66. Effects of consumer characteristics on the some information load in Phase I (N = 226) and Phase II. (N = 179)

	Phase I				Phase II			
Independent Variables	r	B	Beta	Significance	r	B	Beta	Significance
Knowledge	-.052	-2.4123E-03	-.04115	.5417	-.107	-5.3259E-03	-.10027	.1826
Education	-.036	-.03451	-.01971	.7713	-.027	-.01972	-.01222	.8714
Income	-.090	-.06907	-.08245	.2261	-.106	-.07159	-.09819	.1952
Constant		-.13061		.3077		-.07421		.5845
Adjusted R Square = -.00311					Adjusted R Square = .00468			
F = .76769					F = 1.27906			

Table 67. Effects of consumer characteristics on the some information load in Phase I using analysis of variance. (N = 226)

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main Effects	.403	4	.101	.601	.663
Education	.012	1	.012	.069	.793
Income	.247	1	.247	1.472	.226
Knowledge	.080	2	.040	.238	.788
2-Way Interactions	.929	5	.186	1.108	.357
Education. Income	.616	1	.616	3.671	.057
Education. Knowledge	.359	2	.180	1.070	.345
Income. Knowledge	.063	2	.032	.188	.829
Explained	1.332	9	.148	.882	.542
Residual	36.222	216	.168		
Total	37.553	225	.167		

Table 68. Effects of consumer characteristics on the some information load in Phase II using analysis of variance. (N = 179)

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main Effects	5.23	4	.131	1.028	.394
Education	.002	1	.002	.015	.904
Income	.197	1	.197	1.547	.215
Knowledge	.268	2	.134	1.054	.351
2-Way Interactions	.264	5	.053	.415	.838
Education. Income	.006	1	.006	.047	.829
Education. Knowledge	.263	2	.131	1.032	.359
Income. Knowledge	.011	2	.005	.042	.958
Explained	.787	9	.087	.687	.720
Residual	21.496	169	.127		
Total	22.283	178	.125		

Table 69. Effects of consumer characteristics on the most information load in Phase I (N = 226) and Phase II. (N = 179)

	Phase I				Phase II			
Independent Variables	r	B	Beta	Significance	r	B	Beta	Significance
Knowledge	.058	2.63697E-03	.04989	.4613	.074	3.83887E-03	.08263	.2754
Education	.018	.02265	.01435	.8309	-.029	-.04775	-.03381	.6536
Occupation	.064	.04415	.05776	.3923	-.069	-.05054	-.07849	.3004
Constant		.21690		.0631		.32318		.0078
Adjusted R Square = -.00660					Adjusted R Square = -.00443			
F = .50797					F = .73848			

Table 70. Effects of consumer characteristics on the most information load using analysis of variance in Phase I. (N = 226)

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main Effects	.240	4	.060	.436	.783
Education	.007	1	.007	.049	.826
Occupation	.101	1	.101	.732	.393
Knowledge	.106	2	.053	.385	.681
2-way Interactions	.521	5	.104	.785	.581
Education. Occupation	.137	1	.137	.998	.319
Education. Knowledge	.107	2	.054	.390	.677
Occupation Knowledge	.202	2	.101	.736	.480
3-way Interactions	.190	1	.190	1.378	.242
Education Occupation N.Knowledge	.190	1	.190	1.378	.242
Explained	.951	10	.095	.691	.73
Residual	29.574	15	.138		
Total	30.525	225	.136		

Table 71. Effects of consumer characteristics on the most information load using analysis of variance in Phase II. (N = 179)

Source of Variation	Sum of Square	DF	Mean Square	F	Significance
Main Effects	.675	4	.169	1.733	.145
Education	.027	1	.027	.281	.597
Occupation	.131	1	.131	1.351	.247
Knowledge	.577	2	.288	2.963	.054
2-Way Interactions	.119	5	.024	.245	.942
Education. Occupation	.057	1	.057	.586	.445
Education. Knowledge	.037	1	.019	.191	.826
Occupation. Knowledge	.029	2	.015	.150	.861
3-Way Interactions	.007	2	.004	.037	.964
Education Occupation Knowledge	.007	2	.004	.037	.964
Explained	.801	11	.073	.748	.691
Residual	16.247	167	.097		
Total	17.048	178	.096		

Table 72. Confirmatory discriminatory analysis of label readers.

(N = 252)

Actual Group	Number of Cases	Predicted Group Membership 0	1
Group 0 (Not Label Readers)	52	4(7.7%)	48(92.3%)
Group 1 (Label Reader)	200	1(.5%)	199(199.5%)

Percent of "grouped" cases correctly classified: 80.56%

Appendix P

Other Data

Table 73. Percentage of food shopping performed by the respondent.

