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Consumer Use of Nutrition Labels on Packaged Meats

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Consumer perceptions of the importance of nutritional labeling of fresh meats and knowledge of nutritional terms have been presented in the *Journal of Food Distribution Research* (Piedra, et al 1995). This article presents follow up information on consumer reported uses of nutritional labels on packaged meats and the specific nutrients that the consumers check for on packaged meats. The results indicate that consumers use nutrition labels to check for desirable dietary components and to compare nutrient content among meats as well as to check for the presence of undesirable dietary components in packaged meats.

Consumers have a number of reasons for procuring and consuming foods of specific types. While some foods and beverages are consumed almost exclusively for the enjoyment associated with eating or drinking (eg. taste, aroma, texture), other foods are consumed for the presence or absence of particular nutrients. Nutritionists encourage consumption of food items that, as a group, provide the quantities of nutrients needed by an individual with specific physical characteristics and engaging in specific activities.

Individuals desiring to control their nutrient intake need information on the quantity of nutrients in their food. With respect to packaged (processed) meats, consumers may be interested in saturated fat, cholesterol, total calories, total carbohydrates, protein, sodium, total sugar and several vitamins and minerals. Nutrition labels on packaged meats now provide this type of information.

In November, 1990, the U.S. Congress mandated an extensive reform of food nutrition labels. Whereas nutrition labeling of packaged meats was previously voluntary, this legislation (Nutrition Labeling and Education Act (NLEA) PL 101-535) made the nutrition labeling of processed meat and poultry mandatory. The labeling program was implemented in early 1994. A February 1995 FMI survey indicates that food nutri-

tion label awareness had increased from 38 percent in 1994 to 43 percent in 1995. Of those who were aware of the Nutrition Facts label, 34 percent have stopped buying a product specifically because of something they read on the label (usually fat content). The survey did not discuss impact of labels on packaged meats and 1996 survey results are unavailable.

In an earlier article in this *Journal* (1995), the authors presented information on consumer awareness and use of both nutrition labels and terms for fresh meats. This paper presents the results of a mail survey of the use of nutrition labels on packaged meat products by households in Louisiana. The survey determined the number of households that regularly check nutrition labels on packaged meats, the importance these households placed on specific reasons for checking these labels, and the specific nutrients of interest. The purpose of the survey was to estimate consumer perceptions of the importance and use of nutrition labels in evaluating packaged meats in the meat counter.

Conceptual Framework

Consumer demand for a particular product is conditioned by the consumer's knowledge of and perceptions toward attributes of the product (Lancaster, 1966). This theory states that consumer utility is derived from the characteristics of the goods rather than from the goods themselves.

Economic theory (Zarkin and Anderson, 1992; Zarkin and Magat, 1991) suggests that consumers choose foods based on the demand relationship (income, own-price and price of

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substitutes, and tastes and preferences). Beliefs about the relationships between health and nutrient intakes, and beliefs regarding nutrient content also are important.

This study investigated the importance of three reasons for reading nutrition labels of packaged meats (read to note content of undesirable dietary components, to note content of desirable nutrient content or to compare nutrition contents of specific dietary components between particular meat products). Decisions to consume or not consume a particular product are influenced by the nutritional perceptions and knowledge of consumers. Capps and Schmitz (1991) suggest that consumer socioeconomic characteristics and availability of nutrition information affect consumer perceptions of the nutrient content of meats in time t (Bass, 1991; Menkhous et al. 1993; Byrne et al. 1991).

Previous research (Geiger, et al, 1991) indicates that shoppers tend to rate as most important those nutrients which they wish to avoid. Their research indicates that consumers check nutrition labels primarily to avoid purchasing products containing particular dietary components, such as calories, sodium, cholesterol and fat. Hence, this study hypothesized that Louisiana consumers check nutrition information on packaged meats and use it to detect the presence of undesirable dietary components. Education was hypothesized to increase consumer knowledge of and use of nutrition labels (Bass, 1991). Higher incomes were expected to allow consumers to improve their personal appearances and health by using labels to secure food products that promote these characteristics. The impacts of ethnic group and location on use of nutritional labels were unknown and could not be predicted.

