An Evaluation of the Promotional and Public Relations Programs for Florida Tomatoes
ABSTRACT

This study evaluated the effectiveness of television advertising and other promotional efforts used by the Florida Tomato Exchange for fresh tomatoes. A telephone survey of 2,409 primary food shoppers was conducted in five major markets in the northeastern U.S. Markets were defined as television areas of dominant influence (ADI's). In one control ADI, 400 interviews were conducted prior to using television ads and 400 more were made following two consecutive weeks of television advertising. In four ADI's, television ads had been used over extended periods in varying levels of intensity.

The survey evaluated the impact of promotional efforts as measured by consumers' adoption of correct ripening and storage practices, and by their recall of media advertising for fresh tomatoes. Approximately three-fourths of all tomato users were found to be ripening and storing tomatoes properly, and nearly 30 percent had switched to the correct (room temperature) method within the past three years. Television commercials, magazine and newspaper stories, magazine ads, and television shows were cited by respondents as being major factors influencing their tomato storage practices. Probit models indicate that storage switching behavior was significantly related to respondents' recall of television commercials, television feature stories, and magazine advertising. The study also provided considerable data on fresh tomato use, consumers' attitudes toward Florida tomatoes, and Florida Tomato Exchange members' attitudes toward their promotional program.
AN EVALUATION OF THE PROMOTIONAL AND
PUBLIC RELATIONS PROGRAMS FOR FLORIDA TOMATOES

A Report by
Robert L. Degner

A research project conducted for the
Florida Tomato Exchange

August 1985

The Florida Agricultural Market Research Center
a part of
the Food and Resource Economics Department
Institute of Food and Agricultural Sciences
University of Florida
Gainesville, FL 32611
The Florida Agricultural Market Research Center

A Service of
the Food and Resource Economics Department
of the
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SUMMARY

*This study evaluated the effectiveness of the Florida Tomato Exchange (FTE) promotion and public relations program, and provided benchmark data on consumers' attitudes toward Florida-grown tomatoes and tomato usage patterns during Florida's season. It also determined FTE members' attitudes toward current promotional and public relations activities and alternate levels of support.

*One basic goal of the FTE has been to educate consumers as to the proper method of ripening tomatoes. Their kitchen ripening theme has promoted room temperature storage (RTS) as a means of enhancing tomato quality. Its ultimate goal has been to increase tomato sales.

*The kitchen ripening theme has been used extensively in food publicity and public relations efforts. It has also been the dominant message used in T.V. and magazine advertising. The basic research strategy was to determine (1) the extent of RTS in markets subjected to various levels of T.V. advertising, (2) the extent of switching from refrigerated to RTS that had occurred since the inception of T.V. and magazine advertising programs, and (3) the sources of information that had influenced consumers to switch to RTS. Basic information on tomato use was also sought.

*A telephone survey of 2,400 primary food shoppers in five major market areas was used to evaluate the promotional program. Market areas were television "areas of dominant influence" (ADI's) as defined by Arbitron Ratings Company. Telephone numbers were randomly generated for each ADI, and the sample stratified by the population of T.V. households within each county within each ADI.

*Four hundred interviews were conducted in each ADI, namely Boston, New York, Philadelphia, Pittsburgh, and Roanoke/Lynchburg (R/L) in late March. T.V. advertising had been used in all markets except R/L, which was selected as a control ADI.

*Following the completion of the 400 interviews in R/L, the FTE "Blizzard" and "Tomato Man" commercials were run 120 times in a two-week period. The cost per 1,000 T.V. households was comparable to many ADI's where FTE's T.V. advertising had been conducted.

*Immediately after the two-week advertising effort, 400 more interviews were conducted in the R/L ADI so that the effects of T.V. advertising could be isolated. "R/L-1" refers to the first sample, and "R/L-2" to the second.

*Almost 75 percent of all households using tomatoes were found to store fresh tomatoes at room temperature.
*In ADI's where T.V. advertising had been used prior to interviewing, about 24 percent of the respondents said that T.V. commercials had caused them to switch to RTS. Newspaper stories and magazine ads were cited by 15.2 and 11.5 percent, respectively, followed by other T.V. in-store signs, and store personnel with 9.9, 6.6 and 6.2, respectively. Recipes, leaflets and booklets and information accounted for 3.7 and 1.2 percent of the switching, respectively. Based upon these direct responses, the average cost of converting households to RTS with T.V. advertising was 56 cents.

*In R/L-1, the control ADI, 24.5 percent of all households using tomatoes had switched to RTS during the past three years, compared with 28.6 percent in Boston, 28.9 percent in New York, 30.9 percent in Pittsburgh, and 31.7 percent in Philadelphia. Using the Control ADI comparisons, the average cost of converting households to RTS was 85 cents.

*Magazine advertising influenced about 17 percent of the households switching to RTS in areas where T.V. advertising was not used. Because of its wide coverage, magazine advertising apparently influenced nearly 2 million households to switch to RTS at an average cost of slightly over 10 cents each.

*In areas where T.V. was not used, all other promotional methods accounted for 83 percent of all switchers to RTS. The average cost per household converted to RTS was slightly under four cents.

*Consumers' recall of promotional media used for fresh tomatoes was also examined. Consumers' recall over all ADI's in decreasing order of importance was: newspaper stories (32 percent); recipes, leaflets and booklets (26 percent); T.V. commercials (20 percent); magazine ads (15 percent); posters in stores (14 percent); other T.V. (13 percent); magazine stories (13 percent); and radio commercials (6 percent).

*The two-week T.V. advertising effort in the Roanoke/Lynchburg ADI was quite effective. An estimated 20 percent of primary food shoppers in households using tomatoes had recall of T.V. advertising for fresh tomatoes, and about 6 percent had correct recall of the FTE commercials. If general fresh tomato advertising recall is the evaluation criterion, the cost was about 18 cents per household. For specific recall of the FTE message, the cost was about 60 cents.

*A statistical (probit) model was used to study the influence of consumers' recall of various promotional media on switching (to RTS) behavior. T.V. advertising and publicity appeared to have the greatest impact.

*Members of the Florida Tomato Exchange were also interviewed to determine their attitudes toward various promotional and public relations activities and toward alternative levels of support. A total of 28 out of 29 members were interviewed, plus two former members. Over 98 percent of the Exchange's 1983-84 volume was reported by the members interviewed.
*Members tended to give food publicity and retail promotion activities slightly better ratings than public relations, magazine and T.V. advertising.

*The majority of members was reluctant to approve of assessment levels required for mass media advertising.

*The kitchen ripening theme has been very successful in recent years, as evidenced by the large number of households converting to room temperature storage. However, the use of RTS was not associated with greater fresh tomato consumption. The kitchen ripening theme is basically an educational effort which may require an extremely long time to affect total sales of tomatoes.

*"Unripe" tomatoes and "poor taste" are recurring consumer complaints that could possibly be alleviated by getting retailers to ripen tomatoes properly. A program designed to educate or otherwise influence retailers to adopt profitable ripening practices may have a more immediate impact on sales.
AN EVALUATION OF THE PROMOTIONAL AND PUBLIC
RELATIONS PROGRAMS FOR FLORIDA TOMATOES

by Robert L. Degner*

INTRODUCTION

For over a decade, the Florida Tomato Exchange (FTE) has engaged in
a modest promotion and public relations program for fresh tomatoes. The
basic purpose of their efforts has been to "educate consumers on the
proper method of selecting, ripening, storing and preparing fresh Florida
tomatoes for consumption, with the ultimate goal of increasing per capita
consumption of fresh Florida tomatoes ..." Until recently, the Exchange
has sought to educate consumers largely through the judicious use of
various food publicity projects utilizing mass media. Media coverage
(newspaper stories, magazine articles, radio and television) resulting
from "publicity" has been received at no direct cost for the space or
time provided, because of the "newsworthy" nature of the information
provided. However, with the 1982-83 season, the Exchange initiated a
more ambitious promotion program which included television advertising.
The program grew even more during the 1983-84 season when television
advertising was increased and magazine advertising was added. Total pro-
motional and public relations expenditures increased from approximately
$320,000 in 1982-83 to about $627,000 in 1984-85.

Because the program is funded through voluntary assessments, it is
imperative that funds be spent efficiently. This study was conducted at

*Director of the Florida Agricultural Market Research Center and
Associate Professor, Institute of Food and Agricultural Sciences,
University of Florida.
the request of the Florida Tomato Exchange to assist members in evaluating the effectiveness of their program.

The promotional activities of the Exchange can be classified into two major categories: (1) food publicity, and (2) public relations and advertising. Each are briefly described below.

**Food Publicity**

Food publicity efforts have been diverse and extensive. Typically, they have been comprised of items such as press releases and other materials provided to approximately 500 large and 1,000 smaller newspapers nationwide, releases sent to 250 radio stations and 200 T.V. stations, articles written for syndicated writers of newspapers and magazines, and development of recipes and leaflets. The food publicity program has also included the development and distribution of an educational videotape to approximately 50 major T.V. stations each year. The food publicity program has also relied heavily upon "media touring" to disseminate information about fresh tomatoes. Media touring enables spokespersons for the Florida tomato industry to appear on numerous T.V. and radio programs as guests of T.V. and radio personalities. Visits with notable newspaper food editors and magazine editors are also arranged. The food publicity program was expanded in the 1982-83 season to include a retail promotion. A special promotion kit containing tomato recipe leaflets and point-of-purchase signs was developed and made available to food retailers. The retail promotion portion of the food publicity program was the major factor which caused the food publicity budget to increase from $59,000 in 1982-83 to $90,000 in the 1984-85 season (Table 1).
<table>
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<th>1984-85</th>
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<td>59,000</td>
<td>65,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Magazine advertising</td>
<td>0</td>
<td>100,000</td>
<td>100,000</td>
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<tr>
<td>Television advertising</td>
<td>214,500a</td>
<td>400,000</td>
<td>400,000</td>
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<tr>
<td>Other promotional expensesb</td>
<td>58,500</td>
<td>57,000</td>
<td>37,000</td>
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<td>Total promotional budget</td>
<td>320,000</td>
<td>627,000</td>
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aIncludes $12,500 worth of air time that was received but not billed to the FTE.

bIncludes public relations expenses, Florida Harvest Festivals, etc.
Public Relations and Advertising

Public relations and advertising activities have increased substantially in the past several seasons. The public relations efforts have been comprised of preparation of numerous press releases, feature pitches and stories that are made available to approximately 1,300 newspapers, radio and T.V. stations. Additionally, 30- and 60-second radio spots (public service announcements) have been made available to either AM or FM radio stations east of the Mississippi River in alternating years. Miscellaneous public relations activities have included distribution of tomato cookbooks, revision of an educational slide set used by industry spokespersons, and preparation of miscellaneous items such as logos, bumper stickers, calendars, etc.

Advertising has been concentrated in two major areas, television and magazines. In 1982-83, a pilot T.V. advertising program was begun in New York and in Boston with a total expenditure of slightly over $200,000. In 1983-84, T.V. advertising was expanded to include 15 cities, with a total budget of $400,000; and magazine advertising was also begun, with expenditures of approximately $100,000. Television advertising during the 1984-85 season reached 20 cities, with a budget of $400,000, and $100,000 was again spent for magazine advertising (Table 1). The general strategy for T.V. advertising has been to use relatively low-cost, 30-second daytime rotator spots on local stations in major metropolitan centers east of the Mississippi River. Virtually all spots have been aired between 7:00 a.m. and 4:00 p.m., Monday through Friday. In most cities, the budget has allowed the purchase of approximately 20 spots per week for two to four weeks during Florida's tomato season (Table 2).
Table 2.--A summary of television advertising expenditures by the Florida Tomato Exchange.

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<th>3/4/85</th>
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<th>5/85</th>
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<th>ADI Rank</th>
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<td>8,000</td>
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<td>6,000</td>
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<td>--</td>
<td>8,000</td>
<td></td>
<td>8,000</td>
<td>4.9</td>
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<td>2,500</td>
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<td>Indianapolis</td>
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<td>5,000</td>
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<td>554,400</td>
<td>41 11,000</td>
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<td>5,000</td>
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<td>5,000</td>
<td>2.7</td>
<td>1,395,100</td>
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<td>--</td>
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<td>89,000</td>
<td>103,000</td>
<td>74,000</td>
<td>73,000</td>
<td>79,000</td>
<td>80,000</td>
<td>78,500</td>
<td>100.0</td>
<td>29,267,800</td>
<td>0 887,500</td>
</tr>
</tbody>
</table>

*Through March 1981 only.

"ADITYHH" refers to the total number of television households in the various ADI's.

Expenditures of $170,900 and $107,000 were made in New York and Boston, respectively, during the 1982-83 season.

Flights were made in Roanoke/Lynchburg for two consecutive weeks: April 1-5 and April 8-12.
Magazine advertising has been limited to major women's magazines. During the last two seasons, one-third page, four-color ads have appeared in nine major magazines. All space except Southern Living has been bought on a regional basis, east of the Mississippi River. Approximate circulation has been three million, and the average cost per insertion has been about $20,000 (Table 3).

OBJECTIVES

The primary objective of this research was to evaluate the effectiveness of the promotion and public relations program in terms of consumer awareness of basic educational messages, changes in consumer behavior and Exchange members' own perception and support of the promotional efforts. Specific objectives were to: (1) compare consumers' awareness of proper ripening and storage practices for fresh Florida tomatoes in selected cities which had been subjected to various levels of paid T.V. advertising, (2) determine consumers' recall of selected educational messages as indicated by consumers' behavioral changes, (4) provide benchmark data on consumers' attitudes toward Florida-grown tomatoes and on consumers' tomato usage patterns during Florida's growing season, and (5) determine Florida Tomato Exchange members' attitudes toward current promotional and public relations activities and alternative levels of support.