Value Label	Coded Value	Frequency	Percent	Cumulative Percent
None 0%	1	2	.8	.8
	2	5	2.0	2.8
	4	4	1.6	4.4
	5	1	.4	4.8
	6	1	.4	5.2
	7	1	.4	5.6
	8	1	.4	6.0
	9	12	4.8	10.7
	11	2	.8	11.5
	12	2	.8	12.3
	13	2	.8	13.1
Half 50%	15	2	.8	13.9
	16	63	25.0	38.9
	18	3	1.2	40.1
	20	1	.4	40.5
	21	2	.8	41.3
	22	1	.4	41.7
	23	2	.8	42.5
	24	14	5.6	48.0
	25	3	1.2	49.2
	26	1	.4	49.6
	27	3	1.2	50.8

Table 73. Continued.

Value Label	Coded Value	Frequency	Percent	Cumulative Percent
	28	12	4.8	55.6
	29	11	4.4	59.9
	30	5	2.0	61.9
All/100%	31	96	38.1	100.0
TOTAL		252	100.0	

Mean	22.8
Std Err	.5
Std Dev	8.8
Median	27.0

Table 74. Years of food shopping by respondent as major food buyer.

Years of Food Shopping	Coded Value	Frequency	Percent	Cumulative Percent
Not a major food buyer	1	28	11.1	11.1
Less than one year	2	25	9.9	21.0
1-2	3	34	13.5	34.5
3-5	4	41	16.3	50.8
6-10	5	33	13.1	63.9
11-15	6	23	9.1	73.0
16-20	7	21	8.3	81.3
More than 20	8	47	18.7	100.0
TOTAL		252	100.0	100.0
Mean	4.6			
Std Err	.1			
Std Dev	2.3			
Median	4.0			

Table 75. Number of people for whom respondent purchased food.

Number of Persons	Coded Value	Frequency	Percent	Cumulative Percent
0	1	20	7.9	7.9
1	2	64	25.4	33.3
2	3	79	31.3	64.7
3	4	32	12.7	77.4
4	5	22	8.7	86.1
5	6	19	7.5	93.7
6 or more	7	16	6.3	100.0
TOTAL		252	100.0	100.0

Mean	3.4
Std Err	.1
Std Dev	1.6
Median	3.0

Table 76. Number of respondents with person(s) in household with special dietary needs.

Presence of Special Dietary Needs	Value	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	1	93	36.9	40.1	40.1
No	2	139	55.2	59.9	100.0
	0	20	7.9	MISSING*	
TOTAL		252	100.0	100.0	

Mean	1.60
Std Err	.03
Std Dev	.49
Median	2.00

*Missing indicates this question was skipped due to a specific answer to a previous question, i.e., respondent did not buy food for anyone.

Table 77. Attitude towards canned soup.

Attitude	Value	Frequency	Percent	Cumulative Percent
Extremely Negative	1	2	.8	.8
	2	1	.4	1.2
	3	1	.4	1.6
	4	1	.4	2.0
	5	1	.4	2.4
	7	3	1.2	3.6
	8	5	2.0	5.6
	9	2	.8	6.3
	10	1	.4	6.7
	11	3	1.2	7.9
	12	2	.8	8.7
	13	1	.4	9.1
	14	2	.8	9.9
Neutral	15	1	.4	10.3
	16	77	30.6	40.9
	17	5	2.0	42.9
	18	5	2.0	44.8
	19	8	3.2	48.0
	20	7	2.8	50.8
	21	11	4.4	55.2
	22	10	4.0	59.1
	23	18	7.1	66.3

Table 77. Continued.

Attitude	Value	Frequency	Percent	Cumulative Percent
	24	11	4.4	70.6
	25	13	5.2	75.8
	26	5	2.0	77.8
	27	7	2.8	80.6
	28	5	2.0	82.5
	29	2	.8	83.3
	30	5	2.0	85.3
Extremely Positive	31	37	14.7	100.0
TOTAL		252	100.0	100.0
Mean 20.6				
Std Err .4				
Std Dev 6.9				
Median 20.0				

Table 78. Frequency of canned soup purchases.

Time Period	Value	Frequency	Percent	Cumulative Percent
Every Week	1	69	27.4	27.4
Every Other Week	2	65	25.8	53.2
Once A Month	3	64	25.4	78.6
Every Other Month	4	15	6.0	84.5
Three or Four Times Per Year	5	22	8.7	93.3
Once or Twice A Year	6	12	4.8	98.0
Never	7	5	2.0	100.0
TOTAL		252	100.0	100.0

Mean	2.7
Std Err	.1
Std Dev	1.5
Median	2.0

Table 79. Number of respondents who read nutrition information on a food product in the last month.