Data and Procedures

The names and addresses of 3,080 randomly selected households in eight randomly selected parishes, four rural and four urban, were obtained from the Louisiana Department of Public Safety (motor vehicle registration division). Questions for this study were included as part of a larger pretested nutrition and labeling survey. A modified Dillman (1978) mail survey procedure was used. An initial cover letter, questionnaire and

business reply envelope were mailed to the 3,080 households in Spring 1994. A reminder postcard was mailed to all households one week later. A second letter, questionnaire and business reply envelope were mailed to all nonrespondents three weeks after the initial mailout. The questionnaires were numbered consecutively to insure identity and knowledge of household location. Respondents also provided selected socioeconomic data. A total of 730 useable responses were obtained (24.7 percent of the total mailout).

The responding households indicated whether they had purchased a packaged meat product within a week of the survey. They also ranked the importance (low, medium, high) of three reasons for reading nutrition labels of packaged meats: (1) read to identify undesirable nutrients in the product, (2) read to identify desirable nutrients in the product, and (3) read to compare nutritional content among different packaged meats. The households were also requested to identify the specific nutrients (dietary components) they checked on labels of packaged meats and to provide current demographic information (location, family income, educational attainment and ethnic grouping). Analysis of Variance (ANOVA) was used to estimate the association between the socioeconomic characteristics and the three reasons for reading the nutrition labels. These relationships were expected to be helpful to meat processors and handlers in product differentiation, promotion and market targeting.

Results

The responding sample had a larger percentage of white, highly educated or higher income households than the state as a whole (See Table 1, Piedra, Schupp and Montgomery, 1995). Telephone numbers of the households were not available to check for non-response bias. Though unlikely to be present, a non-response bias could limit the applicability of the results to the black, lower educated or lower income segments of the Louisiana population.

Approximately 31% and 16.7% of the respondents reported consuming packaged red meats and packaged poultry, respectively, over the seven-day period prior to the survey. Moreover, 70% of the respondents reported reading

Table 1. Descriptive Statistics (Num, Mean and Std Dev) for Importance of Reading Labels on Packaged Meats to Check for Desirable Nutrients, Undesirable Nutrients or to Compare Nutrients Among Products by Household Location and Socioeconomic Characteristics, Louisiana, 1994.^a

Household Characteristic	Desirable			Undesirable			Compare		
	Num	Mean	SD	Num	Mean	SD	Num	Mean	SD
Overall	511	2.41	0.6855	511	2.41	0.7471	511	2.48	0.6961
Location									
Rural	382	2.41	0.6920	382	2.48	0.7268	382	2.48	0.6938
Urban	129	2.41	0.6686	129	2.26	0.7858	130	2.44	0.7044
Ethnic Grouping									
White	435	2.41	0.6875	435	2.43	0.7325	436	2.48	0.6895
Black	57	2.35	0.7194	57	2.23	0.8455	57	2.39	0.7259
Hispanic	6	2.50	0.5477	6	2.67	0.8165	6	2.50	0.8367
Other	13	2.69	0.4804	13	2.77	0.5991	13	2.54	0.7762
Education									
< High School	39	2.33	0.8057	39	2.21	0.8328	39	2.33	0.7374
High School	137	2.43	0.6507	137	2.43	0.7153	138	2.49	0.6967
Trade School	121	2.39	0.6996	121	2.41	0.7710	121	2.49	0.6469
Some College	76	2.49	0.6217	76	2.38	0.7653	76	2.50	0.7023
College Degree	88	2.40	0.6871	88	2.45	0.7413	88	2.49	0.7110
Graduate Work	50	2.38	0.7529	50	2.60	0.6700	50	2.42	0.7583
Income									
< \$15,000	89	2.40	0.6694	89	2.24	0.7980	89	2.37	0.7290
\$15,000 - \$24,999	85	2.44	0.7310	85	2.49	0.7339	85	2.46	0.7328
\$25,000 - \$34,999	88	2.47	0.6939	88	2.49	0.6947	88	2.58	0.5801
\$35,000 - \$49,999	95	2.42	0.6931	95	2.48	0.7237	95	2.44	0.7539
\$50,000 - \$74,999	85	2.30	0.6760	85	2.34	0.7852	85	2.51	0.7049
\$75,000 - \$100,000	26	2.50	0.5831	26	2.73	0.6038	26	2.46	0.6469
> \$100,000	19	2.47	0.6967	19	2.37	0.7609	19	2.53	0.6967

^a Where Low Importance = 1, Medium Importance = 2 and High Importance = 3

nutritional information on packaged meats (such as sausage, salami and ham). These results appear to indicate a high interest in nutrition information for processed packaged meats among Louisiana households.