PROCEDURE

A telephone survey of 2,400 primary food shoppers in five major market areas was used to collect data to meet the first four objectives. Because of the necessity of evaluating the impact of television

<table>
<thead>
<tr>
<th>Magazine</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ladies Home Journal</td>
<td>November 1983</td>
</tr>
<tr>
<td>Family Circle</td>
<td>January 1984</td>
</tr>
<tr>
<td>Women's Day</td>
<td>May 1984</td>
</tr>
<tr>
<td>Southern Living</td>
<td>November 1984</td>
</tr>
<tr>
<td>Good Housekeeping</td>
<td>March 1984</td>
</tr>
<tr>
<td>Better Homes &amp; Gardens</td>
<td>December 1984</td>
</tr>
<tr>
<td>Women's Day</td>
<td>April 1985</td>
</tr>
<tr>
<td>McCall's</td>
<td>February 1985</td>
</tr>
<tr>
<td>Southern Living</td>
<td>May 1985</td>
</tr>
</tbody>
</table>

aAll space except Southern Living is bought on a regional basis, east of the Mississippi River. Approximate circulation has been 3 million, and average cost has been about $20,000.
advertising, market areas were defined as television "areas of dominant 
influence" (ADI's) as delineated by the Arbitron Ratings Company 
(Arbitron Ratings Company, 1984). A stratified random sample of tele-
phone households was computer-generated by Survey Sampling, Inc. of 
Westport, Connecticut. The sample was stratified to all counties in 
proportion to each county's share of telephone households within each 
ADI. A computer-generated sample was used in order to minimize the 
potential bias that could have resulted from using published phone lists. 
According to telephone company estimates, unlisted numbers account for up 
to 30 percent of all residential telephones in several of the markets 
included in this study. The completed sample of households included 20 
percent with unlisted telephone numbers.

Three callbacks were made to each number in the primary sample 
before going to an alternate. Calls and callbacks were made during the 
daytime, evening and weekends to ensure a broad representation of house-
hold types.

ADI's were selected to obtain a broad range of television advertis-
ing activity. New York and Boston were chosen because they had the long-
est duration of advertising activity and had relatively high expenditures 
relative to population (Table 4). Gross expenditures relative to total 
ADI population was used as an indication of advertising intensity because 
more precise measures such as gross rating points, broadcast reach, or 
cume ratings could not be determined due to insufficient records. Phila-
delphia and Pittsburgh were selected because they had been subjected to 
moderate levels of T.V. advertising (Table 4). Finally, the Roanoke/
Lynchburg (R/L) ADI was selected as a control market because no televi-
sion advertising for fresh tomatoes had been conducted there by the FTE.
Table 4.--Tomato television advertising expenditures per 1,000 television households through March 1985, by ADI.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Flights Through March 1985</th>
<th>EPM&lt;sup&gt;a&lt;/sup&gt;</th>
<th>EPM&lt;sup&gt;a&lt;/sup&gt; Rank</th>
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<tbody>
<tr>
<td>San Antonio</td>
<td>6</td>
<td>71.92</td>
<td>1</td>
</tr>
<tr>
<td>Boston</td>
<td>12</td>
<td>69.73</td>
<td>2</td>
</tr>
<tr>
<td>New Orleans</td>
<td>6</td>
<td>65.71</td>
<td>3</td>
</tr>
<tr>
<td>Nashville</td>
<td>5</td>
<td>43.44</td>
<td>4</td>
</tr>
<tr>
<td>Tampa/St. Petersburg</td>
<td>7</td>
<td>39.98</td>
<td>5</td>
</tr>
<tr>
<td>New York</td>
<td>15</td>
<td>37.09</td>
<td>6</td>
</tr>
<tr>
<td>Miami</td>
<td>6</td>
<td>35.08</td>
<td>7</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>6</td>
<td>32.89</td>
<td>8</td>
</tr>
<tr>
<td>Atlanta</td>
<td>5</td>
<td>31.69</td>
<td>9</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>7</td>
<td>25.30</td>
<td>10</td>
</tr>
<tr>
<td>Columbia</td>
<td>2</td>
<td>23.11</td>
<td>11</td>
</tr>
<tr>
<td>Chicago</td>
<td>6</td>
<td>21.22</td>
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<td>19.53</td>
<td>14</td>
</tr>
<tr>
<td>Naples/Ft. Myers</td>
<td>3</td>
<td>18.46</td>
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</tr>
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<td>Detroit</td>
<td>4</td>
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<td>2</td>
<td>12.77</td>
<td>17</td>
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<tr>
<td>Cleveland</td>
<td>2</td>
<td>7.17</td>
<td>18</td>
</tr>
<tr>
<td>St. Louis</td>
<td>1</td>
<td>5.76</td>
<td>19</td>
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<tr>
<td>Dallas</td>
<td>1</td>
<td>3.98</td>
<td>20</td>
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<td><strong>20-ADI Average</strong></td>
<td><strong>5</strong></td>
<td><strong>30.32</strong></td>
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</table>

<sup>a</sup>EPM = Expenditure per 1,000 television households.
Approximately four hundred usable interviews were obtained in each of the ADI's in the period March 15 and March 31, 1985. This period was selected so that interviewing would occur after the appearance of the March television and magazine advertising.

The Roanoke/Lynchburg ADI was then subjected to a controlled advertising experiment. A television advertising program was devised and implemented in the R/L ADI during the first two weeks in April. A television advertising budget of $11,000 was allocated to the R/L ADI, which amounted to about $31.00 per thousand television households. This expenditure rate was just slightly greater than the average rate for the 20 cities in which television advertising had been conducted (Table 4). However, it was necessary to spend the R/L budget over a relatively short time period, i.e., two consecutive weeks.

The FTC "Blizzard" commercial was broadcast during the April 1-5 period, and the "Tomato Man" spot during April 8-12. Each commercial appeared 20 times at various times between 7:00 a.m. and 4:00 p.m. on each of the three major network-affiliated stations. The compressed schedule, coupled with relatively low rates, resulted in a total of 120 spots broadcast in the two-week period.

In the week immediately following the second flight of commercials, a second sample of 400 primary food shoppers was interviewed in the Roanoke/Lynchburg ADI. Throughout the remainder of this report, R/L-1 refers to the first sample of 400 shoppers interviewed in the Roanoke/Lynchburg ADI, and R/L-2 refers to the second sample. Thus, data from the Roanoke/Lynchburg ADI facilitates two basic sets of comparisons. First, as a control city where no television advertising had previously been run, intercity comparisons can be made. Secondly, interviews
conducted after the two weeks of television advertising can be compared with the first sample to isolate the effects of the advertising.

The questionnaire was developed after lengthy discussions with the professional staffs of the FTE, the food publicity firm of Lewis & Nola, Inc., and the public relations/advertising firm Communication Resources, Inc. It was extensively pretested by the Florida Agricultural Market Research Center (FAMRC) and administered by closely supervised professional interviewers calling from a central location. A copy of the questionnaire is found in Appendix A.

Florida Tomato Exchange members' attitudes towards current promotional and public relations activities and alternative levels of support were determined through a telephone survey conducted by the Director of the FAMRC. Virtually everyone interviewed was the top decisionmaker in each member firm. The survey included 28 of 29 current members as well as two former members. Members that were interviewed accounted for over 98 percent of the volume shipped by all FTE members during the 1983-84 season. The 1983-84 shipment data were also used to make revenue projections at various levels of assessments.

FINDINGS

The research results that follow are organized into two major sections: "Fresh Tomato Usage Patterns" and "Evaluation of the Promotion Program." Because the focus of this study was on the latter topic, it receives greater attention. However, the section on fresh tomato use provides valuable background information, much of which can be used to formulate future promotional strategies. Most of the tables relating to tomato use appear in the Appendix rather than the text.
Fresh Tomato Usage Patterns

The use of fresh tomatoes was found to be fairly uniform over all ADI's, with approximately 89 percent of all households using them. The slight differences in use among ADI's were not statistically significant (Table 5). However, examination of fresh tomato usage by selected socioeconomic and demographic characteristics indicated that smaller households, lower income groups, and households where the primary food shopper was under 25 or over 65 years old tended to be somewhat less likely to use tomatoes (Appendix Table 1). The most frequent reason given by shoppers for never buying tomatoes was that they or their families simply did not like the taste, cited by over 57 percent of the non-users. About 10 percent complained that fresh tomato prices were too high, and a similar number mentioned health-related reasons for not buying them. About six percent said that tomatoes available to them were not ripe enough, and five percent said they did not buy tomatoes but only used home-grown. Other relatively infrequent reasons given for never buying tomatoes included unfresh, bruised or damaged fruit, poor texture, packaging complaints, and short shelf life (Appendix Table 2).

Shoppers of households using tomatoes were asked what types they had purchased within the previous three months. Slightly over 90 percent of all shoppers had bought the regular round tomatoes, and the proportion doing so was similar across all ADI's. Overall, nearly 20 percent had bought cherry tomatoes, but there were significant differences among ADI's. Almost one-fourth of those in New York had bought cherry tomatoes, but only about 15 percent had done so in the Roanoke/Lynchburg and Pittsburgh ADI's. The proportion purchasing plum-shaped or oblong cooking tomatoes also varied considerably over ADI's. In the aggregate,
Table 5.--Use of fresh tomatoes, by ADI.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Households Using Tomatoes (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>90.0</td>
</tr>
<tr>
<td>R/L-1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>87.1</td>
</tr>
<tr>
<td>R/L-2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>89.0</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>89.0</td>
</tr>
<tr>
<td>New York</td>
<td>90.2</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>85.7</td>
</tr>
<tr>
<td>All ADI's</td>
<td>88.6&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>The two samples for the R/L ADI are reported separately.

<sup>b</sup>Based upon 2,407 observations.
about 12 percent had bought them, but the proportions purchasing them varied from a high of about 22 percent in New York to a low of 7 percent in Philadelphia (Table 6). Almost half of the households that had bought regular round tomatoes during the previous three months had some on hand when interviewed. Half of the shoppers did not have any on hand, and about two percent were unsure (Table 7).

Shoppers that typically buy tomatoes had not bought any regular round tomatoes (as opposed to cherry or plum-shaped cooking tomatoes) in the previous three months tended to be critical of the taste. About one-third complained of poor taste, and about 12 percent said they were not ripe enough. Almost 20 percent said they only use home-grown or tomatoes grown locally. High prices were mentioned by about 10 percent, and a similar number said the ones available were of poor quality, that is, unfresh, bruised or damaged (Appendix Table 3).

About 60 percent of the shoppers that had bought regular round tomatoes within the previous three months said they did so because of good quality attributes such as taste, color, freshness, and nutritive value. About 16 percent said they had bought them because they were essential in recipes, and a similar number said they bought them out of habit. Only seven out of over 2,000 shoppers specified advertising as the primary reason for buying fresh tomatoes (Appendix Table 4).

Shoppers that use fresh tomatoes were asked to identify the one thing disliked most about tomatoes available when interviewed (March and April). About one in five was quite satisfied, disliking nothing. However, the most frequent complaint was that tomatoes available were not ripe enough, mentioned by nearly one-fourth of the shoppers. Poor taste and poor texture were cited by about 18 and 6 percent, respectively.
Table 6.--Types of fresh tomatoes purchased by tomato consumers within previous three months, by ADI.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Cherry</th>
<th>Plum</th>
<th>Regular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>20.8</td>
<td>14.0</td>
<td>92.7</td>
</tr>
<tr>
<td>R/L-1</td>
<td>14.7</td>
<td>8.6</td>
<td>90.8</td>
</tr>
<tr>
<td>R/L-2</td>
<td>15.5</td>
<td>14.37</td>
<td>94.4</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>21.5</td>
<td>6.9</td>
<td>91.4</td>
</tr>
<tr>
<td>New York</td>
<td>24.4</td>
<td>21.9</td>
<td>91.8</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>15.2</td>
<td>7.89</td>
<td>92.4</td>
</tr>
<tr>
<td>All ADI's</td>
<td>18.7</td>
<td>12.3</td>
<td>92.3</td>
</tr>
</tbody>
</table>

*Percentages are based upon 2,119 tomato-using households. Chi-square analysis indicates there are no significant differences in regular fresh tomatoes purchased among ADI's, P = 0.5788.

Table 7.--Tomato-consuming households with regular round tomatoes on hand.

<table>
<thead>
<tr>
<th>Tomatoes on hand</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>930</td>
<td>47.7</td>
</tr>
<tr>
<td>No</td>
<td>976</td>
<td>50.0</td>
</tr>
<tr>
<td>Do not know</td>
<td>44</td>
<td>2.3</td>
</tr>
<tr>
<td>Total</td>
<td>1,950</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Chi-square analysis indicates there are no significant differences among ADI's, P = 0.0798.
Lack of freshness was the one thing disliked most by about 13 percent of the shoppers, and high prices were the chief irritant of a similar number. Short shelf life, small sizes, and bruised or damaged fruit were mentioned by a total of less than 5 percent of all tomato-using households (Table 8).

Shoppers that had bought regular round tomatoes in the previous three-month period were asked to express their overall satisfaction using a nine-point rating scale where 1 represented extremely satisfied and 9 extremely dissatisfied. Over 21 percent expressed extreme satisfaction, but about 10 percent extreme dissatisfaction. If the midpoint of the scale is viewed as neutral, ratings from one through four as positive, and ratings six through nine as negative, about 46 percent were relatively satisfied and a third of the shoppers were dissatisfied (Table 9). Average ratings were calculated and compared for various socio-economic and demographic categories. In general, females, white respondents, those with more education, and those with higher incomes expressed less satisfaction with tomatoes bought in the winter and early spring (Appendix Table 5).