Label Reader	Value	Frequency	Percent
Yes	1	200	79.4
No	2	52	20.6
TOTAL		252	100.0
Mean	1.21		
Std Err	.03		
Std Dev	.41		
Median	1.00		

Table 80. Respondents familiar with Albertson's.

Value Label		Value	Frequency	Cumulative Percent
Yes		1	42	16.7
No		2	210	100.0
Mean	1.83			
Std Err	.02			
Std Dev	.37			
Median	2.00			

Table 81. Respondent self-rating of nutrition knowledge.

Value Label	Value	Frequency	Percent	Cumulative Percent
Not at all	1	6	2.4	2.4
knowledgeable	2	3	1.2	3.6
	3	2	.8	4.4
	5	3	1.2	5.6
	6	6	2.4	7.9
	7	3	1.2	9.1
	8	3	1.2	10.3
	9	4	1.6	11.9
	10	9	3.6	15.5
	11	6	2.4	17.9
	12	5	2.0	19.8
	13	4	1.6	21.4
	14	5	2.0	23.4
	15	1	.4	23.8
	16	89	35.3	59.1
	17	4	1.6	60.7
	18	8	3.2	63.9
	19	10	4.0	67.9
	20	9	3.6	71.4
	21	6	2.4	73.8
	22	8	3.2	77.0
	23	12	4.8	81.7
	24	6	2.4	84.1

Table 81. Continued.

Value Label	Value	Frequency	Percent	Cumulative Percent
	25	8	3.2	87.3
	26	6	2.4	89.7
	27	4	1.6	91.3
	28	2	.8	92.1
	29	3	1.2	93.3
Very knowledgeable	30	4	1.6	94.8
	31	13	5.2	100.0
TOTAL	252	100		

Mean	17.306
Std Err	.435
Std Dev	6.905
Median	16.000

VITA

CONSTANCE J. GEIGER, M.S., R.D., C.D.

Geiger, Constance Jane

Social Security Number:	165-40-1083
Birthdate:	June 8, 1953
Marital Status:	Married
Spouse:	Dan L. Chichester, M.D.
Health:	Good
Place of Birth:	Pittsburgh, Pennsylvania
Nationality:	United States Citizen
ADA Registration:	R 430901, Registered Dietitian, 1977
State License/Certification:	00242-4401-1, Certified Dietitian

EDUCATION

1988	Ph.D.	Doctoral candidate Nutrition and Food Sciences Utah State University.
1978	M.S.	Medical Dietetics The Ohio State University, Columbus, Ohio
1976 and	R.D.	Dietetic Internship - General with Clinical Food Service Management Emphasis The Medical College of Virginia Hospitals, Richmond, Virginia
1975	B.S. Cum Laude	Foods and Nutrition and Food Service Management The University of North Carolina, Greensboro, North Carolina

ADDITIONAL COURSEWORK

Health Education 650R-1 Grantsmanship

PROFESSIONAL EXPERIENCE

7/86 - present	Director and Assistant Professor, Division of Foods and Nutrition, College of Health, University of Utah.
7/85 - 7/86	Assistant Professor, Division of Foods and Nutrition, College of Health, University of Utah.

4/85 - present	Medical Afffairs Consultant, The NutraSweet Company, Skokie, Illinois.
9/84 - 7/85	Associate Instructor, Division of Foods and Nutrition, College of Health, University of Utah.
8/84 - 12/84	Clinical Instructor, Coordinated Undergraduate Program in Medical Dietetics, College of Family Life, Utah State University.
9/84 - 7/85	Associate Instructor, Division of Foods and Nutrition, College of Health, University of Utah.
1/84 - 7/85	Research Assistantship, Dr. Bonita Wyse, Department of Nutrition and Food Science, Utah State University.
6/81 - 12/83	Associate Instructor, Division of Foods and Nutrition, College of Health, University of Utah.
3/78 - 4/81	Nutritionist and Research Associate, Nutrition Education and Clinical Nutrition, Department of Foods and Nutrition, Division of Scientific Affairs, The American Medical Association, Chicago, Illinois.
1/78 - 3/78	Kellogg Nutrition Resident, Dr. Claire Johnson and Dr. Charlette Gallagher, Department of Medical Dietetics, College of Medicine, The Ohio State University, Columbus, Ohio.
1/77 - 3/78	Consulting Dietitian in Private Practice with Kingsdale Gynecologic Associates, Dr. Bryan. Columbus, Ohio.
Summers 1974, 1975	Diet Technician and Diet Assistant, Shadyside Hospital, Department of Dietetics, Pittsburgh, Pennsylvania.

