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**ASSESSING THE IMPACT OF
MILK ADVERTISING:
A SURVEY OF U.S.
AND PENNSYLVANIA ADULTS**

by

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Table of Contents

INTRODUCTION	1
NATIONAL STUDY	1
Awareness of Television Milk Ads	1
Who Had Noticed Ads?	2
Awareness of Ads and Product Involvement	3
Recall of Ad Content	4
Who Could Recall Ad Content?	4
Who Recalled What?	5
Was the Message Meant for You?	5
Effect of Ads on Attitudes toward Milk	7
Effect of Ads on Consumption on Milk	8
PENNSYLVANIA STUDY	9
Awareness of Television Milk Ads	9
Who Had Noticed Ads?	9
Awareness of Ads and Product Involvement	10
Recall of Ad Content	10
Who Could Recall Ad Content?	10
Who Recalled What?	11
Was the Message Meant for You?	11
Effect of Ads on Attitudes toward Milk	12
Effect of Ads on Consumption of Milk	12
COMPARING U.S. AND PENNSYLVANIA RESULTS	13
Awareness of Television Milk Ads	13
Who Had Noticed Ads?	13
Awareness of Ads and Product Involvement	13
Recall of Ad Content	14
Who Could Recall Ad Content?	14
Who Recalled What?	14
Was the Message Meant for You?	14

Table of Contents (Cont'd)

Effect of Ads on Attitudes toward Milk	15
Effect of Ads on Consumption of Milk	15
DISCUSSION AND SUMMARY	17
REFERENCES	19
APPENDIX I - Sample Characteristics	20
APPENDIX II - Description of Key Variables	22
APPENDIX III - National Sample Statistical Test Results	23
APPENDIX IV - Pennsylvania Sample Statistical Test Results	25

INTRODUCTION

Substantial amounts have been spent on dairy promotion in recent years in hopes of winning new customers and inducing current users to consume more dairy products. As part of this effort a variety of promotional programs have been undertaken at the national, state and local levels. Studies designed to assess the success of this spending have focused chiefly on the aggregate effects of advertising on total product sales (National Dairy Promotion and Research Board 1986). An alternative to this approach is to study the response of individual consumers to milk advertising. The response of young adults is of particular interest since they have been a major target of recent promotional efforts (National Dairy Promotion and Research Board 1986, 1987).

In this study the reaction of national and Pennsylvania samples of adults to recent milk advertising were examined. Respondents were questioned about their awareness of television ads, their recall of ad content, whether they felt the message was meant for them and on their perceptions of the impact of the ads on their attitudes toward milk on their usage of milk. The questions focused on fluid milk usage because of its particular importance for Pennsylvania producers. The results from the two samples are discussed separately because they are of interest to somewhat different audiences. The national sample results are discussed first. The results for the Pennsylvania sample then are discussed. The results from the two samples then are compared and their implications considered.

NATIONAL STUDY

Data for the national study were collected in late 1987 in telephone interviews with adult men and women ages 18 and over in a sample of households in the conterminous United States. Random digit dialing techniques were used in order to ensure that households with both listed and unlisted telephones would be reached. A random sample of operating numbers with stratification to the county level was employed. A total of 1402 usable interviews were obtained. As often occurs with this type of sampling, minorities and individuals in lower income households were somewhat underrepresented. The characteristics of the sample are presented in Appendix I. Appendix II contains a description of the questions asked about milk advertising and its effects.

Awareness of Television Milk Ads

Milk promotion efforts have employed a variety of media including billboards, radio, television, magazines and public relations efforts. The questions for this study focused on television ads since they probably are the most visible portion of these promotional efforts.

In the past it was assumed that an ad cannot have any impact if a viewer cannot remember noticing it and cannot recall its content. More recently, Krugman (1986) and others have argued that it is not necessary for viewers to be aware of ads or to recall their content for the ads to have an effect on their attitudes or behavior. Those who take this viewpoint believe that recall depends on the relevance of the ad content to viewers and on their interest in the product and the ad. Viewers who are most interested in a product or ad content will actively attend to the ad and be able to recall its content later.

Viewers who are less interested may not be able to recall specific ad content. They may, however, be aware of seeing an ad or recognize it when questioned later. The information received by these less interested viewers may be stored in the memory and influence attitudes and behavior even though it cannot be recalled and described verbally.

Focusing solely on recall of ad content will provide only a partial picture of advertising impact if ads which cannot be recalled do, in fact, have an effect. Recall measures identify only ads to which fairly close attention has been paid and whose message can be repeated. Measures of awareness or recognition include ads whose content can be recalled, and, in addition, those ads which have been noticed but whose specific content cannot be recalled (Krugman, 1986). For this reason, both awareness of milk advertising and recall of its content were investigated in this study.

The factors which affect awareness of ads can be classified into two categories: (1) personal characteristics, and (2) media exposure. Personal characteristics such as age and sex may affect interest in a product and the importance of particular advertising claims. Exposure factors such as the number of hours spent viewing television and the particular programs viewed also affect awareness. Exposure typically differs with age, sex and other personal characteristics (A.C. Nielsen Co., 1985). Exposure was not specifically considered in this research. The effects of exposure were, however, picked up in the personal characteristics studied.