On the average, shoppers said they bought regular round tomatoes three times per month, and the average number of tomatoes purchased each time was slightly over four. The total number of tomatoes purchased each month was greatest for the Roanoke/Lynchburg ADI and smallest in Philadelphia (Appendix Table 6). The average quantity of regular round tomatoes purchased each month was also examined by various socio-economic groups, and few significant differences were found. As expected, single person households reported buying fewer tomatoes than larger households.
Table 8.--Primary reasons given for disliking tomatoes available when interviewed (March and April).

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not ripe</td>
<td>509</td>
<td>24.2</td>
</tr>
<tr>
<td>Taste</td>
<td>385</td>
<td>18.3</td>
</tr>
<tr>
<td>Not fresh</td>
<td>281</td>
<td>13.4</td>
</tr>
<tr>
<td>High price</td>
<td>263</td>
<td>12.5</td>
</tr>
<tr>
<td>Texture</td>
<td>126</td>
<td>6.0</td>
</tr>
<tr>
<td>Short life</td>
<td>51</td>
<td>2.4</td>
</tr>
<tr>
<td>Size too small</td>
<td>13</td>
<td>0.6</td>
</tr>
<tr>
<td>Bruised or damaged</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>18</td>
<td>0.9</td>
</tr>
<tr>
<td>UO not know</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Dislike nothing</td>
<td>446</td>
<td>21.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2104</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Miscellaneous includes various aspects such as "prefer single to packaged tomatoes," "not readily available," "taste affected by chemicals used in growing," "small selection," "water or seed content too high," "tough skin," and "inconsistent quality."*
<table>
<thead>
<tr>
<th>Rating</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>446</td>
<td>21.3</td>
</tr>
<tr>
<td>2</td>
<td>112</td>
<td>5.4</td>
</tr>
<tr>
<td>3</td>
<td>209</td>
<td>9.9</td>
</tr>
<tr>
<td>4</td>
<td>186</td>
<td>9.0</td>
</tr>
<tr>
<td>5</td>
<td>427</td>
<td>20.4</td>
</tr>
<tr>
<td>6</td>
<td>162</td>
<td>7.7</td>
</tr>
<tr>
<td>7</td>
<td>236</td>
<td>11.3</td>
</tr>
<tr>
<td>8</td>
<td>114</td>
<td>5.4</td>
</tr>
<tr>
<td>9</td>
<td>198</td>
<td>9.5</td>
</tr>
<tr>
<td>Total</td>
<td>2,090</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*aThe rating scale is from 1 to 9 where 1 is extremely satisfied and 9 is extremely dissatisfied.

*bDoes not sum to 100.0 due to rounding.
but the differences in purchases among households of two and larger-sized households were not significant. Age, income, and race differences were not statistically significant, but male shoppers bought significantly more tomatoes per month than females (Appendix Table 7).

The consumers interviewed served regular round tomatoes in a variety of ways. Almost 80 percent served them in a tossed salad with a dressing, and nearly 76 percent served them sliced on sandwiches or hamburgers. Almost half served tomatoes sliced with a dressing, and about 44 percent served them sliced without dressing. About one-third used them in tossed salads without dressing. Forty-four percent used regular round tomatoes as an ingredient in cooked dishes, but only about one consumer in five served them stuffed but uncooked. Examination of uses by socio-economic and demographic groups revealed few significant differences. However, one notable difference was that larger proportions of Hispanics and other minority groups used tomatoes in cooked dishes than do whites or blacks (Appendix Table 8).

The substitutability of other fruits and vegetables for tomatoes in a tossed salad was also explored. Respondents were asked whether they would serve a tossed salad without tomatoes if they had originally planned to use tomatoes but the ones available were not suitable. Overall, about 70 percent said they would, although responses varied from about 65 percent in Roanoke/Lynchburg to nearly 80 percent in Pittsburgh (Appendix Table 9). Those with the greatest propensity to serve a tossed salad without tomatoes included whites, females, college graduates, and those with annual incomes over $35,000. Thus, it appears that tomatoes are not an essential ingredient for tossed salads for a large segment of the market (Appendix Table 10). Slightly over one-fourth of the shoppers
that said they would serve a tossed salad without regular round tomatoes indicated that they would not substitute anything for the tomatoes. However, cucumbers, carrots, radishes, peppers, and cherry tomatoes would be substituted by 18. 9. 7. 7 and 4 percent, respectively (Appendix Table 11).

Consumers' attitudes toward Florida-grown versus Mexican-grown tomatoes were examined by asking which source was preferred. Almost one-third were indifferent; but of the remainder, there was a ten-to-one preference for Florida grown tomatoes. In New York, 70 percent preferred Florida tomatoes, compared with about 60 percent in Philadelphia and Boston (Appendix Table 12). Chi-square analyses indicated that preferences were related to age and income. Preferences for Mexican tomatoes did not vary much across age groups, but fewer older respondents preferred Florida tomatoes, expressing more indifference. Examination of various income categories shows that respondents with incomes of $50,000 or more were more likely to prefer Mexican-grown tomatoes than those with lower incomes; but even so, shoppers with the highest incomes still preferred Florida-grown tomatoes by nearly a 6:1 ratio (Appendix Table 13).

Quality attributes such as better taste, texture, freshness and color were cited as the primary reason by over 80 percent of the consumers that preferred Mexican tomatoes. Other less frequently mentioned reasons included a favorable image of Mexico, better growing conditions for tomatoes, and lower prices (Appendix Table 14).

Over half of the shoppers that preferred Florida tomatoes said they did so because of taste, freshness, texture, and good color. Almost 17 percent mentioned loyalty to U.S. products as the primary reason, and over 12 percent mentioned better sanitation in growing and handling or better pesticide regulations (Appendix Table 15).
When queried as to concerns about tomatoes grown in Mexico, slightly over 71 percent of all shoppers from tomato-using households had no concerns at all. Eleven percent felt that there should be more loyalty to U.S. products, and 12 percent were concerned about sanitation or pesticide residues. Poor quality attributes were only mentioned by less than 5 percent (Appendix Table 16).

**Evaluation of the Promotional Program**

When the Florida Tomato Exchange adopted the "kitchen ripening" theme for their low-key promotional efforts several years ago, the basic assumption was that relatively few homemakers knew the correct way to store tomatoes to achieve the optimum degree of ripeness. It was assumed that most shoppers brought them home and immediately put them into the refrigerator. Thus, the educational/promotional message was simple: for improved flavor, "do not refrigerate." This has been the dominant message carried by the two T.V. commercials that have been used and the one magazine advertisement. The same basic message has been used extensively in other promotional efforts as well. Thus, the basic research strategy was to determine (1) the extent of room temperature storage (RTS), (2) the extent of switching from refrigerated to RTS that had occurred since the inception of the T.V. and magazine advertising programs, and (3) the sources of information that had influenced consumers to switch to RTS. Additionally, many food publicity and public relations releases and materials had provided other tomato storage tips that were designed to improve consumers' satisfaction with Florida tomatoes. These included storing tomatoes with the stem end up to minimize bruising, refrigerating fully red-ripe tomatoes to prolong shelf life, and allowing
tomatoes that had been refrigerated to warm up prior to serving to enhance flavor. All of these storage practices were examined and are discussed below, but emphasis was placed on RTS because of its relative importance and its direct link to TV and magazine advertising.

Storage Practices

Almost 75 percent of all primary food shoppers said they usually store fresh tomatoes at room temperature, although there were significant differences among ADI’s. The lowest incidence of RTS was observed in Boston with about 64 percent, and the highest in Philadelphia with 79 percent. Slightly over 75 percent of those interviewed in New York and Pittsburgh use RTS (Table 10). The incidence of RTS was significantly related to age, race and sex, with older shoppers, whites and females being more likely to use RTS (Appendix Table 17). There were no apparent differences among household size categories, income or educational groups. Of those that use RTS, almost 27 percent said they use an enclosed ripening bowl or other container for storing fresh tomatoes.

After tomatoes become “fully red ripe,” about 75 percent of all respondents refrigerate them. This practice was very uniform over most socio-economic and demographic groups; however, refrigerated storage for fully ripe tomatoes was more prevalent among those with more education (Appendix Table 18).

Only 40 percent of all shoppers knew or guessed that tomatoes should be placed stem side up during storage to minimize bruising. Respondents in Boston and New York appeared to be most knowledgeable. Overall, about 30 percent said the stem side should be placed down, 4 percent said they should be placed on their sides, and about 27 percent admitted that they
Table 10.--Incidence and recent adoption of room temperature storage for fresh tomatoes, by ADI.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Storing at Room Temperature&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Switching to Room Temperature Storage in Past 3 Years</th>
<th>Percent&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>64.2</td>
<td>28.6</td>
<td></td>
</tr>
<tr>
<td>n/L-1</td>
<td>71.5</td>
<td>24.5</td>
<td></td>
</tr>
<tr>
<td>R/L-2</td>
<td>77.8</td>
<td>27.2</td>
<td></td>
</tr>
<tr>
<td>Philadelphia</td>
<td>79.3</td>
<td>31.1&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>75.6</td>
<td>28.9</td>
<td></td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>75.5</td>
<td>30.9&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>All ADI's</td>
<td>74.2</td>
<td>28.6</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Chi-square analysis indicates significant differences in proportions storing tomatoes at room temperature across ADI's, p = 0.0001.

<sup>b</sup> Percentages are based upon 2,127 respondents that reportedly use fresh tomatoes.

<sup>c</sup> Percentages in Philadelphia and Pittsburgh are statistically different from the percentage observed in the R/L-1 control group, at the 0.5 probability level.
did not know the correct placement (Appendix Table 19).

In all ADI's except Roanoke/Lynchburg, uncooked tomatoes are served cold by a slight majority of homemakers. In New York, about 56 percent served them cold and 44 percent served them after allowing them to return to room temperature. Boston shoppers had the highest proportion serving them cold, with about 64 percent. In the R/L ADI, both samples had similar proportions serving tomatoes cold, slightly over 40 percent (Appendix Table 20). Education and age were the only factors that appeared to be significantly related to shoppers' propensity to serve tomatoes at room temperature. Those in the lowest education categories and older categories were most likely to serve tomatoes at room temperature (Appendix Table 21).

Changes in Storage Practices

Switching from refrigerated to room temperature storage was judged to be a good indicator that the FTE promotional/education program was working. Overall, 28.6 percent of all households using fresh tomatoes reported that they had switched to room temperature storage within the past several years (Table 10). The smallest proportion of "switchers" was observed in the control ADI, Roanoke/Lynchburg, in the sample interviewed prior to T.V. advertising (R/L-1). In this sample, 24.5 percent said they had switched to RTS. R/L-2 had the next lowest percentage, with 27.2 percent. Switchers to RTS constituted 20.6 and 20.9 percent of the households using tomatoes in Boston and New York, respectively. Pittsburgh and Philadelphia had the largest switching rates, with 30.9 and 31.1 percent, respectively (Table 10).
Everyone that was found to be using RTS was asked what effect it had on their satisfaction with tomatoes, i.e., whether it had resulted in greater satisfaction, resulted in no change, or resulted in less satisfaction. Almost 75 percent of the recent switchers, those having adopted RTS within the last three years, reported greater satisfaction. About 22 percent reported no change, and only 3 percent were less satisfied. Those that had been using RTS longer than three years were somewhat less enthusiastic; but even so, over half were more satisfied. About 35 percent reported no change, and 5 percent were less satisfied (Appendix Table 22). There were no significant differences in satisfaction levels expressed by most socio-economic and demographic groups. However, it appears that larger proportions of younger respondents, particularly under 25 years of age, reported no change or reduced satisfaction as a result of using room temperature storage (Appendix Table 23).

The incidence of switching to RTS was relatively similar across virtually all socio-economic and demographic categories. However, one significant difference was in the sex of the recent switchers. Although males represented about 22.5 percent of the primary food shoppers in households using fresh tomatoes, they constituted only 17.5 percent of the recent switchers to RTS. This is consistent with the Exchange's promotion program, which has been targeted primarily towards female audiences.

Purchases of "regular round tomatoes" were compared for households using RTS and refrigerated storage. On the average, those using RTS bought 14.4 tomatoes per month, and those using refrigerated storage 13.0. At first glance, the difference may appear significant, but statistical analysis indicated that the differences were due to
socio-economic and demographic effects rather than room temperature storage.

Direct Evaluation of Promotional Media

Direct evaluations of the various promotional media were obtained through two series of direct questions. The first, addressed to shoppers that had switched to room temperature storage, determined the sources of information that influenced them to switch. The second set of questions was asked of all shoppers using tomatoes, and focused upon direct recall of specific media. Both sets of direct evaluations follow.

Stated reasons for switching to RTS

Shoppers that had switched to RTS within the past three years were asked what sources of information had persuaded or caused them to do so. The question was phrased in a strictly open-ended manner to avoid biasing the respondents. About one-fifth of the shoppers could not remember what had influenced them, but about three-fourths of the recent switchers had been influenced by word-of-mouth or said they had discovered RTS themselves.