FELLOWSHIPS AND SCHOLARSHIPS

1984 - 1985	Research Assistantship; Department of Nutrition and Food Science, Utah State University.
1977	Advanced Allied Health Professions Traineeship, Ohio State University
1975	North Carolina Dietetic Association Outstanding Senior Scholarship Recipient

1971 - 1975 Pennsylvania Higher Education Award Association Scholarship Recipient

HONORS AND AWARDS

1988 Nominated for Who's Who of American Women
1986 Omicron Nu - Award of Excellence
1975 Stokely Van Camp Outstanding Senior Award for Excellence
1975 Golden Chain Award: for Outstanding Service, Leadership and Service
1974 Omicron Nu Honor Society

Graduate Students Supervised

Chair

Bonnie Wells Ranno - M.S., "Patterns of Food Supplement Use in the Elderly." Graduated Spring 1986.

Anne Morisette Pike - M.S., "The Effect of Calcium Intake, Parity, Lactation, Oral Contraceptive Agents and Caffeine Intake on Peak Adult Bone Mass in Adult Women." Graduated Winter 1987.

Joan E. Benson - M.S., "Nutritional Intake and Dance-Related Injury." Graduated Summer 1987.

Leisa Schneider Zarian - M.S., "Cost/Benefit Analysis of Nutrition Care in Phenylketonuria Patients." Graduated Summer 1987.

Elizabeth Young - M.S. Candidate, "The Use of Branched Chain Amino Acid Enriched Feedings in Thermally Injured Patients." Anticipated Graduation Summer 1988.

Cynthia M. Overturf - M.S., "The Relationship of Nutrient Intake of Pregnant Adolescents to the Development of Genitourinary Tract Infections." Transferred chair to Dr. Anne M. Smith, Winter 1987. Member of Supervisory Committee. (1987). Graduated Winter 1988.

William Rusho - M.S. Candidate, "The Effect of L-Carnitine on Fat Utilization During Total Parenteral Nutrition in Neonates." Anticipated Graduation Spring 1988.

Sheryl L. Bodily - M.S. Candidate, "Herbal Usage in Utah." Anticipated Graduation Winter 1988.

Patricia J. Hobbs - M.S. Candidate, "Measurement of Energy Expenditure in Children and Young Adults with Cystic Fibrosis." Anticipated Graduation Winter 1988.

Lorna Raty - M.S. Candidate, "Economic Analysis of Nutrition Services for Handicapped Children." Anticipated Graduation Spring 1988.

Committee Member

Dawn Aoki - M.S. Summer 1986, "Bone Mineral Content in Weight Bearing and Non-Weight Bearing Bones of Amenhorric Runners."

RESEARCH AND SCHOLARSHIP

Extramural Grants/Funding

1987 - Sawtooth, Inc. - $12,000 "Nutrition Labeling, Use of Adaptive Conjoint Analysis," Utah State University - Parent, C.R. Michael, Geiger, C. J., Wyse, B. W. (My proposal was the basis for this grant)

1987 - National Dairy Council - $1,750.00 - PI, Geiger, C. J. "Visiting Professorship in Nutrition."

1987 - Ross Laboratories - $20,000 - ($8,500 to Foods and Nutrition) "Comparison of Pulmocare with Medium and Low Fat Formulas for Night Time Enteral Feedings and Nutrition Supplementation of Cystic Fibrosis Patients." R. Kane, J. Raymond, P. Black and C. Geiger.

Intramural Grants

October 1987 - Dean's Research Incentive Funds - $2,000 "Nutrition Labeling." Geiger, C. J.

May 1985 - July 1987 - Biomedical Research Support Committee "Nutritional Intake and Dance - Related Injuries." $2,700.00 (Transferred from Dr. Gordon M. Wardlaw).

Manuscript Review

Journal of the American Medical Association - 1978 - 1981.
Journal of the American Dietetic Association - 1978 - 1981.

Publications

Dissertation - April 1988. Using Adaptive Conjoint Analysis and Market Simulations to Determine the Effect and Usefulness of Nutrition Label Information in Consumer Purchase Decisions.

Thesis - January 1978. A Content Study of the Nutrition Component of the Ohio State University Medical Curriculum.

A. Book Chapters

Geiger, C. J. "Nutrition in Health Care Delivery Systems." In Nutrition in Oral Health and Diseases. Eds. Robert L. Pollack, Ph.D. and Edward Kravitz, D.Sc. Lea and Febiger, 1985.

White, P. L. and Geiger, C. J. "Nutrition in the Medical Curriculum: An American Perspective." In Recent Advances in Clinical Nutrition Volume I. Eds. Alan N. Howard, M.D. and Ian McLean Baird, M.D. John Libbey and Company, Ltd.: London, 1981, p. 280-296.