The responding households (Tables 1 and 2) reported a relatively high interest in each of the three reasons (52 to 59 percent of respondents ranking each of high importance) for reading nutrition information for packaged meats. With the exception of only seven categories among the socioeconomic groupings (Table 2), half or more of the respondents in each category indicated that checking for nutri-

ents was highly important (lowest was urban respondents for undesirable nutrients - 42.0%).

Family income was a significant (5% level) demographic variable in explaining differences in the importance of reading nutrition information for the presence of undesirable nutrients in packaged meats (Table 3). Households having family incomes greater than \$15,000 gave higher importance to checking for undesirable nutrients than those with lower family incomes. Households with incomes greater than \$15,000 comprised over three-fourths of the sample and nearly two-thirds of the state's population.

Table 2. Importance of Reading Labels on Packaged Meats to Check for Desirable Nutrients, Undesirable Nutrients or to Compare Nutrients Among Products by Household Location and Socioeconomic Characteristics, Louisiana, 1994.^a

Household Characteristics	Desirable			Undesirable			Compare		
	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH
-----Percentage-----									
Overall	11.39	36.15	52.46	15.32	26.52	58.15	11.57	29.22	59.22
Location									
Rural	11.78	35.34	52.88	13.87	24.61	61.52	11.52	28.53	59.95
Urban	10.24	38.58	51.18	19.69	32.28	42.03	1.72	31.25	57.03
Ethnic Grouping									
Whites	11.55	36.03	54.42	14.09	27.71	58.20	11.06	29.26	59.68
Black	14.04	36.84	49.12	26.32	24.56	49.12	14.04	33.33	52.63
Hispanic	0.00	50.00	50.00	16.67	0.00	83.33	16.67	16.67	66.67
Other	0.00	30.77	69.23	7.69	7.69	84.62	15.38	15.38	69.23
Education									
Less than High School	20.51	25.64	53.85	25.64	28.21	46.15	15.38	38.90	48.72
High School	8.82	38.97	52.51	12.50	30.88	56.62	10.95	27.74	61.31
Trade School	6.58	38.16	55.26	17.11	27.63	55.26	11.84	26.32	61.84
Some College	12.50	36.67	50.83	16.67	24.17	59.17	8.33	34.17	57.50
College Degree	11.36	37.50	51.14	14.77	25.00	60.23	12.50	26.14	61.36
Graduate Work	16.00	30.00	54.00	10.00	20.00	70.00	16.00	26.00	58.00
Income									
< \$15,000	10.11	39.33	50.56	22.47	31.46	46.07	14.61	33.17	51.69
\$15,000 - \$24,999	14.12	28.24	57.65	14.12	22.35	63.53	14.12	25.88	60.00
\$25,000 - \$34,999	11.36	30.68	57.95	11.36	28.41	60.23	4.49	32.58	62.92
\$35,000 - \$49,999	11.70	34.04	54.26	12.77	24.47	62.77	14.89	24.47	60.64
\$50,000 - \$74,999	12.05	45.78	42.17	19.28	27.71	53.01	12.05	25.30	62.65
\$75,000 - \$100,000	3.85	42.31	53.85	7.69	11.54	80.77	7.69	38.46	53.85
> \$100,000	10.53	31.58	57.89	15.79	31.58	52.63	10.53	26.32	63.16

^a Level of importance based on scale where low=1, medium=2, and high=3.

Location was also a significant (5% level) explanatory variable when labels were used to check for the presence of undesirable nutrients. Checking for undesirable nutrients was more important to rural than urban respondents (Table 3). Neither ethnic grouping nor education was an important factor in explaining differences in household reported use of nutrition labels.