Who Had Noticed Ads? All of the respondents were asked if they had noticed any ads for milk on television lately. A total of 39.6 percent said they had noticed ads for milk, and were classified as "aware" of milk advertising. The remaining 60.4 percent said they had not noticed television milk advertising.

Overall, respondents who were younger were more aware of the ads. Awareness of the ads was highest among the youngest age category and declined with age. In the 18-24 age category, 57.2 percent were aware of the ads. In the 25-34 category 49.6 percent indicated awareness. The percentages of people aware of milk ads fell below the average of 39.6 percent in all the remaining age categories. Among those 55 and over, less than 30 percent indicated

awareness of the ads (Appendix III reports the statistical tests of differences among categories).

Awareness generally increased with education. Among those with 3-11 years of schooling 31.4 percent were aware, while among those with 12 years education 37.1 percent were aware and 46.4 percent of those with 13-15 years were aware. There were no significant differences in awareness on other key demographic characteristics including sex, income or race.

Although there were significant differences in awareness by age but none by sex or race when considered alone, there were significant differences in awareness among a set of eight age/sex/race interaction categories. The eight categories were created by combining three pairs of variables: young (under age 35) / older (age 35 and over), female/male, and white/nonwhite. The percentages who were aware of milk ads were as follows:

Young white females	52.7 percent
Young white males	54.8 percent
Young nonwhite females	46.5 percent
Young nonwhite males	40.5 percent
Older white females	32.0 percent
Older white males	33.8 percent
Older nonwhite females	26.4 percent
Older nonwhite males	12.5 percent

The differences among the eight age/sex/race categories are greater than those for age alone.

Awareness of Ads and Product Involvement As might be expected, awareness was higher among those who were more involved with milk. Those who already were milk users were more aware of ads than those who were not. Awareness tended to increase with the reported frequency of drinking milk and was highest among those who drank it everyday (43.6 percent were aware) or almost everyday (44.2 percent were aware).

Awareness also was higher among those who indicated they recently had increased their consumption of milk than among those who reported their consumption had stayed the same or had decreased. Among those who said they had increased their milk consumption in the previous 2-3 years, 47.5 percent were aware of the ads. The data provide no basis for deciding whether those who increased their usage did so because they had seen ads or, conversely, whether those who had increased consumption were more likely to notice ads because of their involvement with milk.

In addition, awareness was higher among those who indicated they were more concerned about what they eat than they had been formerly. Among those who said they definitely were more concerned 43.4 were aware of the ads. Among those who indicated they were somewhat more

concerned, 41.7 were aware and among those who said they were not really more concerned, 28.9 percent were aware.

Recall of Ad Content

After a review of past studies of advertising recall, Gibson (1983) concluded that recall of ad content varies with personal characteristics and exposure factors. Younger people, women and the more educated were found to have higher levels of recall. Those who used a product also were found to have higher recall. Exposure factors such as the time elapsed since exposure and the number of commercials seen also were found to affect recall.

As discussed above, Krugman has argued that recall is indicative of a higher level of interest and that attitudinal and behavioral influence is possible even if ad content cannot be recalled specifically. Krugman suggested that in the low interest situation, ad information is attended to casually and is recorded in the memory as visual images. Because the information is recorded as visual images it cannot easily be played back verbally. Although the information is stored in visual rather than verbal form it is, however, still possible for it to influence behavior.

Krugman's argument suggests that those who are aware of ads and can recall content are likely to have a higher level of involvement with milk and milk advertising. Those who are aware of milk ads but cannot recall specific content are, in contrast, likely to be lower in involvement.

Who Could Recall Ad Content? Among those who were aware of milk ads on television, 77.5 percent were able to recall something about the substance of the ads, while 22.5 percent were not able to do so. Because of the wide variety of ads being shown throughout the country, any description of ad content which seemed appropriate was counted as a recall of ad content. As a result, the definition of recall used here is more inclusive than that employed in most advertising research. Such research typically focuses on recall of the message contained in a particular ad.

Those who were aware of milk ads and who recalled some ad content constituted 30.6 percent of the overall sample. Within the group of respondents who were aware of milk ads on television, there were no significant differences in the personal characteristics of those who could recall ad content and those who could not.

Recall of ad content did not differ significantly by age, sex, race, education or income. There were, in addition, no significant differences in recall of ad content among the eight age/sex/race interaction categories. These results differ from those in previous research and may be due to the inclusive definition employed. In this study, individuals were counted as recalling the ads' message if they could state any message concerning milk or its benefits. This

made it relatively easier to be counted as having recalled the ads' messages.

Although awareness of milk ads was higher among those who were more involved with milk and with what they eat, recall of ad content did not differ with these factors. Recall of ad content did not differ significantly with recent changes in milk use, frequency of drinking milk nor with recent changes in concern about dietary choices.

Who Recalled What? The message the respondents recalled from the ads was recorded and categorized. The largest percentage (73.2 percent) recalled information about the nutritional benefits of milk. The next largest group was those who recalled messages about the importance and desirability of drinking milk or general slogans from the ads (e.g., "Milk's the one!"). A total of 17.8 percent recalled such messages. Another 5.2 percent recalled messages about who should drink milk (e.g., children, athletes, etc.). A small group (3.8 percent) recalled messages about the sensory benefits of milk (e.g., "milk is refreshing").