B. Journal Publications

Ranno, B., Wardlaw, G., Geiger, C. J. Health and Lifestyle Characteristics of Elderly Women Who Overuse Vitamin and Mineral Supplements. (Accepted by the American Dietetic Association). In press. Anticipated January 1988.

Benson, J. E., Geiger, C. J., Eisenman, P. A., Wardlaw, G. M. Relationship Between Nutrient Intake, Body Mass Index, Menstruating Function and Ballet Injury. Submitted to the Journal of the American Dietetic Association, November 1987.

Invited Journal Publications

Geiger, C. J. "Activities of the Department of Foods and Nutrition of the American Medical Association." Connecticut Medicine. 43 (October 1979) p. 655-657. (Includes the results from the 1978 Survey of Nutrition Teaching in U.S.

Geiger, C. J. "Cariogenicity of Natural versus Refined Sugars." Journal of the American Medical Association 204: 2000, Oct. 27, 1978. (Question and Answer).

Government Testimony

Sammons, James H., M.D. American Medical Association, "Additional Material Submitted by Dr. Sammons: The Current Status of Nutrition in Medical Curricula: Changes Since the 1976 Survey." Nutrition Education in Medical Schools. Part I. Hearing Before the Subcommittee on Nutrition of the Committee on Agriculture, Nutrition and Forestry." U.S. Senate. U.S. Government Printing Office: September 20, 1978. p. 106-111. This was a result of my research, which I prepared for these hearings.)

Geiger, C. J. "Written Response to Questions by Senator Henry Bellmen Regarding Further Information on the 1978 Nutrition in Medical Education Survey." Nutrition in Medical Schools. Part II. Hearings Before the Subcommittee on Nutrition of the Committee on Agriculture, Nutrition and Forestry. U.S. Senate, U.S. Government Printing Office: Washington, D.C. January 30, 1979, p. 75-76.

C. Conference Proceedings/Book Chapters

White, P. L. and Geiger, C. J. "Nutrition Education: The American Medical Association Perspective." In National Workshop on Nutrition Education in Health Profession Schools. September 30 and October 1, 1981. Ed. Donna Watson, M.S., R.D. Department of Health and Human Services and Emory University School of Medicine, 1981, p. 43-49. (Reprinted from Recent Advances in Clinical Nutrition.)

Geiger, C. J. "Nutrition Education in Medicine: Available Resources for Curriculum Development and Nutrition Training in U.S. Medical Schools." In Curriculum Development in Applied Nutrition, First Conference. September 1980. Ed. Donna Watson, M.S., R.D. Department of Health and Human Services and Emory University School of Medicine, 1981, p. 70 - 76.

Geiger, C.J. "Nutritional Assessment of Hospitalized Patients." In Nutritional Assessment - Present Status, Future Directions and Prospects. Report of the Second Ross Conference on Medical Research. Ross Laboratories, Columbus, Ohio. (Reprinted from Clinical Nutrition in Health Care Facilities.)

Geiger, C. J. "Nutrition Assessment of Hospitalized Patients." In Clinical Nutrition in Health Care Facilities. (American Medical Association Survey of Nutritional Assessment Techniques) Eds. Willard A. Krehl, M.D. and N. Henry Moss, M.D. George F. Stickley Co., 1979.

D. Refereed Abstracts

Hobbs, P., Kane, R., Raymond, J., Geiger, C. Energy Needs In Cystic Fibrosis Patients. Submitted to the American Society of Parenteral and Enteral Nutrition. (Accepted October 1987), Las Vegas, Nevada. January 18, 1988.

Benson, J. E. Geiger, C. J., Eisenman, P.A., and Wardlaw, G. M. In ADA 1987 Annual Meeting Abstracts, Prospecting the 1980s. The American Dietetic Association, October 1987.

Ranno, B., Wardlaw, G. and Geiger, C. "Health and Lifestyle Characteristics of Elderly Women who Overuse Vitamin and Mineral Supplements." The American Dietetic Association Conference for Advanced Practice and Research, February 1987, Chicago, Illinois.

Invited Abstracts

Geiger, C. J. and Robinette, M. R. "Nutrition Education for Future Health Scientists: Challenges and Directions." In ADA 1986 Annual Meeting Abstracts, New Visions, New Ventures. The American Dietetic Association, October 1986, p. 30.

Geiger, C. J. "Nutrition Teaching in U.S. Medical Schools." In ADA 1982 Annual Meeting Abstracts, Networking Success: Design for Tomorrow. The American Dietetic Association. October 1982, p. 144-145.