Approximately 64 percent of respondents reporting the use of nutritional information on packaged meats indicated that they checked for at least three nutrients and 30 percent checked for

five nutrients. The percentages of respondents reporting the use of labels for checking for specific nutrients are given in Table 4. The five nutrients most frequently reported to be checked were total fat (81.7%), saturated fat (67.5%), cholesterol (64.8%), sodium (51.4%) and total calories (50.4%). Much smaller percentages of respondents reported using labels to check for other nutrients, such as sugar (28.8%), protein (14.8%), total carbohydrates (13.3%), iron (12.2%) and calcium (9.3%). These results tend to agree with Geiger, et al, who claimed that con-

Table 3. ANOVA of the Importance of Reasons for Reading Nutrition Information on Labels by Household Characteristics, Louisiana, 1994.^a

Characteristics	N	MS	F	Pr>F
I Read to Identify Undesirable Nutrients ^b				
Ethnic Grouping	511	1.0488	1.89	0.1105
Education	511	0.7310	1.31	0.2567
Income	485	1.2342	2.24	0.0382*
Location	511	4.3699	7.93	0.0050*
I Read to Identify Desirable Nutrients ^b				
Ethnic Grouping	511	0.3466	0.74	0.5678
Education	511	0.1701	0.36	0.8780
Income	485	0.2673	0.57	0.7580
Location	511	1.95x10 ⁶	0.00001	0.9984
I Read to Compare Nutritional Content Between Packaged Meats ^b				
Ethnic Grouping	512	0.7721	1.60	0.1728
Education	512	0.2115	0.43	0.8248
Income	486	0.3812	0.78	0.5879
Location	512	0.2037	0.42	0.5172

^a Using General Linear Model (GLM) procedure.

^b Level of importance based on scale where low=1, medium=2, and high=3.

* Significant at the 5 percent level.

Table 4. Nutrients Checked for on Packaged Meat Labels, Louisiana, 1994.

Type of Nutrient	Frequency	Percentage ^a
Total Fat	467	81.7
Saturated Fat	385	67.5
Cholesterol	369	64.8
Sodium	294	51.5
Total Calories	287	50.4
Sugar	164	28.8
Protein	85	14.8
Total	76	13.3
Carbohydrates		
Iron	70	12.1
Calcium	54	9.3

^a Calculated from the 570 respondents who checked nutrient content of packaged meats.

sumers check packaged meat labels for negative information (i.e. nutrients that pose potential health problems). They also agree with a recent Food Marketing Institute (FMI) survey which

found that 65 percent of shoppers were concerned with the fat content of foods.

Implications

As the diet - health relationship has become more clearly defined and widely known, consumers have become more conscious of the nutrient content of the foods they consume. Many packaged processed meats tend to contain significant quantities of nutrients that have been associated with health problems (total fat, saturated fat, cholesterol and sodium). The survey hints that Louisiana households may be using nutrition labels on packaged meats to limit intake of one or more of these nutrients. Firms handling processed meat products with high quantities of these "undesirable" nutrients may need to find ways of lowering their content or promote other product qualities that appeal to health-conscious consumers.

Though nutritionists encourage consumers to choose diets containing essential levels of protein, iron and calcium, few respondents reported checking nutrition labels for these nutrients. Expected future changes in state and federal medical programs (i.e. Medicare and Medicaid) are likely to increase the individual's responsibility for funding their own medical expenses. With this in mind, private, state, and federal agencies and firms need to increase the emphasis on the content of these "desirable" nutrients in food products. The increasing popularity of vegetarianism offers firms the opportunity to promote the availability of these essential nutrients in packaged meats.

Consumers have become highly sensitized to the role of both total and saturated fats in their diets. Respondents to the survey indicated that these two types of fat were their most frequently "checked for" nutrients in packaged meats. The message regarding fat's negative role in the human diet has apparently been heeded by Louisiana consumers. While meat processing firms may not be able to develop consumer-acceptable "light" processed meat products, they could reduce the fat content in a number of these products.

Income and location were the only significant demographic variables in explaining consumer use of nutrition labels on packaged meats. Urban or higher income households are particularly conscious of undesirable nutrients in packaged meats. These results tend to confirm targeting "heart healthy" processed foods by income level and location.

The reader is cautioned that this article presents consumer responses to questions on their use of nutritional labels on packaged meats, not on observed or measured consumer use of these nutrition labels to change their meat consumption

patterns. The anonymity of the written responses, however, increases the likelihood that they are representative of actual consumer actions. Follow up research is needed to determine whether the consumer will use nutrient information to the extent they use taste and convenience in the decisionmaking process.

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