There were no significant differences in ad message recalled by age, sex, race, or income. There was a significant difference in the type of message recalled by educational level. Those with 11 years education or less were more likely to recall slogans and less likely to recall nutritional benefits than the average respondent.

There also were significant differences in the ad content recalled among the eight age/sex/race interaction categories (see Table 1). Younger people tended to recall messages about nutritional benefits somewhat more frequently than did older people. Young nonwhites were particularly likely to recall messages about nutritional benefits. Older people more frequently recalled messages about who should drink milk.

Was the Message Meant for You? The respondents who were aware of milk ads were asked whether they felt the message was meant for people such as themselves. The responses should be indicative of involvement with the ads. Among those who were aware of the ads, a majority of 53.6 percent said the ads were meant for people such as themselves. Of the remainder, 35.9 percent said the ads were not for people such as themselves and 10.5 percent were not certain.

Overall, those who were younger, had more education and were Black were more likely to think the ads were meant for people such as themselves. Among those under age 35, 59.9 percent thought the ads were meant for them. In the 13-16 years of education category, 56.7 percent felt the ads were meant for people such as themselves, while 73.0 percent of Blacks responded in this way. There were no statistically significant differences by sex or income. Differences among the eight age/sex/race interaction fell short of customary criteria for statistical significance.

Table 1 - Recall of Ad Content Themes Among the Eight Age/Sex/Race^a Interaction Categories, U.S. Sample

Themes	Young White Females (n = 94)	Young White Males (n = 100)	Young Nonwhite Females (n = 16)	Young Nonwhite Males (n = 16)	Older White Females (n = 104)	Older White Males (n = 78)	Older Nonwhite Females (n = 12)	Older Nonwhite Males (n = 2)
	- Percent -							
Nutritional Benefits	74.5	74.0	100.0	81.3	70.2	67.9	75.0	50.0
Need To Drink Milk, Slogans	19.1	18.0	.0	18.7	18.3	21.8	8.3	.0
Who Should Drink Milk	2.1	4.0	.0	.0	9.6	2.6	16.7	50.0
Sensory Benefits	4.3	4.0	.0	.0	1.9	7.7	.0	.0
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

χ^2 statistic = 32.94 (21 d.f.),

p = .047

^a The two age categories were under 35 and 35 and over. Non-whites included Blacks, Hispanics, Orientals and other racial designations.

Both those who felt the message was for people such as themselves or felt it was not, recalled content more often than those who were not certain. Among those who felt the message was meant for people like themselves, 79.5 percent recalled some content. Among those who felt the message was not addressed to them, 80.4 percent recalled some content. In contrast, only 62.1 percent of those who said they were not certain the ads were intended for them recalled any content.

Effect of Ads on Attitudes Toward Milk

The respondents who were aware of milk ads on television were asked how the ads had affected their feelings toward milk. It is doubtful whether such a question can accurately capture actual ad effects. Responses to the question are more nearly a measure of attitudes towards the ads than toward milk itself. It was, however, felt to be useful to ask a direct question about the ads' effects in order to assess the resulting responses.

Overall, few of the respondents believed that the ads had affected their feelings about milk. A substantial majority, 85.2 percent, said their attitudes had remained unchanged. Of the remainder, 14.2 percent said their attitudes had become more favorable and .6 percent said their attitudes had become less favorable.

Those who were under age 35 were somewhat more likely to say that their attitudes had become more favorable than were older respondents. Some 16.7 percent of those under 35 said their attitudes had become more favorable, compared to 14.0 percent of all those who had seen the ads. There were no significant differences in attitude change by sex, race, education or income, nor for the eight age/sex/race interaction categories.

Among those who had recently increased their consumption of milk, 24.0 percent said the ads had made their attitudes toward milk more favorable. The majority said the ads had no effect. Among those who said their consumption had stayed the same only 13.8 percent said the ads had made them more favorable toward milk.

For those who felt the ads were meant for people such as themselves, 21.5 percent said the ads had made their attitudes toward milk more favorable. Among those who concluded that the ads were not for people such as themselves only 5.0 percent said the ads had made them more favorable toward milk.

Overall, few of the respondents believed milk ads had affected their use. Those who were more involved with milk or with the ads (ie., those who were part of the intended audience or believed they were, and those who recently had increased their use of milk) were more likely to say the ads had caused them to increase their use.

Effect of the Ads on Consumption of Milk

Almost all (93.5 percent) of the respondents who were aware of milk ads on television said that the ads had no effect on their use of milk. A small percent (6.3 percent) said that the ads had caused them to increase their use. Only one person (.2 percent) said the ads had caused them to reduce consumption.

Responses on the effects of milk ads on consumption differed significantly with age, income and race. Most of the respondents who were under age 35 said that the ads had no effect on their use of milk. However, those under 35 were more likely to say that the ads had caused them to increase their use than were those 35 and over. Some 8.5 percent said that the ads had caused them to increase their use of milk. Those with incomes under \$20,000 and Blacks also were somewhat more likely to say that the ads had caused them to increase their use of milk. Of those with incomes under \$20,000, 13.6 percent said the ads had caused them to increase milk use. Of the Black respondents, 24.3 percent said the ads had influenced them to increase their use of milk.