Over all ADI’s, television commercials were mentioned by slightly over 13 percent. The R/L sample was excluded from this figure because no T.V. advertising had been used prior to the interviews. The data also reflect this because only 1.2 percent of the R/L-1 switchers said that T.V. commercials had caused them to adopt RTS, compared with a low of 9.5 percent in Pittsburgh to a high of 17.3 percent in New York (Appendix Table 24). T.V. advertising was followed by magazine and newspaper stories with 11.5 and 7.2 percent, respectively. Magazine ads were cited
by almost 7 percent, and T.V. shows and in-store signs by about 4 percent. Store personnel and recipe leaflets and brochures were mentioned by approximately 3 and 2 percent, respectively, and information printed on packages by 0.5 percent (Appendix Table 24).

It was assumed that the promotional media cited by shoppers as having influenced them to switch to RTS had also influenced the shoppers that could not remember specific sources of information, those that had "discovered" it by themselves, and also the originators of the word-of-mouth advice. By eliminating these three categories and recalculating "adjusted" percentages, it was implicitly assumed that the promotional media mentioned had influenced the total population of switchers, although with the same relative impact as indicated in Appendix Table 24. These adjusted percentages show the relative importance of various sources of information influencing consumers to switch to RTS, on a base of 100 (Table 11).

The adjusted percentages probably overestimate the media effects to some degree, whereas the direct percentages shown in Appendix Table 24 understate them. Adjusted percentages were also calculated for T.V. commercials for each ADI as an indication of the impacts of T.V. advertising (Appendix Table 25).

The effectiveness of T.V. advertising was estimated using the adjusted percentages for Boston, Philadelphia, New York, and Pittsburgh. The R/L-1 sample was excluded from the analysis because T.V. commercials had not been used in the R/L ADI prior to the interviews. The R/L-2 sample was not included because it was felt that consumers did not have adequate time between the T.V. advertising and interviews to adopt behavioral changes with respect to tomato storage practices.
Table II.--Relative importance of various sources of information influencing consumers to switch to room temperature storage within the last three years, direct responses, all ADI's.

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>All ADI's, Excluding T.V.</th>
<th>All ADI's</th>
<th>All ADI's Except R/L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent^a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T.V. commercials</td>
<td>22.7</td>
<td>23.9</td>
<td></td>
</tr>
<tr>
<td>Magazine stories</td>
<td>22.7</td>
<td>21.8</td>
<td></td>
</tr>
<tr>
<td>Newspaper stories</td>
<td>14.1</td>
<td>15.2</td>
<td></td>
</tr>
<tr>
<td>Magazine ads</td>
<td>13.2</td>
<td>11.5</td>
<td></td>
</tr>
<tr>
<td>T.V. shows</td>
<td>8.6</td>
<td>9.9</td>
<td></td>
</tr>
<tr>
<td>In-store signs</td>
<td>6.9</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>Store personnel</td>
<td>6.6</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>Leaflets</td>
<td>4.3</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Information on package</td>
<td>1.0</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

^aPercentages are based upon the following numbers of observations: All ADI's, excluding T.V. = 245, All ADI's = 304, and All ADI's except R/L = 243.
For each of the remaining ADI's, the total number of households that had switched to RTS was estimated. Then, the adjusted percent citing T.V. ads as the reason for switching was used to estimate the number of households in each ADI that had switched to RTS as a result of T.V. advertising. Finally, the T.V. advertising budget for each ADI was used to calculate the average cost of converting households to RTS. The lowest average cost per household conversion was Philadelphia, where it was 38 cents, followed by Pittsburgh, with 44 cents per conversion. In New York, the cost was 51 cents, but in Boston it was $1.03 per conversion. Over all four ADI's, the average cost was 56 cents (Table 12).

Recall of media

Another type of direct evaluation for various media was respondents' recall of advertising or publicity for fresh tomatoes. Recall also provided a means of measuring the impact of T.V. advertising in the Roanoke/Lynchburg ADI through comparing recall rates for the R/L-1 and R/L-2 samples. Detailed analyses of the R/L-1 and R/L-2 samples showed that they were very similar with respect to virtually all socio-economic and demographic variables (Appendix Table 26).

T.V. commercials.--The R/L-1 sample had a recall rate of 10.5 percent for T.V. commercials, even though none had been used in the market by the FTE, nor anyone else so far as is known. Part of this apparently spurious recall may have been due to respondents recalling local food retailers' ads, publicity tapes, or public service announcements. It may also have been due to the tendency of some respondents to try to please the interviewer by reporting positive results, or simply a result of faulty recall. In any event, it must be assumed that some degree of
Table 12.—Effectiveness of T.V. advertising, direct response, by ADI's.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Households Using Tomatoes</th>
<th>Percent Switching to RTS</th>
<th>Households Switching to RTS</th>
<th>Adjusted Percent Citing T.V. Ads</th>
<th>Households Switching Due to T.V.</th>
<th>Cost per Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>(1,000)</td>
<td>(1,000)</td>
<td></td>
<td></td>
<td>(1,000)</td>
<td>(Dollars)</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>1,749.0</td>
<td>28.6</td>
<td>500.2</td>
<td>26.2</td>
<td>131.0</td>
<td>1.03</td>
</tr>
<tr>
<td>New York</td>
<td>2,265.6</td>
<td>31.1</td>
<td>704.6</td>
<td>23.7</td>
<td>167.0</td>
<td>0.38</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>5,922.3</td>
<td>28.9</td>
<td>1,711.5</td>
<td>28.1</td>
<td>480.3</td>
<td>0.51</td>
</tr>
<tr>
<td>Total</td>
<td>10,990.1</td>
<td>29.5</td>
<td>3,241.7</td>
<td>25.7</td>
<td>833.3</td>
<td>0.56</td>
</tr>
</tbody>
</table>

aThe observations from R/L-1 were excluded because no T.V. advertising had been conducted prior to the interviews. Observations from R/L-2 were excluded because it was felt that consumers did not have adequate time between the T.V. advertising and interviewing to adopt behavioral changes with respect to tomato storage practices.

bBased upon total T.V. households found in Table 2 and tomato use figures from Table 5.

cRTS = Room Temperature Storage

dThis percentage of respondents citing T.V. commercials as a reason for switching to RTS is adjusted to eliminate responses such as "word-of-mouth," "do not know," etc. The implicit assumption is that the respondents that were in the eliminated categories were influenced by the same media and in the same proportions as those that did recall specific sources.

eBased upon T.V. advertising expenditures shown in Table 2.
faulty recall occurred over all media types, which still allows for relative evaluations of the various media.

After the two-week period of T.V. advertising in the Roanoke/Lynchburg ADI, the T.V. commercial recall rate jumped to 30.3 percent (Table 13). Assuming that all of the T.V. commercial recall in the R/L-1 sample was spurious and that a similar level of faulty recall was present in the R/L-2 sample as well, it appears that 19.0 percent of the primary food shoppers in all households using tomatoes had legitimate recall of T.V. commercials for fresh tomatoes following the two-week advertising effort. Of those having recall of T.V. commercials in R/L-2, 30 percent were able to correctly identify some aspect of the "Tomato Man" or "Blizzard" spots or were able to recall the basic message of the two spots. Thus, in the entire R/L ADI, an estimated 60,700 households had recall of T.V. commercials for fresh tomatoes in the week immediately following the two-week advertising effort. The cost of reaching these households was slightly over 18 cents each. An estimated 18,200 households, about 6 percent of those using tomatoes, had correct recall of the basic FTE message. Thus, the cost per correct household recall was estimated to be about 60 cents.

In addition to the increase in recall of T.V. commercials in the R/L-2 sample, an interesting "spill-over" effect was observed. During the two-week period in which T.V. advertising was conducted, no other promotional activities were used for fresh tomatoes in the Roanoke/Lynchburg ADI. Yet, consumers' recall of all other promotional media increased significantly compared with the R/L-1 sample. The relatively large sample sizes and the similarity of the two samples with respect to socio-economic and demographic composition indicate that most of the increased recall is due to a spill-over effect initiated by the T.V.
Table 13.--Consumers' recall of promotional media used for fresh tomatoes.

<table>
<thead>
<tr>
<th>Media Type</th>
<th>Boston</th>
<th>R/L-1</th>
<th>F/L-2</th>
<th>Philadelphia</th>
<th>New York</th>
<th>Pittsburgh</th>
<th>All A&amp;I's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper stories&lt;sup&gt;c&lt;/sup&gt;</td>
<td>27.8</td>
<td>31.4</td>
<td>37.1</td>
<td>36.9</td>
<td>28.8</td>
<td>32.4</td>
<td>32.4</td>
</tr>
<tr>
<td>Recipes, leaflets</td>
<td>25.6</td>
<td>27.4</td>
<td>29.4</td>
<td>26.4</td>
<td>23.4</td>
<td>26.1</td>
<td>26.3</td>
</tr>
<tr>
<td>Television commercials</td>
<td>15.3</td>
<td>10.5</td>
<td>30.3</td>
<td>17.7</td>
<td>16.1</td>
<td>20.4</td>
<td>19.9&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Magazine ads</td>
<td>9.7</td>
<td>15.7</td>
<td>23.9</td>
<td>15.7</td>
<td>12.5</td>
<td>14.6</td>
<td>15.3</td>
</tr>
<tr>
<td>Posters in stores</td>
<td>13.3</td>
<td>11.5</td>
<td>16.8</td>
<td>10.7</td>
<td>14.8</td>
<td>18.4</td>
<td>14.2</td>
</tr>
<tr>
<td>Other television&lt;sup&gt;b&lt;/sup&gt;</td>
<td>10.3</td>
<td>10.3</td>
<td>17.1</td>
<td>13.5</td>
<td>11.1</td>
<td>16.0</td>
<td>13.1</td>
</tr>
<tr>
<td>Magazine stories</td>
<td>9.2</td>
<td>11.4</td>
<td>17.2</td>
<td>15.2</td>
<td>13.1</td>
<td>10.3</td>
<td>12.7</td>
</tr>
<tr>
<td>Radio commercials</td>
<td>3.3</td>
<td>6.0</td>
<td>10.1</td>
<td>6.1</td>
<td>6.7</td>
<td>6.4</td>
<td>6.4</td>
</tr>
</tbody>
</table>

<sup>a</sup>The base used to calculate this percentage excludes observations in R/L-1 because no television commercials had been aired prior to April 1, 1985.

<sup>b</sup>Includes food shows, feature stories, and news stories.

<sup>c</sup>Includes food page stories and recipes, but not price ads.
advertising. The spill-over recall is probably caused by heightened awareness, and to confusion on the part of consumers as to the correct source of the tomato advertising.

In other ADI's, recall of advertising for fresh tomatoes ranged from 15 percent in Boston to 20.4 percent in Pittsburgh. The average over all ADI's, excluding R/L-1, was nearly 20 percent (Table 13). Recall of T.V. advertising was similar over most socio-economic and demographic characteristics. However, respondents with lowest educational levels and those under 35 years of age had significantly higher recall (Appendix Table 27).

Those that recalled T.V. advertising were probed to determine specific settings, characters, and messages they recalled. Slightly over half could not recall any specific details, but about 8 percent recalled sufficient details to attribute their recall directly to the PTE-sponsored commercials (Table 14). However, almost half of the respondents recalling the "Tomato Man" or "Blizzard" commercials were in R/L-2. The "Tomato Man" spot was apparently more effective than the "Blizzard" spot, as it was recalled by almost three times as many respondents (Table 14). Several knew the commercial they saw had something to do with storage of fresh tomatoes, but they misinterpreted the message, saying that the commercial said to refrigerate tomatoes.

The kitchen ripening concept was remembered by 11 percent of those recalling T.V. commercials, but they could not give any other details that would confirm the exact source. It is probable that these viewers saw the two paid spots, but there is a chance that some of these respondents viewed the publicity tape and thought it was a commercial. A few, 2.2 percent, mentioned details that confirmed that they had seen the
Table 14.--Recall of specific television commercial messages.

<table>
<thead>
<tr>
<th>Message</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid FTE Advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomato man commercial; correct message</td>
<td>14</td>
<td>3.8</td>
</tr>
<tr>
<td>Tomato man commercial; partial message^a</td>
<td>10</td>
<td>2.7</td>
</tr>
<tr>
<td>Blizzard commercial; correct message</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Blizzard commercial; partial message^a</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Subtotal</td>
<td>29</td>
<td>7.9</td>
</tr>
<tr>
<td>Unidentified FTE spot, wrong message</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Uncertain Sources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kitchen ripening theme</td>
<td>40</td>
<td>11.0</td>
</tr>
<tr>
<td>Florida is source of fresh tomatoes</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>Publicity tapes</td>
<td>8</td>
<td>2.2</td>
</tr>
<tr>
<td>Nutritional information, fresh use and selection</td>
<td>20</td>
<td>5.5</td>
</tr>
<tr>
<td>General tomato attributes, unknown source</td>
<td>20</td>
<td>5.5</td>
</tr>
<tr>
<td>Other tomato advertising^b</td>
<td>48</td>
<td>13.2</td>
</tr>
<tr>
<td>Do not recall any message</td>
<td>194</td>
<td>53.3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>364</td>
<td>100.0^c</td>
</tr>
</tbody>
</table>

^aRespondents were able to correctly recall some aspect or aspects of the commercial, but did not mention the kitchen ripening theme.

^bIncludes commercials of local food stores, food processors, and sources other than FTE.

^cDoes not sum to 100.0 due to rounding.
publicity tape, also sponsored by the FTE. A very small number, less than one percent, recalled Florida as a source of tomatoes, while about 5 percent mentioned details about nutritional information, selection and use. An equal number recalled messages about general tomato attributes (such as taste, color, and freshness), but enough details could not be recalled to identify the source. Finally, about 13 percent mentioned details that were definitely unrelated to the FTE’s T.V. spots or publicity tape. Most could be attributed to local food stores or food processors and manufacturers (Table 14).