Geiger, C. J. "The Current Status of Nutrition in Medical Education." In ADA 1979 Annual Meeting Abstracts, Prospecting the 1980s. The American Dietetic Association, October 1979, p. 59.

Submitted Abstracts

Overturf, C. M., Smith, A. M., Engelbert-Fenton, K.A., Elster, A.B. and Geiger, C. J. "Nutrient Intake and Development of Genitourinary Tract Infections in Pregnant Adolescents." Federation of American Societies of Experimental Biology Annual Meeting. May 1988, Las Vegas Nevada (Submitted December 1987).

Poster

Hobbs, P. J., Kane, R.E., Raymond, J. L. and Geiger, C. J. "Energy Expenditure in Children and Young Adults with Cystic Fibrosis." Utah Dietetic Association Annual Meeting. Salt Lake City, Utah. April 1986.

Selected Presentations

Geiger, C. J. "The Effect of Graphic Nutrition Information on Consumer Purchase Decisions." Leading Edge Outreach Conference in Nutrition Education: Linking Research and Practice. National Dairy Promotion and Research Board. Utah Dairy Council. University Park Hotel, University of Utah, January 20, 1988.

Geiger, C. J. "Evaluation of Weight Loss Programs" American Heart Association Annual Utah Scientific Sessions. Friday, April 3, 1987.

Geiger, C. J. "Update of Current Weight Loss Programs and Supplements." Seventh Annual Nutrition in Contemporary Medicine Symposium. Park City, Utah. March 20, 1987

Geiger, C. J. "Nutrition Misinformation: Facts, Fallacies and Marketing Strategies." Granite School District Teachers. Salt Lake City, Utah. February 17, 1987.

Geiger, C. J. "Nutrition Education for Future Health Scientists: Challenges and Directions." American Dietetic Association Annual Meeting. Las Vegas, Nevada. October, 1986.

Geiger, C. J. "Nutrition Labeling: Marketing Research to Meet Consumer Needs. New Frontiers in Dietetics." Ohio State University, Columbus, Ohio. September 12, 1986.

Geiger, C. J. "Marketing of Nutrition Misinformation: Vitamins, Minerals, Herbal and Protein Supplements." Health Education Association of Utah Annual Meeting. Snowbird, Utah. August 6, 1986.

Geiger, C. J. Moderator. Panel 4. "Thought for Food." Utah Women's Well Care Conference. Salt Lake City, Utah. May 9, 1986.

Geiger, C. J. "Combating Unproven Health Practices." Sixth Annual Nutrition in Contemporary Medicine Symposium. Park City, Utah. March 19, 1986.

Geiger, C. J. "Food and Nutrition Misinformation: Fad Diets, Nutrient Supplements and Herbal Remedies." Utah State Department of Health Annual State Policy and Procedures Workshop, Salt Lake City, Utah. October 17, 1985.

Geiger, C. J. "Nutrition and Public Policy." Honor's Health Class - G. Braza, February, 1986.

Geiger, C. J. "Energy Balance." The Newcomer's Club of Salt Lake. Salt Lake City, Utah. June 12, 1984.

Geiger, C. J. "Obesity and Fad Diets." Utah State University, Department of Nutrition and Food Science. Logan, Utah. November 1983.

Geiger, C. J. "Update on Clinical Nutrition Controversies." The Utah Dietetic Association Annual Meeting. Salt Lake City, Utah. April 28, 1983.

Geiger, C. J. "Progress in Nutrition Teaching in Medical Education." University of Utah School of Medicine. Salt Lake City, Utah. February 28, 1983.

Geiger, C. J. "Nutrition Teaching in U.S. Medical Schools: The Accreditation Boards." The American Dietetic Association Annual Meeting. San Antonio, Texas. October 20, 1982.

Geiger, C. J. Moderator and Presiding Officer. "Nutrition in the Medical and Dental Curricula." Dietetic Practice Group Session: Dietitians in Medical and Dental Education. The American Dietetic Association Annual Meeting. San Antonio, Texas. October 20, 1982.

Geiger, C. J. "Current Controversies in Coronary Artery Disease: Coping with Uncertainties about Fats and Cholesterol." The Institute of Food Technologists Annual Meeting. Las Vegas, Nevada. June, 1982.

Geiger, C. J. Moderator. "Nutrition Policies and Nutrition Education." The American Dietetic Association Annual Meeting. San Antonio, Texas. October 20, 1982.

Geiger, C. J. "The Role of the Department of Foods and Nutrition of the American Medical Association." Rush University, College of Health Sciences, Section of Clinical Nutrition. Chicago, Illinois. November 16, 1980.