Again, there is evidence that the ads had more impact among those who were more involved with milk and milk advertising. Of those who reported feeling the ads were meant for people such as themselves, 9.1 percent reported that the ads had the effect of increasing their use of milk. This group, although interesting, constituted only 4.9 percent of the total sample.

Those ads appear to have had least effect on those who said they seldom or never drank milk and on those who said they drank it everyday. Those who reported drinking milk 2-3 times a week or almost every day were more affected. The percentages reporting increased use as a result of TV milk ads were as follows:

o never drink milk	2.6 %
o drink once in awhile	4.8
o drink once a week	.0
o drink 2-3 times a week	13.9
o drink almost every day	8.7
o drink every day	5.4

PENNSYLVANIA STUDY

Data for the Pennsylvania portion of the study were collected in telephone interviews in Summer 1987 from adult men and women in a sample of Pennsylvania households. Random digit dialing techniques were used to ensure households with both listed and unlisted phones were included. A random sample of operating numbers with stratification to the county level was employed. A total of 503 usable interviews was obtained. The characteristics of the sample are described in Appendix I. Appendix II contains a description of the questions asked about milk advertising and its effects.

Awareness of Television Milk Ads

In the discussion above it was suggested that awareness of ads among those exposed is indicative of some minimum level of interest or involvement. As was noted earlier, it was expected that awareness of milk advertising would differ with personal characteristics and with media exposure. Since media usage habits were not investigated, attention is focused on personal characteristics.

Who Had Noticed Ads? Overall, 56.5 percent of the Pennsylvania respondents said they had noticed ads for milk on television and were classified as "aware" of milk advertising. Of the remainder 43.4 percent said they had not noticed the ads, while .2 percent were not certain whether they had or not.

Awareness of milk advertising was found to differ significantly with age and to be highest in the younger age categories (see Appendix IV for statistical test results). Awareness was highest in the 18-24 category in which 72.2 percent said they were aware of the ads. In the 25-34 age category, 65.7 percent said they were aware of the ads. Awareness was below the overall average in all the 35 and over age categories. It was lowest in the 45-54 category in which 44.6 percent said they were aware of the ads.

While awareness did not differ significantly with sex or race when considered alone, awareness was found to differ significantly among eight age/sex/race categories. The eight categories were created by combining three pairs of categories: female/male, younger (under age 35) / older (age 35 and over), and white/nonwhite. Awareness was as follows among the eight age/sex/race categories:

Young white females	75.3 percent
Young white males	65.1 percent
Young nonwhite females	57.1 percent
Young nonwhite males	50.0 percent
Older white females	45.6 percent
Older white males	58.1 percent
Older nonwhite females	50.0 percent
Older nonwhite males	36.4 percent

Awareness also differed significantly among income categories. It was highest in the two middle income categories and lowest in the highest and lowest categories. In the \$20 to 35 thousand income category, 63.4 percent were aware. In the \$35 to 60 thousand income category, 61.9 percent were aware. Awareness fell below 48 percent in the highest and lowest income categories. There were no significant differences in awareness by level of formal education.

Awareness of Ads and Product Involvement As in the national sample, awareness was higher among those who were more involved with their food choices and with milk. Among those who said they had increased their use of milk in the last two or three years, 75.0 percent were aware of the milk ads. Among those who had decreased use, 61.5 percent were aware of the ads, while among those who said they had made no changes 55.6 percent were aware. Awareness did not, however, differ with the frequency of milk drinking.

Those who indicated they were more concerned about what they eat than formerly also were more aware of ads. Among those who indicated they were somewhat more concerned, 66.7 percent were aware of the ads. Among those who said they definitely were more concerned, 57.9 percent said they were aware. Among those who said they were not really more concerned than formerly, only 43.9 percent were aware.

Recall of Ad Content

Those who were aware of television ads for milk were asked to describe their content. Of those who were aware of the ads, 81.4 percent were able to report some information on their content, while the remaining 18.6 percent were not able to do so. Those who were aware of the ads and could recall some content constituted 46.0 percent of the overall sample.

Ability to recall ad content and repeat it for researchers can be considered to indicate a higher level of involvement with a product. Recall of ad content was expected to differ with personal characteristics, and involvement with the product.

Who Could Recall Ad Content? Recall of ad content was found to be highest in the youngest age category. Among those in the under 25 age category who were aware of the ads, 92.3 percent were able to report some information about ad content. Recall was also slightly above average in the 65 and over age category, with 81.8 percent recalling some content. Recall was lowest in the 45-54 age category with 72.7 percent recalling some information. There were no significant differences in recall by other demographic characteristics such as education, income, sex and race.

There were, however, significant differences in recall among the eight age/sex/ race categories discussed previously. Recall was as follows among the eight categories:

Young white females	90.9 percent
Young white males	82.1 percent
Young nonwhite females	87.5 percent
Young nonwhite males	100.0 percent
Older white females	79.2 percent
Older white males	82.2 percent
Older nonwhite females	42.9 percent
Older nonwhite males	25.0 percent

In interpreting these results it should be noted that the number of observations in the nonwhite cells is relatively small and estimation errors are likely.

Although awareness of ads differed with recent changes in milk use and with changed concern with food choice for the Pennsylvania respondents, recall of ad content did not differ with these variables nor with frequency of drinking milk.