Newspaper stories.—Newspaper stories were the most frequently recalled media, remembered by nearly a third of all respondents. However, there were significant differences among ADI's, with the recall rate ranging from about 28 percent in Boston to 37 percent in R/L-2 (Table 13).

Tomato recipes, leaflets or booklets.—Slightly over one-fourth of all shoppers using tomatoes recalled seeing tomato recipes, leaflets or booklets. This category had the second largest recall. The differences among ADI's were slight and were not statistically significant (Table 13). Recall was similar for most socio-economic and demographic groups, but females and respondents in the lowest and highest educational groups had the highest recall levels (Appendix Table 28).

Magazine ads.—Overall, the eight magazines used for FTE advertising had the potential for reaching slightly over 65 percent of the target households because less than 35 percent were non-subscribers (Appendix Table 29). Magazine ads were the fourth most frequently mentioned item, recalled in total by about 15 percent of the respondents. However, there were significant differences among ADI's. Boston had the lowest recall
rate, 9.7 percent, and R/L-2 the highest with nearly 24 percent (Table 13). Recall for other ADI's was very near the overall value of 15 percent. Some of the differences among ADI's were apparently due to the differences in subscription rates. Examination of subscription rates by ADI revealed that Boston had the lowest overall subscription rate for the eight magazines used for FTE advertising, while R/L-2 had the highest (Appendix Table 30). Recall was greatest for females, those in lower educational categories, and 35- to 65-year-olds. Other socio-economic and demographic characteristics had no discernible effect on recall (Appendix Table 31).

Few of the interviewees could recall the nature of the magazine ad, however. Less than 2 percent correctly remembered the basic message of kitchen ripening. Several more percent associated "Florida" with the message. In total, slightly more than 4 percent mentioned details which could be attributed to the FTE-sponsored commercials (Table 15). However, nearly 7 percent of the responses were vague, mentioning pictures of fresh tomatoes but recalling no specific messages. Some of these could have seen the FTE ad which featured a red-ripe tomato, but in any case, they failed to recall the basic FTE message. Over 55 percent of those recalling magazine ads for fresh tomatoes could not recall any specific message, and many others were clearly not attributable to the FTE-sponsored ad (Table 15).

Posters in stores.—Overall, about 14 percent remembered seeing posters in stores promoting fresh tomatoes, but there was significant variation among ADI's. The percentage recalling posters ranged from 10.7 percent in Philadelphia to 18.4 percent in Pittsburgh (Table 13). There were few significant differences in recall among socio-economic and
Table 15.--Recall of specific magazine advertisement messages.

<table>
<thead>
<tr>
<th>Message</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct message</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>Words &quot;Florida Tomatoes&quot; or &quot;Buy Florida Tomatoes&quot;</td>
<td>8</td>
<td>2.6</td>
</tr>
<tr>
<td>Subtotal</td>
<td>13</td>
<td>4.2</td>
</tr>
<tr>
<td>Recipes, fresh use, serving suggestions, general tomato attributes</td>
<td>64</td>
<td>20.5</td>
</tr>
<tr>
<td>Picture of tomatoes or word &quot;tomatoes&quot;</td>
<td>21</td>
<td>6.7</td>
</tr>
<tr>
<td>Processed product advertisements</td>
<td>11</td>
<td>3.5</td>
</tr>
<tr>
<td>Horticultural/gardening information</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>Sales or price information</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Other tomato advertising(^a)</td>
<td>24</td>
<td>7.7</td>
</tr>
<tr>
<td>Do not recall any message</td>
<td>172</td>
<td>55.3</td>
</tr>
<tr>
<td>Total</td>
<td>311</td>
<td>100.0(^b)</td>
</tr>
</tbody>
</table>

\(^a\)Advertisements from sources other than FTE.

\(^b\)Does not sum to 100.0 due to rounding.
demographic categories; however, younger respondents tended to have significantly greater recall (Appendix Table 32). Respondents recalling posters in stores were also asked to recall what specific message the poster contained. Over half could not recall any message, and over one fifth recalled price information or pictures of tomatoes. About 16 percent remembered general product attributes being mentioned on the poster (such as fresh, delicious, red-ripe, etc.), and about 3 percent remembered nutritional information, recipes, and serving suggestions. About one percent said posters referred to "Florida," but no one recalled the "do not refrigerate" message used in the retail promotion (Table 16).

Even though posters had the fifth highest recall, this measure probably overestimates the relative importance of posters in the FTE promotional program. This conclusion is drawn because many of the specific messages recalled were judged to be price cards from sources other than the FTE and because no one mentioned the basic message of kitchen ripening.

Other television.--Other television was defined for respondents as "food shows, feature stories and news stories" to differentiate these publicity items from T.V. commercials. Slightly over 13 percent of the respondents recalled seeing them used for fresh tomatoes. There were significant differences in recall among ADI's, ranging from a low of 10.0 percent in Boston and R/L-1 to 17.1 percent in R/L-2. New York, Philadelphia and Pittsburgh had recalled levels of 11.1, 13.5 and 16.0 percent, respectively (Table 13). Recall was similar for all socio-economic and demographic variables except income. Respondents with lowest incomes had highest recall rates, and respondents with highest incomes had significantly lower recall rates (Appendix Table 33).
Table 16.--Recall of specific in-store poster messages.

<table>
<thead>
<tr>
<th>Message</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not recall</td>
<td>141</td>
<td>51.8</td>
</tr>
<tr>
<td>Posters with prices and/or pictures</td>
<td>59</td>
<td>21.8</td>
</tr>
<tr>
<td>General tomato attributes</td>
<td>45</td>
<td>16.5</td>
</tr>
<tr>
<td>Nutritional information, recipes, serving suggestions</td>
<td>8</td>
<td>2.9</td>
</tr>
<tr>
<td>Recall Florida advertising</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Other advertising (not FTE)</td>
<td>12</td>
<td>4.4</td>
</tr>
<tr>
<td>Miscellaneous (^a)</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>212</strong></td>
<td><strong>100.0</strong>(^b)</td>
</tr>
</tbody>
</table>

\(^a\)Miscellaneous includes messages for prizes and identification of tomato types, i.e., cherry tomatoes.

\(^b\)Does not sum to 100.0 due to rounding.
Magazine stories. Recall of magazine stories ranked seventh among the promotional media used for fresh tomatoes, but the proportion recalling them was not markedly different from the proportions recalling "other television," posters and magazine ads. The overall recall rate was 12.7 percent, but it varied from 9.2 percent in Boston to 23.9 percent in R/L-2 (Table 13). Much of the variation among ADI's is probably due to differences in magazine subscription rates. There were no significant differences in recall among socio-economic and demographic groups.

Radio commercials.--The FTE has sponsored no radio commercials per se; however, during the past two seasons, a public service announcement has been distributed to most AM and FM radio stations east of the Mississippi River. Thus, the radio "commercials" that respondents recalled were most likely the public service announcements or faulty recall caused by spill-over from other media. In any event, recall of radio was much lower than for any other media, reflecting the FTE's program emphasis. In most ADI's, the recall rate was about 6 percent, except in Boston where it was slightly over 3 percent. In R/L-2, the rate was slightly over 10 percent, which emphasizes the spurious effects of spill-over (Table 13). Recall of radio commercials was similar for most socio-economic and demographic groups, but there were several exceptions. Those in lower educational groups and those over 65 years of age had greatest recall (Appendix Table 34).

Indirect Evaluation of Media

Two indirect evaluations were made. The first, to be discussed below, is a simple comparison of switching rates to room temperature storage for the control ADI where no T.V. advertising had been
conducted, with switching rates in ADI's where T.V. advertising had been used. The second indirect evaluation utilizes a relatively complex statistical model to determine the factors that were associated with switching behavior.

Control ADI comparisons.--Because no T.V. advertising had been conducted in the Roanoke/Lynchburg ADI prior to the first round of interviews, it was assumed that all switching to RTS was the result of all other promotional activities. The switching rate observed in the R/L-1 sample was taken as the benchmark for comparisons with other ADI's to isolate the effects of T.V. advertising. This makes the implicit assumption that all other media effects were constant over all ADI's, including Roanoke/Lynchburg.

The switching rate, 24.5 percent, observed in the R/L-1 sample was subtracted from switching rates observed in the other four ADI's (Tables 10, 17). The R/L-2 sample was excluded because it was felt that consumers did not have adequate time between the T.V. advertising and interviewing to adopt behavioral changes with respect to tomato storage practices. The differences in storage rates between R/L-1 and the other four ADI's were then applied to the population of tomato-using households to estimate the number of households switching to RTS as a result of T.V. advertising. This result, along with T.V. advertising expenditures for the respective ADI's (from Table 5), allowed computation of the cost per household converted to RTS. Estimated conversion costs ranged from 36 cents per household in Pittsburgh to $1.89 per household in Boston. Over all four ADI's, the average cost per conversion was estimated to be 85 cents (table 11).
Table 17.--Effectiveness of T.V. advertising, control ADI comparisons.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Households Using Tomatoes</th>
<th>Switching Due to T.V.</th>
<th>Households Switching Due to T.V.</th>
<th>Cost per Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>(1,000)</td>
<td>4.1</td>
<td>71.7</td>
<td>1.89</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>2,265.6</td>
<td>6.6</td>
<td>149.5</td>
<td>0.43</td>
</tr>
<tr>
<td>New York</td>
<td>5,922.3</td>
<td>4.4</td>
<td>260.6</td>
<td>0.93</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>1,053.2</td>
<td>6.4</td>
<td>67.4</td>
<td>0.36</td>
</tr>
<tr>
<td>Total</td>
<td>10,990.1</td>
<td>5.0</td>
<td>549.2</td>
<td>0.85</td>
</tr>
</tbody>
</table>

The observations from R/L-1 were excluded because no T.V. advertising had been conducted prior to the interviews. Observations from R/L-2 were excluded because it was felt that consumers did not have adequate time between the T.V. advertising and interviewing to adopt behavioral changes with respect to tomato storage practices.

The percent switching due to T.V. advertising is simply the difference between the observed percentage of switchers in the control ADI (R/L-1) and the observed percentage of switchers in the other ADI's. The resulting percentage is applied to total households using tomatoes to calculate the number of households switching due to T.V.
The probit analysis model.--The purpose of this analysis was to study the influence of household characteristics and consumers' recall of various types of promotional media on the household's decision to switch from refrigerated to room temperature storage for fresh tomatoes. A basic assumption is that the response variable \( y^* \), i.e., whether the respondent switched from refrigerated to RTS, can be explained by a set of predetermined variables, \( x \), which includes selected household characteristics and respondents' recall of selected promotional media. The regression relationship is

\[
(1) \quad y_i^* = \beta' x_i + u_i;
\]

where \( i \) indicates household \( i \). In practice, \( y_i^* \) is unobservable. What we observe is a dummy variable \( y_i \), defined as

\[
(2) \quad y_i = 1 \quad \text{if } y_i^* > 0 \\
= 0 \quad \text{otherwise}
\]

Relationships (1) and (2) can be estimated with a model developed by Goldburger, the probit analysis model.

The probit model represented by (1) and (2) was estimated using the tomato survey data for 653 households which resided in the New York, Philadelphia, Pittsburgh, Boston and Roanoke/Lynchburg ADI's. The households included in the analysis were those who used fresh regular round tomatoes and either stored their tomatoes in the refrigerator during the survey period (310 households) or switched from refrigerated to room temperature storage within the past three years (343 households).

The explanatory variables, represented in (1) as \( x \), used in the analysis include the number of subscriptions to magazine that could have contained FTE ads, an age (six age groups, i.e., 18, 23, 30, 42.5, 57.5 and 65 years of age) and an education dummy variable (1 for college
education and beyond. 0 otherwise), an income variable (i.e., five income
groups with values of 10, 15, 22.5, 42.5 and 50 thousand dollars, respec-
tively), a race dummy variable (1 for white, 0 otherwise), a sex variable
(1 for female, 0 otherwise) of the respondent, and six dummy variables,
which indicated whether or not the respondent recalled seeing or hearing
any advertising and publicity for fresh tomatoes in the past three years
in television commercials, television shows, magazine stories, newspapers,
radio programs, posters, and leaflets (1 for recalled, 0 otherwise), and
four dummy variables for the city in which the respondent resided (Roanoke/
Lynchburg was used as the base for comparison).

The education, age, income, race, sex and city variables were used to see whether household characteristics had any impact on the switching
behavior of the respondent, and the magazine and media recall variables
were used to measure the impact of the different advertising and publi-
city media on the switching behavior of the respondent. The probit model
was estimated with the maximum likelihood method and the results are pre-
sented in Table 18.

In Table 18, the estimated coefficients and their corresponding
t-ratios are presented in the first two columns; marginal probabilities,
i.e., the change in the probability of switching to RTS with respect to a
one-unit change in the explanatory variable, computed at sample means,
are presented in Column 3; the sample means or proportions and their
associated standard errors are presented in the last two columns.

The estimated coefficient for the magazine subscription variable
indicates that the likelihood that a respondent will switch to RTS is
positively related to the number of magazines to which the respondent
subscribes. Note that the magazines considered in this analysis are the
Table 18.--Maximum likelihood estimates for the probit model.