Geiger, C. J. "Main Sources of Calcium/Phosphorus in the Diet: Vegetables and Fruits." Calcium/Phosphorus Workshop, Department of Foods and Nutrition of the American Medical Association. The Drake Oakbrook. Oakbrook, Illinois. November 6, 1980.

Geiger, C. J. "Update: Nutrition in Medical Education." The American Dietetic Association Annual Meeting. Atlanta, Georgia. October 8, 1980.

Geiger, C. J. "Nutrition Education in Medicine - AMA's Viewpoint." Curriculum Development in Applied Nutrition: First Annual Conference, The Department of Health and Human Services and Emory University Medical School. Atlanta, Georgia. September 8, 1980.

Geiger, C. J. "Current Concepts in Nutrition." MacNeal Hospital, Family Practice Residency Program. Oak Park, Illinois. May 16, 1980.

Geiger, C. J. "Conventional and Unconventional Food Habits." Chicago Medical School. Chicago, Illinois. February 8, 1980.

Geiger, C. J. "The Current Status of Nutrition in Medical Education and the Government's Involvement." The American Dietetic Association Annual Meeting. Las Vegas, Nevada. october 24, 1979.

Geiger, C. J. Moderator and Presiding Officer: Dietetic Practice Group Session: Dietetics in Medical and Dental Education. The American Dietetic Association Annual Meeting, Las Vegas, Nevada. October 24, 1979.

White, P. L. and Geiger, C. J. "Food for Fitness." AMA Auxiliary's Leadership Conference, Annual Meeting. Chicago, Illinois. October 9, 1979.

Geiger, C. J. "Nutritional Assessment of Hospitalized Patients." Ross Laboratories Second Medical Nutrition Research Conference: Nutritional Assessment - Present Status, Future Directions and Prospects." Santa Fe, New Mexico. September 27, 1979.

Montandon, C. and Geiger, C. J. Moderators: "Nutritional Assessment Techniques: Use and Implementation in Medical Education." American College of Nutrition Annual Meeting. Council on Medical Education. St. Louis, Missouri. June 8, 1979.

Geiger, C. J. "Obesity, Fad Diets, and How to Eat Nutritiously in Fast Food Restaurants." Loyola Medical School. Chicago, Illinois. May 14, 1979.

Geiger, C. J. "The Dynamic Field of Dietetics and Job Opportunities." East Carolina University, School of Home Economics. Greenville, North Carolina. April 2, 1979.

Geiger, C. J. "Current Status of Nutritional Assessment in the United States." Academy of Sciences at Philadelphia. Philadelphia, Pennsylvania. December 13, 1979.

White, P. L. Young, E. A. and Geiger, C. J. Moderators: "Medical Nutrition Education Workshop." Department of Foods and Nutrition of the American Medical Association. Chicago, Illinois. November 7, 1978.

Geiger, C. J. "Nutrition Education - Whose Responsibility?" The American Association of University Women. Annual Regional Meeting. Elmhurst, Illinois. October 28, 1978.

White, P. L., Long, J., Crocco, S. and Geiger, C. J. "Chewing the Fat: A Rap Session." American Medical Association Physician Regional Seminar. Portsmouth New Hampshire. September 29, 1978.

Geiger, C. J. "Current Concerns in Nutrition: Feeding the Developmentally Retarded Child." Chicago Reed Center. Chicago, Illinois. August 9, 1978.

Geiger, C. J. "A Nutritional Content Study of the Ohio State University Undergraduate Medical School Curriculum." American College of Nutrition Annual Meeting. Minneapolis, Minnesota. June 1, 1978.

UNIVERSITY, PROFESSIONAL AND PUBLIC SERVICE

College Committees

Dean's Advisory Council - 1985 to present.
Division Representative for Well Care - 1985 to present.
Curriculum Committee - 1985 to present.
Tenured Faculty Review Committee - 1985 to present.
Differentiated Pay Committee - 1985 to present.
Health, Fitness and Lifestyle Management Curriculum Update - 1985 - 1986.
Division Representative for the Kellogg Grant - 1986 to 1987.

Division of Foods and Nutrition

Division Director - July 1986 to present.
Accreditation Coordinator to 1987 - present.
Curriculum Coordinator - July 1985 to July 1986.

Director, Graduate Studies - 1985 to present.
Faculty Advisor - Student Advisory Committee - 1984 to 1987.
- Omicron Nu Honor Society - July 1986 to present.
Assistant Faculty Advisor - Omicron Nu Honor Society - July 1985 - July 1986.
Curriculum Committee - 1983 to present.
Clinical Coordinator - July 1985 - July 1986.
Plan IV Representative to the American Dietetic Association - Spring 1985 to present.
Chairman - Search Committee - Assistant Professor/Nutrition Scientist Position 1985 - 1986.
Chairman - Search Committee - Assistant Professor/Food Service Management Position 1985 - 1986.
Coordinator for Consultant Visit (Dr. Sachiko T. St. Jeor) - Autumn 1985.
Coordinator/Search Committee - Division Director Position - Winter 1986.
Member - 8th Annual Nutrition in Contemporary Medicine Planning Committee - 1986 - 1987.