Who Recalled What? When the recall responses were classified into categories to determine the information recalled, it was found that the content recalled most frequently was information on the health and nutrition benefits of milk. A total of 61.0 percent recalled such information about the ads. The next most frequently recalled content dealt with the need to drink more milk and general promotional slogans (e.g., "Milk is a natural") with 28.1 percent recalling such content. Suggestions on who should drink milk were recalled by 7.4 percent. Sensory benefits (e.g., "it's refreshing") were recalled by 3.5 percent. There were no significant differences in what was recalled by age, sex, race education or income nor among the eight age/sex/race interaction categories.

Was the Message Meant for You? The respondents who were aware of the milk ads were asked if they believed the ads were meant for people such as themselves. Within this group, 53.3 percent believed the ads were meant for people like themselves, 34.8 percent said they were not, and the remaining 11.9 percent were not certain.

The responses did not differ significantly among the six age categories used for analysis. Responses did, however, differ among those under age 35 and those 35 and over. Those under 35 were more convinced that the ads were meant for people such as themselves. In the under 35 age category, 62.0 percent believed this as compared to only 47.2 percent among those 35 or over. Responses did not differ significantly by sex, race, education or income nor among the eight age/sex/race interaction categories.

Effect of Ads on Attitudes Toward Milk

The respondents who indicated they were aware of milk ads were asked how the ads had affected their attitudes toward milk. A substantial majority, 83.2 percent, said the ads had not affected

how they felt; 16.1 percent said the ads made them more favorable and .7 percent (two cases) said the ads had made them less favorable.

Whites said the ads had made them more favorable toward milk more often than did Blacks or those of other races. Some 16.8 percent of the whites said the ads had made them more favorable as compared to 10.5 percent of the Blacks and none of those of other races. The perceived effect of the ads did not differ by age, sex, education or income.

Although the differences in the perceived effect of ads did not differ significantly with age or sex they did differ significantly among the eight age/sex/race interaction categories. Among young white males 21.4 percent believed that the ads had made them more favorable. Among young nonwhite males (only two cases) 50.0 percent believed ads had a favorable effect. For older white females 18.2 percent believed that the ads had made them more favorable. Responses in the other five categories fell below the 16.3 percent average across all eight categories.

Those who felt the ads were meant for people such as themselves were more likely to report that the ads had a favorable effect on their attitudes. Of those who felt the ads were meant for people like themselves, 24.3 percent perceived that the ads had a favorable effect on them as compared to only 6.1 percent among those who felt the ads were not meant for people such as themselves.

Effect of Ads on Consumption of Milk

Almost all of those who were aware of the ads on television perceived that the ads had no effect on their consumption. A total of 93.0 percent said this, while 6.7 percent the ads had the effect of increasing their use and .3 percent said the ads had caused their use to decrease. There were no significant differences in the perceived effect of the ads on milk use by age, sex, race, education or household income nor among the eight age/sex/race interaction categories.

As in the national sample there is some evidence that the ads had more impact on those who were more involved with milk advertising. Among those who felt the ads were intended for people such as themselves, 11.8 percent said the ads had caused them to increase their milk use as compared to none among those who felt the ads were not intended for them. In the Pennsylvania sample, the perceived effect of the ads on consumption did not, however, differ significantly with frequency of milk drinking as was the case in the national sample.

COMPARING U.S. AND PENNSYLVANIA RESULTS

In comparing the U.S. and Pennsylvania results it is important to note that the samples were drawn from two different populations and that these populations have been subjected to different promotional campaigns. It is, however, interesting to compare the results from the two samples for insights into the effects of milk promotion. There are, of course, Pennsylvania respondents in the national sample. They, however, constitute only a small percent of the nationwide sample. The Pennsylvania sample, it should be noted, consists of a completely different set of respondents.

In comparing the results from the national and Pennsylvania studies, attention will be focused chiefly on those findings which were statistically significant in the analyses of the two surveys.

Awareness of Television Milk Ads

Awareness of milk ads was substantially higher in the Pennsylvania sample than in the national sample. Some 56.5 percent of the Pennsylvania respondents had noticed milk ads on television. In contrast, only 39.6 percent of the national sample had noticed TV milk ads. These results reflect not only the effects of national ad campaigns, but also those of state and regional groups as well.

Who Had Noticed Ads? Awareness of milk ads was highest among younger respondents in both the national and the Pennsylvania sample. Among those 18-24 in the Pennsylvania sample 72.2 percent were aware of the ads, while only 57.2 percent of the national sample were aware.

In both the national and the Pennsylvania samples there were statistically significant differences in awareness among the eight age/sex/race interaction categories. The results suggest the promotional campaigns are having their strongest effect with young women -- a key target group.

The national results indicate there was more awareness among those with more formal education. There were, however, no significant differences in awareness among educational categories in the Pennsylvania sample. In the Pennsylvania sample there were significant differences in awareness among different income categories with the highest levels of awareness among the middle income categories. The differences in awareness among income categories in the national sample were not significant.

Awareness of Ads and Product Involvement In both the national and the Pennsylvania samples awareness was higher among those who were more involved with milk. In both cases awareness was higher among those who said they had increased their use of milk in the last two or three years. Awareness was significantly higher in the national sample among those who were more frequent milk users,

although the differences were not significant in the Pennsylvania sample.