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Parameter Estimate</th>
<th>T-Ratio</th>
<th>Marginal Probability</th>
<th>Mean/Proportion</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.0549</td>
<td>3.9728&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.3960</td>
<td>1.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td># Magazines</td>
<td>0.0418</td>
<td>1.5553&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.0157</td>
<td>1.8055</td>
<td>2.0200</td>
</tr>
<tr>
<td>Education</td>
<td>-0.0452</td>
<td>0.4184</td>
<td>-0.0170</td>
<td>0.4135</td>
<td>0.4928</td>
</tr>
<tr>
<td>Age</td>
<td>0.0095</td>
<td>2.4559&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.0036</td>
<td>43.1501</td>
<td>13.7222</td>
</tr>
<tr>
<td>Income</td>
<td>0.0041</td>
<td>1.0872</td>
<td>0.0015</td>
<td>25.9495</td>
<td>14.2137</td>
</tr>
<tr>
<td>Race (White)</td>
<td>0.1206</td>
<td>0.0196</td>
<td>0.0400</td>
<td>0.0729</td>
<td>0.3333</td>
</tr>
<tr>
<td>Sex (Female)</td>
<td>0.3018</td>
<td>2.5236&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.1133</td>
<td>0.7412</td>
<td>0.4383</td>
</tr>
<tr>
<td>Boston</td>
<td>-0.1046</td>
<td>0.6532</td>
<td>-0.0393</td>
<td>0.2358</td>
<td>0.4248</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>0.3493</td>
<td>2.0724&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.1312</td>
<td>0.1868</td>
<td>0.3901</td>
</tr>
<tr>
<td>New York</td>
<td>0.2518</td>
<td>1.5072&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.0945</td>
<td>0.1884</td>
<td>0.3913</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>0.1590</td>
<td>0.9856</td>
<td>0.0600</td>
<td>0.2067</td>
<td>0.4053</td>
</tr>
<tr>
<td>T.V. Comm.</td>
<td>0.3624</td>
<td>2.6594&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.1361</td>
<td>0.1838</td>
<td>0.3876</td>
</tr>
<tr>
<td>T.V. Show</td>
<td>0.1954</td>
<td>1.2551&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.0734</td>
<td>0.1394</td>
<td>0.3466</td>
</tr>
<tr>
<td>Newspaper</td>
<td>-0.0764</td>
<td>0.5215</td>
<td>-0.0287</td>
<td>0.1485</td>
<td>0.3559</td>
</tr>
<tr>
<td>Radio</td>
<td>-0.0923</td>
<td>0.7530</td>
<td>-0.0346</td>
<td>0.2542</td>
<td>0.4358</td>
</tr>
<tr>
<td>Posters</td>
<td>0.1010</td>
<td>0.8700</td>
<td>0.0379</td>
<td>0.3201</td>
<td>0.4669</td>
</tr>
<tr>
<td>Leaflets</td>
<td>0.0611</td>
<td>0.2317</td>
<td>0.0229</td>
<td>0.0429</td>
<td>0.2027</td>
</tr>
</tbody>
</table>

---

Observations 653

% Wrong 0.3911

AIC<sup>C</sup> 444.24

<sup>a</sup>Statistically different from zero at α = .025 level.

<sup>b</sup>Statistically different from zero at α = .10 level.

<sup>c</sup>AIC represents the Akaike information criterion (Amemiya).
ones which carried fresh tomato advertising in the last two seasons. The marginal probability estimate indicates that if the respondent increases his magazine subscription by one, his probability of switching to room temperature storage of fresh tomatoes will be increased by .016 (Table 18).

The result shows that the older the respondent, the more likely he/she will switch to RTS. The estimated probability shows that as the respondent's age is increased by one year, the probability of switching would be increased by .0036. The estimated coefficient for the sex dummy variable indicates that female respondents were more likely to switch than their male counterparts. The result shows that if the respondent is female, then the probability of switching to room temperature storage of fresh tomatoes will be increased by .1133. The estimated coefficients for the ADI dummy variables indicates that respondents residing in Philadelphia or New York were more likely to switch than those who resided in other ADI's.

The estimated coefficients for the media recall dummy variable show that respondents recalling television commercials or television shows were more likely to switch to RTS, while recalling other media did not have significant impact on the likelihood of switching. If a respondent recalled advertising in television or television shows, his probability of switching increased by .1361 and .0734, respectively.

The above analysis indicates that the likelihood that a respondent will switch to RTS is positively related to the number of magazines to which he subscribes, his age, whether the respondent is female, and whether the respondent recalls any television commercials or television shows dealing with fresh tomatoes. Respondents residing in New York or
Philadelphia also had a greater likelihood of switching to RTS.

The relative importance of the statistically significant variables on switching behavior can be ascertained from the magnitude of their marginal probabilities. Thus, in terms of factors that can be influenced by the FTE, it appears that T.V. commercials and publicity have the greatest impact on switching behavior. While the number of magazines the respondents subscribed to that contained FTE ads was statistically significant, this variable may be reflecting some other attribute of the respondent (such as intelligence, inquisitiveness, etc.) rather than actual influence of an FTE ad. Another reason to view the magazine subscription variable with caution is that direct recall of magazine ads for fresh tomatoes was examined in another probit model and was not found to be statistically significant.

Member Survey

Members of the Exchange were interviewed by telephone in early May to determine their attitudes toward various promotional and public relations activities and toward alternative levels of support. A total of 28 out of 29 members were interviewed, plus two former members. Everyone interviewed was a top decisionmaker in his firm, and over 98 percent of the Exchange's 1983-84 volume was represented by the members interviewed. A copy of the questionnaire used is included in Appendix A.

Attitudes toward the overall promotional program and toward its individual elements were explored by getting members to rate the effectiveness of various activities and to make budget recommendations for them. Individual elements evaluated were food publicity, the retail promotion program, public relations activities, magazine advertising, and television advertising.
Effectiveness ratings were made using a scale where 1 represented "extremely effective" and 9 represented "extremely ineffective." Members' ratings were averaged as in indication of their attitudes, and ratings were also categorized to determine if responses were basically positive, neutral, or negative. Ratings of 1-4 were considered positive, 5 neutral, and 6-9 negative.

The food publicity program received the highest average rating, 2.4, as well as one of the largest proportions of positive ratings. Twenty-five of those interviewed gave it a positive rating, and only two a negative rating. Members' recommended annual budgets for food publicity activities ranged from zero to $150,000, but the average was nearly $50,000 (Table 20).

The retail promotion program also received high marks. The average rating was 2.7. 25 members gave positive ratings, while only one assigned it a negative rating. Recommended budgets ranged from $30,000 to $300,000 and averaged nearly $48,000 (Tables 19 and 20).

The public relations program received slightly lower evaluations, with an average rating of 3.7. Slightly over 70 percent of the members gave it a positive rating, but 21 percent were negative. Members' recommended budgets for the public relations program ranged from zero to $135,000 and averaged almost $31,000 (Tables 19 and 20).

Magazine advertising received an average rating of 3.8. Eighteen members gave it positive ratings, but 3 were neutral and 0 negative.

Budget recommendations ranged from zero to $1 million and averaged nearly $140,000 (Tables 19 and 20).

Television advertising received the lowest average rating, 3.9. However, 19 members gave it positive evaluations, three were neutral, and
Table 19. Florida tomato exchange members' evaluations of the effectiveness of various promotional and public relations programs.

<table>
<thead>
<tr>
<th>Program Area</th>
<th>Average Rating&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Rating Categories&lt;sup&gt;b&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td>Neutral</td>
<td>Negative</td>
<td>Number/Percent</td>
</tr>
<tr>
<td>Food publicity</td>
<td>2.4</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Retail promotion</td>
<td>2.7</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Public relations</td>
<td>3.7</td>
<td>20</td>
<td>2</td>
<td>6</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Magazine advertising</td>
<td>3.8</td>
<td>18</td>
<td>3</td>
<td>8</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Television advertising</td>
<td>3.9</td>
<td>19</td>
<td>3</td>
<td>6</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Overall effectiveness</td>
<td>4.5</td>
<td>14</td>
<td>4</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Ratings were made using a scale where 1 = extremely effective and 9 = totally ineffective.

<sup>b</sup>Responses to the nine point scale described above were categorized as follows: 1 through 4 = positive, 5 = neutral and 6 through 9 = negative.
Table 20. Members' suggested budgets for various promotional and public relations programs.

<table>
<thead>
<tr>
<th>Program area</th>
<th>Budget Recommendations</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average</td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>- - - - - - 1,000 Dollars - - - - - -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food publicity</td>
<td>49.6</td>
<td>0</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Retail promotion</td>
<td>47.6</td>
<td>30</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Public relations</td>
<td>30.9</td>
<td>0</td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>Television advertising</td>
<td>546.1</td>
<td>0</td>
<td>2,500</td>
<td></td>
</tr>
<tr>
<td>Magazine advertising</td>
<td>139.6</td>
<td>0</td>
<td>1,000</td>
<td></td>
</tr>
</tbody>
</table>
six negative (Table 19). Members' budget recommendations were extremely variable, ranging from zero to $2.5 million. The average was about $546,000 (Table 20).

Interestingly, members' evaluations of the overall promotional program were more critical than of any of the individual components. The overall effectiveness rating averaged 4.5, with 14 members giving positive ratings, 4 neutral, and 10 negative (Table 19). Members also rated the current promotional program as to the degree that it represented the desires of the membership, using a rating scale where 1 = extremely well and 9 = not at all. The average rating was 4.4, with 13 positive responses, 6 neutral, and 8 negative.

Extreme differences of opinion as to the size of the promotional budget led to these results, with some members critical of the current budget because it was viewed as being too large, and others critical because the current budget was thought to be too small to be effective. Thirteen members (45 percent) wanted the overall advertising and promotion budget increased, eight (28 percent) wanted it to remain at 1984-85 levels, and eight also wanted the budget decreased.

With the exception of the Executive Committee and a few others, members did not appear to be well informed as to the nature, extent, or effectiveness of the promotional program. Members' estimates of the Exchange's current season's total expenditures for promotion and public relations ranged from $50,000 to $1 million and averaged about $452,000. Many members were reluctant to evaluate the program, citing a lack of facts. Seventeen members thought that the promotional programs had been inadequately evaluated, but 12 thought that evaluations had been adequate.

The member survey also demonstrated that it is difficult for members
to second-guess the consumer. Members thought that 26 percent of all households were storing tomatoes at room temperature, but the consumer survey showed almost the exact opposite situation, with 74 percent using RTS (Table 21). Members also thought that the proportion of shoppers preferring Mexican tomatoes was twice as large as indicated by the consumer survey, but their estimates of the number of recent switchers to RTS were close to the survey results (Table 21).

Members were also asked to identify the aspects of the promotional and public relations program which they liked best and those which they disliked most. The things liked best included the kitchen ripening theme, mentioned by seven members, and the T.V. advertising and food publicity activities, each cited by six members. Magazine advertising and T.V. publicity tapes were each mentioned by one member (Table 22). Sixteen members, 53 percent of those interviewed, said they disliked nothing in particular about the promotional and public relations program. However, T.V. advertising and lack of adequate evaluation of all promotional efforts were each mentioned by three members. Paid advertising in general and the “Tomato Man” commercial in particular were each disliked by two members. Rebuttals written to adverse publicity, poorly written public relations press releases, the inadequacy of the current budget, and advertising “Florida” tomatoes were each criticized by one member (Table 22).

Twenty-two members voiced suggestions for making the total program more effective. The most frequently mentioned ideas were to make assessments mandatory, to increase the promotional budget, and to educate consumers as to unfair marketing margins, each mentioned by four members. Three members suggested evaluating the program more often. Increased use
Table 21. A comparison of FTE members' estimates of consumer's attitudes and behavior with the consumer survey.

<table>
<thead>
<tr>
<th>Item</th>
<th>Members' estimates</th>
<th>Consumer survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of households storing tomatoes at room temperature</td>
<td>26.0</td>
<td>74.2</td>
</tr>
<tr>
<td>Consumers preferences for Mexican tomatoes</td>
<td>12.4</td>
<td>6.2</td>
</tr>
<tr>
<td>Proportion switching to room temperature storage within past three years(^a)</td>
<td>44.5</td>
<td>39.4</td>
</tr>
</tbody>
</table>

\(^a\)Based upon the total number currently using room temperature storage.
Table 22. Aspects of the current promotional and public relations program liked best and least by FTE members.

<table>
<thead>
<tr>
<th>Likes and Dislikes</th>
<th>Number of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Things liked best</strong></td>
<td></td>
</tr>
<tr>
<td>Kitchen ripening theme</td>
<td>7</td>
</tr>
<tr>
<td>Television advertising</td>
<td>6</td>
</tr>
<tr>
<td>Food publicity</td>
<td>6</td>
</tr>
<tr>
<td>Magazine advertising</td>
<td>1</td>
</tr>
<tr>
<td>Television publicity tape</td>
<td>1</td>
</tr>
<tr>
<td><strong>Things disliked most&lt;sup&gt;a&lt;/sup&gt;</strong></td>
<td></td>
</tr>
<tr>
<td>Television advertising</td>
<td>3</td>
</tr>
<tr>
<td>Lack of evaluation</td>
<td>3</td>
</tr>
<tr>
<td>Paid advertising</td>
<td>2</td>
</tr>
<tr>
<td>Tomato man commercial</td>
<td>2</td>
</tr>
<tr>
<td>Rebuttals</td>
<td>1</td>
</tr>
<tr>
<td>Poorly written (PR) press releases</td>
<td>1</td>
</tr>
<tr>
<td>Inadequate budget</td>
<td>1</td>
</tr>
<tr>
<td>Advertising &quot;Florida&quot; tomatoes</td>
<td>1</td>
</tr>
</tbody>
</table>

<sup>a</sup>Sixteen of those interviewed, 53 percent, disliked nothing.
of food publicity and advertising were each suggested by one member. Other ideas, each mentioned by one member, included greater use of color in printed matter, promotion of foodservice use of tomatoes, promotion of "Florida" tomatoes, stabilization of prices, and elimination of the Committee and the Exchange (Table 23).