PROFESSIONAL ORGANIZATIONS - MEMBERSHIP

The American Dietetic Association, 1975 to present.
The American Society for Parenteral and Enteral Nutrition, 1978 to present.
The Society for Nutrition Today, 1978 - 1980, 1983 to present.
The Institute of Food Technologists - 1982 to present.
The Utah Dietetic Association - 1978 to present.
The Chicago Dietetic Association - 1978 - 1981.
The Chicago Nutrition Association - 1978 - 1981.
The Columbus Dietetic Association - 1976 - 1978.
The Richmond Dietetic Association - 1975 - 1976.
Omicron Nu - 1974 to present.

PROFESSIONAL ORGANIZATIONS: OFFICES AND POSITIONS HELD

The American Dietetic Association, 1975 to present

Chairman, National Dietetic Practice Group - Dietitians in Medical and Dental Education - 1979 - 1982.
Chairman - Program for National ADA Meeting, 1979, 1980, 1981-1982.

Advisory Committee on the Revision of the Dietetic Registration Exam - 1979.

Advisory Committee Council on Practice - 1979 - 1982.

Dietitians in Business and Industry - Newsletter Committee - 1980 - 1981.

Dietetic Educators of Practitioners - 1986 - present.

The Utah Dietetic Association

Past President - 1987 - 1988.
President - 1986 - 1987.
President - Elect - 1985 - 1986.
Public Relations Committee - 1983 to present.
Liscensure Committee.
Chairman - Education Development Committee 1984 - 1985
Member - 1982 - 1985.
Board of Directors - 1984 to present.
Awards Committee 1983 to present.
ADA Foundation Committee - 1984 - 1985.
Annual Meeting Committee - 1984 to present.
Awards Committee - 1983 to present.
Public Relations Comittee - 1983 - 1984.

Utah Nutrition Council

University of Utah Representative - 1985 to present.

Utah Hospital Association

Association Services Council - 1986 - 1987

The Utah Medical Association

Committee on Unproven Health Practices - 1985 to present.
Diet Evaluation Committee - 1987 to present.

The Utah Heart Association

Nutrition Committee - 1983 - 1985.
Chairman - Public Relations - 1984 - 1985.

Chicago Nutrition Association

Chairman - Community Nutrition Education Committee 1978 - 1980.
Chairman of the 1980 - "Target Nutrition - First Nutrition Fair for the City of Chicago."
Newsletter Committee - 1979 - 1980.
Board of Directors - 1980 - 1983.

American College of Nutrition

Council on Medical Education - Program Planning - 1978 - 1980.

Chicago Dietetic Association

Chairman, Tellers Committee - 1980.
Newsletter Committee - 1979 - 1980.

Columbus Dietetic Association

Dial-A-Dietitian Committee - 1977 - 1978.

American Home Economics Association (at the UNC-Greensboro)

Committee Chairman, Spring Honors Banquet - 1972 - 1973.
Committee Chairman, Senior Picnic - 1974 - 1975.
Committee Chairman, Service Committee - 1972 - 1973.

Omicron Nu at the UNC-Greensboro

Chairman, Spring Initiation Dinner - 1974 - 1975.

PUBLIC SERVICE

Community Services Council

Board of Directors - 1986 to present.

Governor's Council on Fitness and Health

Review Board for Media Pamphlet - 1986 to present.

Media

Channel 5. Special Presentation - "Obesity" November 1986 - 5 nights, Jeff Sanstack.

Channel 4. "Sugar Controversy Surrounding New FDA Report." Fred Fife, October 1986.

KTALK - Live Talk Show - February 18, 1986, Jim DeBacchus - Host (Nutrition Potpourri)

KTALK - Live Talk Show - January 24, 1986 - Jim DeBacchus, "Herbs and Weight - Loss Products."

"Lifelong Drinking Patterns Often Start in College." Interviewed by Marva Bickle. The Daily Utah Chronicle, Tuesday, November 5, 1985, Volume 95 #35.

KTALK - Live Talk Show, September 12, 1985, Jim DeBacchus, "Vitamins and Potential Overdoses."

KDYL - Live Talk Show - September 3, 1985, Diane Fitzgerald. "Food Safety."

Numerous appearances in print and electronic media in Chicago, Illinois.