These results raise the question of the direction of causation. Does awareness of milk advertising bring about increased use? Or, have those who have increased their use become more sensitive to milk advertising and more aware of it? There is still another possibility. There may be a circular relationship in which awareness of ads brings about increased use which in turn increases awareness of ads. Since the data were collected at a single point in time, there is no basis for choosing among these three alternative explanations.

In both samples, awareness of ads also differed significantly with respondent's concern about what they eat. Awareness was higher among those who indicated they were more concerned about what they eat than they had been earlier.

Recall of Ad Content

Not only was awareness of milk advertising higher among the Pennsylvania respondents, recall of advertising content was somewhat higher, too. In the national sample 78.0 percent of those who were aware of milk ads on television could recall ad content information. The comparable figure was 81.4 percent in the Pennsylvania sample. These results were unexpected. The larger percentage of Pennsylvania respondents who were aware of the ads could have been expected to include more respondents with limited interest in milk and a low level of recall for milk ad content. This was, however, not the case. Not only was awareness higher in the Pennsylvania sample, recall was, too.

Who Could Recall Ad Content? In the national sample recall did not differ significantly by demographic characteristics, nor among the eight age/sex/race interaction categories. In the Pennsylvania sample, recall differed by age but not by other basic demographic categories. Recall also differed among the eight age/sex/race interaction categories in the Pennsylvania sample.

Who Recalled What? When the percentages recalling particular categories of ad content were compared between the two samples the pattern of responses was found to be similar and the differences in the percentages giving a particular response were quite small. There were no significant differences in the responses given among the basic demographic categories in the national or the Pennsylvania samples. There were significant differences among the eight age/sex/race interaction categories for the national sample. These differences in the Pennsylvania sample were not significant.

Was the Message Meant for You? In both the national and the Pennsylvania samples a majority of the respondents who were aware of milk advertising believed the ads they had seen were meant for people

such as themselves. In the national sample 53.8 percent said they felt the ads were meant for people such as themselves. The corresponding figure for the Pennsylvania sample was 53.3 percent.

In the national sample those who were younger, those who had more formal education and those who were Black were significantly more likely to think the message was meant for people such as themselves. In the Pennsylvania sample, only those who were under age 35 felt this way. Differences among those with other demographic characteristics were not significant.

Effect of Ads on Attitudes Toward Milk

The respondents in the two samples who were aware of milk ads replied in a similar fashion to the question about the effect of the milk ads on their attitudes toward milk. In the national sample 85.2 percent perceived that the ads had no effect on their attitudes while 83.1 percent of the Pennsylvania sample gave this response. Some 14.2 percent of the national sample said the ads had caused them to be more favorable toward milk while 16.1 percent of the Pennsylvania sample said this. Only a very small percent in either sample said the ads had caused them to become less favorable toward milk.

In the national sample there were significant differences in responses by age, with younger people (those under 35) responding more frequently that the ads had caused them to have a more favorable attitude toward milk. In the Pennsylvania sample whites more frequently answered that the ads had caused them to become more favorable toward milk.

In both the U.S. and the Pennsylvania samples there also were significant differences on the question about whether the respondents believed the ads were meant for people such as themselves. Those who felt this way were more likely to say that the ads had made them more favorable toward milk.

Effect of Ads on Consumption of Milk

The respondents in the two samples who were aware of milk ads also had a very similar pattern of responses to the question about the effect of ads on their consumption. In the national sample 93.5 percent said the ads had no effect on their use, while 92.9 percent of the Pennsylvania sample gave this response. Some 6.3 percent of the national sample said the ads had the effect of increasing their use, while 6.6 percent of the Pennsylvania sample gave this response. Only small percentages in either sample said the ads had caused decreases in use.

In the national sample there were significant differences in responses by age, income and race. Those who were younger, lower in income and Black were more likely to indicate that the ads had the

effect of increasing their use of milk. The differences in responses in the Pennsylvania sample were not significant.

In both the national and the Pennsylvania samples those who felt the ads were meant for people such as themselves were more likely to indicate that the ads had caused them to increase their use of milk than were those who did not feel this way.

In the national sample there were differences in effect of the ads on consumption by frequency of milk drinking. Those who consumed milk relatively frequently were more likely to say the ads had caused them to increase use as compared to those who consumed it everyday, those who consumed it infrequently or those who never consumed it. These differences were not significant in the Pennsylvania sample.

DISCUSSION AND SUMMARY

Significant portions of the two samples were found to be aware of television milk advertising -- 56.5 percent of the Pennsylvania sample and 39.6 percent of the U.S. sample. This portion of the adult population can be regarded as having been reached in at least some minimal way by the various milk promotion campaigns conducted in recent years. The difference in awareness between the Pennsylvania and the U.S. samples tentatively can be attributed to the more intensive program of milk promotion in Pennsylvania.

The milk ads appear to be reaching an important target audience, younger people. This age category has been a major target of both milk and soft drink promotion efforts. The level of awareness was particularly high among young white females and males. Young white females are an important ad target because of the particular susceptibility of white females to osteoporosis as they grow older.