Members were presented with a hypothetical array of assessment levels and were asked at each whether they would continue to support the activities of the Exchange. Exchange revenues were then projected for each assessment, based upon the respective assessment levels and each member’s 1983-84 volume. At 3/4¢ per carton, 28 of the 30 individuals interviewed said they would continue their support; revenues would amount to approximately $260,000 (Table 24). At 2.0 cents, the number of supporting members dropped to 18, but revenue increased to about $419,000. When raised to 2.75 cents, hypothesized membership declined to 15, but revenues were projected at slightly over $537,000. Increased to 3 cents, membership was down to 13, but revenues remained at $537,000. At 3.5 cents per carton, membership dropped to 10 and revenues delined to about $487,000. When assessments were increased to 4 and 5 cents per carton, hypothetical membership went to nine and seven members, respectively, but revenues increased to about $550,000 and $618,000, respectively. This tendency for revenues to increase despite precipitous declines in the number of members was due to the attrition of relatively small firms.

It appears unlikely that revenues to sustain high levels of promotional activity can be obtained by raising assessments at this time. Appreciably higher assessments will reduce the number of participants, which will in turn reduce the willingness of the remaining firms to pay the larger assessments for the benefit of the entire industry.
Table 23. Members' suggestions for making the overall promotional and public relations program more effective.

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>Number of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make assessments mandatory</td>
<td>4</td>
</tr>
<tr>
<td>Increase the budget</td>
<td>4</td>
</tr>
<tr>
<td>Educate consumers as to unfair marketing margins</td>
<td>4</td>
</tr>
<tr>
<td>Evaluate the program more often</td>
<td>3</td>
</tr>
<tr>
<td>Use more food publicity</td>
<td>1</td>
</tr>
<tr>
<td>Use more advertising</td>
<td>1</td>
</tr>
<tr>
<td>Use more color in printed matter</td>
<td>1</td>
</tr>
<tr>
<td>Promote foodservice use of tomatoes</td>
<td>1</td>
</tr>
<tr>
<td>Promote &quot;Florida&quot; tomatoes</td>
<td>1</td>
</tr>
<tr>
<td>Stabilize prices</td>
<td>1</td>
</tr>
<tr>
<td>Eliminate the Committee and Exchange</td>
<td>1</td>
</tr>
<tr>
<td>No suggestions</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 24. Member loyalty and projected annual FTE revenues at various assessment levels.

<table>
<thead>
<tr>
<th>Assessment level (Cents per carton)</th>
<th>Members remaining loyal&lt;sup&gt;a&lt;/sup&gt; (Number)</th>
<th>Projected annual revenue&lt;sup&gt;b&lt;/sup&gt; (1,000 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75</td>
<td>28</td>
<td>259.9</td>
</tr>
<tr>
<td>2.0</td>
<td>18</td>
<td>418.9</td>
</tr>
<tr>
<td>2.75</td>
<td>15</td>
<td>527.5</td>
</tr>
<tr>
<td>3.0</td>
<td>13</td>
<td>537.4</td>
</tr>
<tr>
<td>3.5</td>
<td>10</td>
<td>486.7</td>
</tr>
<tr>
<td>4.0</td>
<td>9</td>
<td>549.7</td>
</tr>
<tr>
<td>5.0</td>
<td>7</td>
<td>617.9</td>
</tr>
</tbody>
</table>

<sup>a</sup>A total of 28 current members and 2 former members responded to this part of the survey.

<sup>b</sup>Based upon 1983-84 shipments. The 1984-85 shipment figures were not available in time to be analyzed.
CONCLUSIONS

The evidence obtained by this study indicates that the kitchen ripening theme has been very successful in educating consumers. During the past three years, roughly 12 to 13 million primary food shoppers in states east of the Mississippi switched from refrigerated to room temperature storage as a means of enhancing tomato quality.

All major elements of the Florida tomato Exchange's promotion program have apparently influenced consumers to adopt room temperature storage. In market areas where T.V. advertising has been used, it has been a major influence. However, there has been significant switching in the absence of T.V. advertising. Magazine advertising, with its far-reaching coverage, has reached many households with the kitchen ripening message. However, the data indicate that the greatest numbers of converts to room temperature storage have been obtained through food publicity and public relations efforts. These efforts have included magazine and newspaper stories, T.V. publicity tapes, the media touring program, in-store signs, and tomato recipes, leaflets and booklets. All have contributed to the overall success of the program.

The bottom line in the evaluation process of the various promotional activities is the determination of their relative efficiency, i.e., the respective costs of converting households to room temperature storage. In the four major market areas where T.V. advertising was used, a total of $467,000 was spent. The average cost of converting a household to room temperature storage in these four areas ranged from 56 cents to 85 cents, depending on the estimation technique used (Table 25). Magazine advertising, because of its wider distribution, influenced nearly two million households to adopt RTS at an average cost of slightly over 10
Table 25. A summary of the effectiveness of television and magazine advertising compared with all other promotional efforts.

<table>
<thead>
<tr>
<th>Promotional Method</th>
<th>Expenditures 1982/83-1984/85</th>
<th>Estimated Households</th>
<th>Cost per Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Dollars)</td>
<td>(1,000)</td>
<td>(Cents)</td>
</tr>
<tr>
<td>T.V. Advertising(^a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Response</td>
<td>467,000</td>
<td>833.9(^b)</td>
<td>56.0</td>
</tr>
<tr>
<td>Control City</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparison</td>
<td>467,000</td>
<td>549.2(^c)</td>
<td>85.0</td>
</tr>
<tr>
<td>Magazine Advertising</td>
<td>200,000</td>
<td>1,956.2(^d)</td>
<td>10.2</td>
</tr>
<tr>
<td>All Other Methods</td>
<td>366,500</td>
<td>9,550.9(^d)</td>
<td>3.8</td>
</tr>
</tbody>
</table>

\(^a\)Includes expenditures and household conversions to room temperature storage (RTS) in Boston, Philadelphia, New York and Pittsburgh. Observations from R/L-1 were excluded because no television advertising had been conducted prior to the interviews, and observations from R/L-2 were excluded because it was felt that consumers did not have adequate time between the television advertising and interviewing to adopt behavioral changes with respect to tomato storage practices.

\(^b\)Based on calculations shown in Appendix Table 12.

\(^c\)Based on calculations shown in Appendix Table 17.

\(^d\)Based upon 53,011 television households east of the Mississippi River (Arbitron Ratings Company, 1984) a fresh tomato usage rate of 88.6 percent (Table 5), and a 24.5 percent switching rate to room temperature storage. When the switching effects caused by television advertising are eliminated, 17 percent is attributed to magazine advertising and the remaining 83 percent to all other promotional factors (Table 11).
cents each. All other promotional activities, which cost a total of $366,500 over three seasons, was credited with converting over 9.5 million households to RTS at a cost of 3.8 cents each (Table 25). Thus, the food publicity and public relations activities appear to have been considerably more effective in conveying the kitchen ripening concept to consumers.

Future promotional efforts involving the kitchen ripening theme should stress the more efficient methods, i.e., food publicity, public relations, and magazine advertising. Because the kitchen ripening theme is a relatively simple concept (not requiring visual reinforcement), radio spots should be explored as a possible lower-cost media alternative. With careful planning, radio could also reach a larger proportion of males that are primary food shoppers. Because of cost, T.V. advertising should probably be reserved for future market development activities that would benefit from its visual impact, particularly promotional activities that would directly stimulate sales.

The kitchen ripening theme has a certain intuitive appeal to practically everyone engaged in growing and shipping mature green tomatoes, since proper ripening is essential for the product's acceptance. However, some program redirection may be in order in view of the results of this study.

Of particular significance is that three-fourths of all households are already using RTS. Future marginal costs for conversions to RTS will become greater as the pool of potential converts get smaller. Also, a lot of conversions are currently due to word-of-mouth, and this effect will continue. A finding of particular concern was that tomato purchases by households using room temperature storage were not significantly
greater than for households refrigerating tomatoes. The argument that a satisfied customer will buy more of the product seems plausible, but indications are that it may take an extremely long time to make a noticeable impact on demand. The kitchen ripening theme should probably be continued, but at a reduced level to provide a maintenance or slow growth effort. Redirected promotional funds could be used to develop new programs.

This study shows that many households do not purchase tomatoes in the winter and spring because of "lack of taste" and because tomatoes are "not ripe enough." Many, if not most, of the taste objections could be overcome by offering properly ripened tomatoes at the retail level. This could have an immediate impact on total sales, but the burden of ripening would fall more heavily on retailers, rather than on consumers as is presently the case. Obviously, there must be some incentive for retailers for this approach to work, perhaps premium prices for "red ripes" and increased total sales. A retailer-oriented program should be explored.

Finally, the entire promotional program should be evaluated in terms of member support. When interviewed, most were supportive of the promotional programs of the past several seasons, but there was considerable reluctance to approve assessment levels required for mass media advertising. Many were opposed to increased assessments because of financial pressures caused by several unfavorable seasons. However, the overwhelming majority was willing to examine the promotional program with an open mind, and indicated a willingness to provide the resources needed for an effective program.
REFERENCES


APPENDIX A

Questionnaires
CONSUMER QUESTIONNAIRE

City ___________________________ Household # _____ Interviewer # _____

Hello, I'm _______________, and I'm conducting a research project for the Agricultural Market Research Center at the University of Florida.

Your telephone number was selected at random so that we could ask you a few questions about fresh tomatoes. Your opinions are important to us, and we'll convey them to tomato farmers and shippers. May I ask you a few questions about tomatoes? It'll only take a few minutes. (IMMEDIATELY ASK QUESTION 1).

IF RESPONDENT DOES NOT WISH TO COOPERATE, SAY:

We have no way of knowing who you are, where you live or even if your phone is listed or not. However, we are trying to determine if having a listed or unlisted phone is associated with people's willingness to be interviewed. Is your phone number __ listed or __ unlisted? ___ Refused

1. Do you buy most of the groceries for your household?
   ___ 1. Yes (CONTINUE WITH QUESTION 2)
   ___ 2. No
   (If NO): Could I speak to the person that does? (REPEAT INTRODUCTION TO NEW PARTY: IF NOT AT HOME, CALL BACK ________)

2. Does your household ever use any fresh tomatoes?
   ___ 1. Yes ___ 2. No
   (If NO): What is the one most important reason why you never buy tomatoes? (If "POOR QUALITY" OR "APPEARANCE" IS GIVEN, ASK WHAT THEY MEAN BY THAT AND CHECK OR SPECIFY RESPONSE).
   ___ 1. Do not like the taste
   ___ 2. Price too high
   ___ 3. Not ripe enough; too firm; light color
   ___ 4. Not fresh enough; too ripe; too soft
   ___ 5. Texture; mealy; dry
   ___ 6. Short life (too before eating)
   ___ 7. Health, diet-related (allergies, etc.)
   ___ 8. Size of package too large
   ___ 9. Bruised or damaged
   ___ 10. Other (SPECIFY) __________________________________________

SKIP TO QUESTION 21.
3. Which of the following types of fresh tomatoes have you bought in the last three months? (ENTER 1 IF BOUGHT, 2 IF NOT)

___ Cherry tomatoes
___ Plum-shaped or oblong cooking tomatoes
___ Regular round tomatoes

(IF NO REGULAR ROUND TOMATOES BOUGHT IN THE PAST THREE MONTHS):

What is the one most important reason why you have not bought any regular round tomatoes? (IF "POOR QUALITY" OR "APPEARANCE" IS GIVEN, ASK WHAT THEY MEAN BY THAT AND CHECK OR SPECIFY RESPONSE).

___ 1. Do not like the taste
___ 2. Price too high
___ 3. Not ripe enough; too firm; light color
___ 4. Not fresh enough; too ripe; too soft
___ 5. Texture; mealy; dry
___ 6. Short life (rot before using)
___ 7. Health, diet-related (allergies, etc.)
___ 8. Size of package too large
___ 9. Bruised or damaged
___ 10. Other (SPECIFY)

SKIP TO QUESTION 5.

(IF REGULAR ROUND TOMATOES WERE CHECKED):

Do you have any regular round tomatoes on hand right now? (CHECK ONE)

___ 1. Yes ___ 2. No ___ 3. Do not know

4. About how many times per month do you buy regular round tomatoes this time of the year?

___ times per month

About how many individual regular round tomatoes do you buy each time?

___ tomatoes

Do you usually buy regular or hothouse round tomatoes in the winter and early spring? (CHECK ONE)

___ 1. Regular tomatoes
___ 2. Hothouse tomatoes (that were fully ripe)
___ 3. Do not know (DO NOT READ)

5. If you were planning to serve a tossed salad which contained pieces or slices of regular round tomatoes, but the ones available did not look good enough to buy, would you serve a tossed salad without tomatoes?

___ 1. Yes ___ 2. No

(IF YES): What one item, if anything, would you substitute most often for the regular round tomatoes? (SPECIFY)
6. We are primarily interested in your use of regular round tomatoes in the winter and early spring months. Where do you usually store tomatoes that are not fully ripe when you first get them home? (UNAIDED: CHECK ONLY ONE)

___ 1. In refrigerator (SKIP TO QUESTION 11)
___ 2. Outside refrigerator at room temperature (IF AT ROOM TEMPERATURE): Do you use an enclosed ripening bowl or other container for storing fresh tomatoes?