Those who were aware of milk ads typically were more involved with milk. Awareness was higher among those who had increased their use in the previous two or three years. Awareness of milk ads also was higher among those who indicated they had become more concerned about what they eat. In the national sample, but not the Pennsylvania sample, awareness was more common among more frequent milk drinkers. These results suggest that milk advertising is not as effective in reaching non-users and low users as it is in reaching more frequent users. It does appear, however, that milk advertising is reinforcing and supporting milk usage among current users.

Among those who were aware of milk ads on television, most could provide information about the ads which suggested recall of ad content. Those who were aware of ads and could recall some content constituted less than one-third (30.6 percent) of the national sample, and less than half (46.0 percent) of the Pennsylvania sample. While a significant portion of the adult population is being reached and is involved with milk advertising, many have not been brought to a level where they can recall ad content.

Recall of milk advertising content did not differ significantly by demographic characteristics in the national sample. Recall did differ, however, with age and among eight age-sex-race categories in the Pennsylvania sample. Recall of ad content in the Pennsylvania sample exceeded 90 percent among young white women who were aware of ads and was also high among young nonwhite women and several other categories. The health and nutrition benefits of milk were recalled substantially more often than other ad messages. Younger people were more inclined to believe the ads were intended for people such as themselves. This can be taken as an indication of the effectiveness of recent campaigns which have been directed at this younger age category.

Only small numbers of respondents indicated that milk advertising had affected either their attitude toward milk or their use of it. This is to be expected. The effect of ads can be linked to attitudes toward new products and their use relatively easily. It is not, however, so easy to pinpoint the effect of ads on an ongoing pattern of usage for a familiar product such as milk or on existing attitudes about it. In addition, many people probably would be reluctant to admit they could be swayed by ads, even if they believed they had been.

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APPENDIX I

Sample Characteristics

	U.S. Sample (n = 1402)	Pennsylvania Sample (n = 503)
<u>Sex</u>		
Female	54.6%	54.5%
Male	45.4	45.5
	<u>100.0%</u>	<u>100.9%</u>
<u>Age</u>		
Under 25	13.4%	14.3%
25 - 34	25.3	20.9
35 - 44	21.1	19.3
45 - 54	13.7	14.7
55 - 64	12.9	15.7
65 - 90	12.6	13.7
Refusal	1.0	1.4
	<u>100.0%</u>	<u>100.0%</u>
<u>Race</u>		
White	88.0%	91.0%
Black	8.3	7.4
Other	3.4	1.6
Refusal	.3	.0
	<u>100.0%</u>	<u>100.0%</u>
<u>Formal Education</u>		
Under 12 years	13.3%	12.7%
12 years	40.2	48.9
13 - 15 years	19.6	15.3
16 years	18.3	16.7
17+ years	8.2	5.2
Refusal	.4	1.2
	<u>100.0%</u>	<u>100.0%</u>
<u>Household Income</u>		
Under \$20,000	19.6%	22.3%
\$20 - \$35,000	24.9	28.2
\$35 - \$60,000	26.5	22.5
Over \$60,000	10.1	8.7
Don't Know	5.6	5.8
Refusal	13.3	12.5
	<u>100.0%</u>	<u>100.0%</u>

APPENDIX I

Sample Characteristics (Cont'd)

	U.S. Sample (n = 1402)	Pennsylvania Sample (n = 503)
<u>Marital Status</u>		
Married	64.1%	67.8%
Separated	1.4	2.6
Divorced	6.1	5.2
Widowed	8.3	6.9
Never married	19.8	17.5
Refusal	.2	.0
	<u>100.0%</u>	<u>100.0%</u>
<u>Employment Status</u>		
Not employed	36.1%	36.2%
Part-time	8.7	12.1
Full-time	55.0	51.5
Refusal	.2	.2
	<u>100.0%</u>	<u>100.0%</u>
<u>Frequency of Drinking Milk</u>		
Every day	39.4%	34.0%
Almost every day	11.1	10.1
2-3 times a week	15.0	14.5
Once a week	4.9	8.2
Once in a while	12.2	14.3
Never	17.4	18.9
	<u>100.0%</u>	<u>100.0%</u>
<u>Changes in Milk Drunk in Past 2-3 Years</u>		
Stayed about same	58.1%	58.9%
Decreased	10.0	10.3
Increased	14.4	11.9
Not applicable	17.5	18.9
	<u>100.0%</u>	<u>100.0%</u>

APPENDIX II

Description of Key Variables

Five questions that dealt with milk advertising were asked. The responses generated six key variables used in the analysis. The questions asked and response frequencies are provided below.

	<u>U.S. Sample</u>	<u>Pennsylvania Sample</u>
1. If you watch TV, you know there is a lot of advertising going on. Have you noticed any milk ads lately?	(n = 1402)	(n = 503)
Yes	39.6%	56.5%
No	60.4	43.3
Not sure	.0	.2
2. What do you recall these ads have been saying about milk?	(n = 550)	(n = 285)
Recalled content	78.0%	81.4%
Did not recall	22.0	18.6
2a. (Description of content recalled)	(n = 423)	(n = 231)
Nutritional benefits	73.2%	61.0%
Importance of drinking, slogans	17.8	28.1
Who should drink	5.2	7.4
Sensory benefits	3.8	3.5
3. Do you think these commercials were meant for someone like you?	(n = 554)	(n = 285)
Yes	53.6%	53.3%
No	35.9	34.8
Not sure	10.5	11.9
4. Overall, have the milk ads affected how you feel about milk? Would you say you:	(n = 555)	(n = 285)
Are more favorable	14.2%	16.1%
Are less favorable	.6	.7
Feel about the same	85.2	83.2
5. What effect have these milk ads had on your use of milk? Would you say you have:	(n = 555)	(n = 285)
Decreased use	.2%	.3%
Increased use	6.3	6.7
Used about the same	93.5	93.0

APPENDIX III

National Sample Statistical Test Results

Variables		Degrees of Freedom	Chi-Square Test Statistics	Probability
Awareness of Ads	X Age	5	66.32	.000
	Education	4	14.88	.005
	Sex	1	1.05	.306
	Income	3	4.81	.186
	Race	2	3.44	.179
	Age/Sex/Race	7	65.49	.000
	Frequency of Drinking	5	12.60	.027
	Changes in Milk Use	2	6.32	.042
	Changes in Diet Concern	2	22.04	.000
Recall of Ads' Content	X Age	5	4.97	.420
	Sex	1	.71	.400
	Race	2	5.53	.063
	Education	4	6.24	.182
	Income	3	5.77	.123
	Age/Sex/Race	7	7.88	.343
	Frequency of Drinking	5	1.50	.913
	Changes in Milk Use	2	2.04	.360
	Changes in Diet Concern	2	4.01	.135
Recall of Specific Ad Content	X Age	15	13.23	.584
	Sex	3	3.98	.263
	Race	6	8.29	.218
	Education	12	21.51	.043
	Income	9	8.98	.439
	Age/Sex/Race	21	32.94	.047
Was Ad Message Meant For You?	X Age	10	17.14	.071
	Age (Under 35, 35+)	2	8.86	.021
	Sex	2	5.31	.070
	Race	4	10.17	.038
	Education	8	15.74	.046
	Income	6	5.05	.538
	Age/Sex/Race	14	23.49	.053
	Recall of Content	2	9.59	.008

National Sample Statistical Test Results (Cont'd)

Variables		Degrees of Freedom	Chi-Square Test Statistics	Probability
Changed Attitudes Toward Milk Due to Ads	X Age	10	11.91	.291
	Age (Under 35, 35+)	2	6.55	.038
	Sex	2	.92	.631
	Race	4	4.66	.324
	Education	8	5.26	.730
	Income	6	5.84	.441
	Age/Sex/Race	14	10.09	.756
	Changes in Milk Use	4	9.98	.041
	Ads Meant for People Like Selves	4	30.24	.000
Changed Consumption Due to Ads	X Age	10	11.40	.327
	Age (Under 35, 35+)	2	6.46	.040
	Sex	2	.92	.631
	Race	4	22.55	.000
	Education	8	4.09	.849
	Income	6	13.57	.035
	Age/Sex/Race	14	18.99	.165
	Ads Meant for People Like Selves	4	10.56	.032
	Frequency of Drinking	10	18.76	.043

APPENDIX IV

Pennsylvania Sample Statistical Test Results

Variables		Degrees of Freedom	Chi-Square Test Statistics	Probability
Awareness of Ads	X Age	5	18.37	.003
	Sex	1	.99	.319
	Race	2	.61	.739
	Education	4	5.73	.220
	Income	3	9.31	.026
	Age/Sex/Race	2	23.64	.001
	Frequency of Drinking	5	8.96	.111
	Changes in Milk Use	2	7.91	.019
Changes in Diet Concern	2	9.31	.010	
Recall of Ads' Content	X Age	5	11.57	.041
	Sex	1	.14	.713
	Race	2	5.07	.079
	Education	4	5.94	.203
	Income	3	2.01	.570
	Age/Sex/Race	7	19.63	.006
	Changes in Milk Use	2	1.89	.390
	Changes in Diet Concern	2	4.57	.102
	Frequency of Drinking	5	10.29	.068
Recall of Specific Ad Content	X Age	15	14.08	.52
	Sex	3	1.72	.63
	Race	6	1.46	.96
	Education	12	8.87	.714
	Income	9	14.69	.100
	Age/Sex/Race	21	29.63	.100
Was Message Meant For You?	X Age	10	12.57	.249
	Sex	2	.71	.702
	Race	4	3.42	.491
	Education	8	8.60	.377
	Income	6	2.51	.867
	Age/Sex/Race	14	19.45	.148

Pennsylvania Sample Statistical Test Results (Cont'd)

Variables		Degrees of Freedom	Chi-Square Test Statistics	Probability
Changed Attitudes Toward Milk Due to Ads	X Age	10	7.05	.721
	Sex	2	1.92	.383
	Race	4	29.26	.000
	Education	8	2.71	.951
	Income	6	4.54	.604
	Age/Sex/Race	14	41.25	.000
	Meant for You?	4	16.69	.002
Change Consumption Due to Ads	X Age	10	11.11	.349
	Sex	2	1.10	.577
	Race	4	.84	.933
	Education	8	5.19	.737
	Income	3	4.32	.229
	Age/Sex/Race	14	17.35	.238
	Meant For You?	4	16.12	.003
	Frequency of Drinking	10	13.80	.182