___ 1. Yes ___ 2. No

7. Have you switched from refrigerated to room temperature storage for regular round tomatoes within the past two or three years?

___ 1. Yes ___ 2. No (longer ago than 3 years)

8. What effects, if any, has room temperature storage had on your satisfaction with tomatoes? (CHECK ONE)

___ 1. Greater satisfaction
___ 2. No change
___ 3. Less satisfaction

9. What sources of information persuaded or caused you to store tomatoes at room temperature? (UNAIDED: PROBE FOR 2 SOURCES, ENTER A "1" NEXT TO THE FIRST SOURCE, A "2" FOR THE SECOND IF GIVEN)

___ 1. Word of mouth ___ 7. Magazine stories
___ 2. Discovered by myself ___ 8. In-store signs
___ 4. Television commercials ___ 10. Leaflets, brochures
___ 5. Television shows ___ 11. Do not remember/always known
___ 6. Magazine ads ___ 12. Other (SPECIFY)

10. After they become fully red ripe, do you or do you not usually refrigerate?

___ 1. Refrigerate ___ 2. Do not refrigerate

11. How should regular round tomatoes be placed during storage? (READ FIRST THREE ANSWERS ONLY)

___ 1. Stem end up ___ 3. On their sides
___ 2. Stem end down ___ 4. Do not know

12. When serving uncooked tomatoes, do you serve them (READ):

___ 1. Cold, or at
___ 2. Room temperature
13. During the winter and early spring, which of the following ways do you serve fresh tomatoes? (ENTER "1" IF SERVED, "2" IF NOT)

   1. Sliced without dressing (salt, pepper O.K.)
   2. Sliced with dressing
   3. In a tossed salad without dressing
   4. In a tossed salad with dressing
   5. On a sandwich or hamburger
   6. As an ingredient in a cooked dish
   7. Stuffed but uncooked

14. In general, using a rating scale where 1 = extremely satisfied and 9 = extremely dissatisfied, how would you describe your overall satisfaction with round tomatoes that you have bought in the past three months? (rating)

15. What is the one most important reason that you buy regular round tomatoes available now? (if "QUALITY" OR "APPEARANCE" ARE THE REASONS GIVEN, ASK WHAT THEY MEAN BY THAT AND CHECK OR SPECIFY RESPONSE)

   1. Good taste
   2. Good color
   3. Freshness
   4. Low price
   5. Habit
   6. Health reasons (low in calories, nutritious)
   7. Texture; not dry or mealy
   8. Essential in recipes, menus
   9. Advertisements
   10. Only type available
   11. Good smell
   12. Other (SPECIFY)

16. What one thing do you dislike most about round tomatoes that are available now? (if "QUALITY" OR "APPEARANCE" IS GIVEN, ASK WHAT THEY MEAN BY THAT AND CHECK OR SPECIFY RESPONSE)

   1. Taste
   2. Price too high
   3. Not ripe enough; too firm; light color
   4. Not fresh; too ripe; too soft
   5. Texture; mealy; dry
   6. Only kind available
   7. Short life (rot before using)
   8. Nothing (I dislike nothing)
   9. Other (SPECIFY)
17. Which of the following types of advertising or publicity, if any, do you recall seeing or hearing for fresh tomatoes during the past two or three years? (ENTER "1" IF MEDIA TYPE RECALLED, "2" IF NOT RECALLED)

- T.V. commercials (IF RECALLED): What specific settings, characters, and messages do you recall from the commercial(s)? (SPECIFY)
- Other T.V. such as food shows, feature stories, news stories
- Magazine ads (IF RECALLED): What message do you recall from the magazine ad(s)? (SPECIFY)
- Magazine feature stories
- Newspaper food page stories and recipes (but not price ads)
- Radio commercials
- Posters in stores (IF RECALLED): What specific message do you recall from the poster(s)? (SPECIFY)
- Tomato recipes, leaflets or booklets

18. During the winter and early spring months, if you had a choice of round tomatoes grown in either Mexico or Florida, which source would you prefer?

- 1. Mexico (IF MEXICO): What is the one most important reason that you prefer Mexican tomatoes? (CHECK OR SPECIFY)
  
  1. Taste better
  2. Lower prices
  3. Good color
  4. Fresher
  5. Better texture; not mealy or dry
  6. Good image of Mexico
  7. Small good
  8. Other (SPECIFY)

- 2. Florida (IF FLORIDA): What is the one most important reason that you prefer Florida tomatoes? (CHECK OR SPECIFY)

  1. Taste better
  2. Lower prices
  3. Good color
  4. Fresher
  5. Better texture; not mealy or dry
  6. Good image of Florida
  7. Small good
  8. Pesticides are regulated in Florida
  9. Sanitation better
  10. Other (SPECIFY)

- 3. Indifferent
19. What major concern, if any, do you have about tomatoes grown in Mexico?  
(CHECK OR SPECIFY ONLY THE ONE MOST IMPORTANT REASON)

   1. No concerns at all
   2. Bad taste
   3. Not ripe enough:
   4. Too ripe; too soft
   5. Texture; too mealy or dry
   6. Pesticide residue
   7. Sanitation
   8. Loyalty: should buy American products
   9. Other (SPECIFY) ____________________

20. Within the past two years, which of the following magazines, if any, have you received regularly, either by subscription or from another person? (ENTER "1" IF RECEIVED, "2" IF NOT RECEIVED)

   1. Ladies Home Journal
   2. Family Circle
   3. Woman's Day
   4. Good Housekeeping
   5. Southern Living
   6. Better Homes and Gardens
   7. McCall's
   8. Redbook

21. How long have you lived in the greater (SPECIFY CITY) area?

   1. Less than one year
   2. At least one year, but less than two
   3. At least two, but less than three years
   4. Three or more years

22. During a typical weekday (Monday through Friday) in the two-hour period between 7:00 and 9:00 in the morning, how many minutes do you spend watching T.V.?

   ______ minutes

23. About how many hours do you spend watching T.V. on a typical weekday in the seven-hour period between 9:00 in the morning and 4:00 in the afternoon?

   ______ hours

24. How many adults (18 or older) are in your household? ______

25. How many children (under 18) are in your household? ______
26. What is the highest grade of school that you have completed? (CIRCLE)
   Some grade school: 1 2 3 4 5 6 7
   Grade school graduate: 8
   Some high school: 9 10 11
   High school or technical school graduate: 12
   Some college or vocational school: 13 14 15
   College graduate: 16
   Advanced college degree: 17+

27. To which of the following age categories do you belong?
   ___ 1. Under 18  ___ 3. 25-34  ___ 5. 50-64
   ___ 7. 18-74  ___ 4. 35-49  ___ 6. 65 and older

28. Which of the following classifications best describes your annual household income? (AFTER TAXES)
   ___ 1. Under $10,000  ___ 4. $35,000-49,999
   ___ 2. $10,000-19,999  ___ 5. $50,000 and over
   ___ 3. $20,000-34,999  ___ 6. Refused (DO NOT READ)

29. Do you classify yourself as:
   ___ 1. White (not Hispanic)  ___ 4. Asian
   ___ 2. Black (not Hispanic)  ___ 5. American Indian
   ___ 3. Hispanic

30. Are you:
   ___ 1. Male or
   ___ 2. Female

31. One last question: Because your number was selected randomly, is your phone:
   ___ 1. Listed or
   ___ 2. Unlisted
TOMATO ADVERTISING STUDY
MEMBER QUESTIONNAIRE

Firm: ________________________________

Name: ________________________________

Telephone Number: ____________________

1. How long has your firm been a member of the Florida Tomato Exchange?
   ________ seasons

2. During the past three seasons, how many times have you served on the Board of Directors?
   ________ times

3. Are you serving on the Board of Directors now?  □ Yes  □ No

4. During the past three seasons, how many times have you served on the Executive Committee?
   ________ times

5. Are you serving on the Executive Committee now?  □ Yes  □ No

I want to ask you about some specific program areas in a moment; but before we get into details, how would you describe the overall effectiveness of advertising and public relations efforts by the Exchange, using a rating scale where 1 = extremely effective and 9 = totally ineffective?

   ________

6. Would you like to see the overall advertising and promotion budget:
   □ Increased  □ Remain the same  □ Decreased

7. What would you estimate the total expenditures of the Exchange to be during the current season for the promotion and public relations program?

   $________
We have classified the various promotional efforts into several major categories, although there is some overlap. I want to describe each category to you and get your opinion of it.

8. The first category is food publicity. This includes such things as press releases mailed to food editors of 200-300 major papers, materials to facilitate color photos to major newspapers, television releases (200 stations), radio scripts (250 stations), mat columns (1,000 papers), a three-minute T.V. publicity tape (50 stations), and arranging guest appearances on T.V. shows for industry representatives (primarily Wayne Hawkins). Considering the current season’s budget is about $30,000:

   A. Using a rating scale where 1 = extremely effective and 9 = totally ineffective, how would you rate this effort?

   _________

   B. What do you think should be budgeted, given what you know about this part of the program?  
   $_________

9. The second major area is the retail promotion program. This has been called the "Great Tomato Crusade." Kits consisting of recipe leaflets, a news release which can be used in shoppers' bulletins, ad slicks, and POP pricecards and kitchen ripening information signs are made available through personal contacts to produce merchandisers and consumer information specialists of major retail chains. This program has been used in anywhere from 2,500 to 4,500 stores per season. The current season's budget is about $60,000.

   A. Using a rating scale where 1 = extremely effective and 9 = extremely ineffective, how would you rate this retail program?

   _________

   B. What do you think should be budgeted?  $_________

10. The third major item is classified as public relations. This consists of general interest press releases and feature stories dealing with a wide range of industry topics and releases which refute adverse publicity, dissemination of public service announcements (radio spots) to stations east of the Mississippi River and preparation of miscellaneous items such as bumper stickers, buttons, calendars and the slide set used by Mr. Hawkins. The approximate cost of this program is $27,000 this season.

   A. Using a rating scale where 1 = extremely effective and 9 = totally ineffective, how would you rate the public relations program?

   _________

   B. What do you think should be budgeted?  $_________
11. Another major area is paid advertising. A 30-second T.V. commercial has been aired in 20 major U.S. markets on daytime T.V. The number of spots varies from city to city; but in most cities, commercials appeared 15-20 times per week from two to four weeks during the season. $400,000 will be spent this season.

A. Using a rating scale where 1 = extremely effective and 9 = totally ineffective, how would you rate paid T.V.?

B. What do you think should be budgeted for paid T.V.?

$__________

12. Paid magazine ads were also used. One-third paid, full-color ads were placed in five major women's magazines such as Better Homes and Gardens, Southern Living, etc. The ads cost about $20,000 each, for a total expenditure of about $100,000.

A. Using a rating scale where 1 = extremely effective and 9 = totally ineffective, how would you rate paid magazine advertising?

B. How much do you think should be budgeted for magazine ads?

$__________

13. What proportion of the households in our survey store tomatoes correctly; that is, at room temperature?

___ %

14. What proportion of households that currently store tomatoes at room temperature switched to room temperature within the past two to three years?

___ %

15. What proportion of shoppers prefer Mexican tomatoes?

___ %

16. Have past evaluations of the Exchange's promotion and advertising programs been:

☐ Too thorough    ☐ About right    ☐ Inadequate

17. To what degree do you feel the current program represents the desires of the membership, using a rating scale where 1 = extremely well and 9 = not at all?

__________
18. What one thing, if anything, do you like best about the current promotion and advertising program of the Exchange?

19. What one thing, if anything, do you dislike most?

20. If the assessment were increased to ____ cents to cover the cost of the P & A Program, would you continue to support the Exchange?

<table>
<thead>
<tr>
<th>Cents</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 3/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 1/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. Which do you prefer for the industry: ☐ Mandatory assessments  ☐ Voluntary assessments

22. What suggestions do you have to make the overall program more effective?
APPENDIX B

Tables
Appendix Table 1.--Proportion of households using fresh tomatoes, by demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Households</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Household Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>326</td>
<td>80.7</td>
</tr>
<tr>
<td>2</td>
<td>657</td>
<td>87.0</td>
</tr>
<tr>
<td>3</td>
<td>405</td>
<td>90.4</td>
</tr>
<tr>
<td>4</td>
<td>407</td>
<td>92.1</td>
</tr>
<tr>
<td>5 or more</td>
<td>322</td>
<td>94.7</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>330</td>
<td>84.8</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>936</td>
<td>89.1</td>
</tr>
<tr>
<td>Some college or vocational school</td>
<td>309</td>
<td>89.3</td>
</tr>
<tr>
<td>College graduate</td>
<td>541</td>
<td>89.7</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>224</td>
<td>83.6</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>375</td>
<td>89.1</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>436</td>
<td>91.8</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>377</td>
<td>93.5</td>
</tr>
<tr>
<td>$50,000+</td>
<td>143</td>
<td>89.9</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>188</td>
<td>85.4</td>
</tr>
<tr>
<td>25-34</td>
<td>505</td>
<td>89.1</td>
</tr>
<tr>
<td>35-49</td>
<td>664</td>
<td>91.8</td>
</tr>
<tr>
<td>50-64</td>
<td>445</td>
<td>89.5</td>
</tr>
<tr>
<td>65 or older</td>
<td>313</td>
<td>82.2</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (not Hispanic)</td>
<td>1,867</td>
<td>88.5</td>
</tr>
<tr>
<td>Black (not Hispanic)</td>
<td>178</td>
<td>92.2</td>
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<tr>
<td>Hispanic</td>
<td>25</td>
<td>80.6</td>
</tr>
<tr>
<td>Asian/American Indian</td>
<td>34</td>
<td>87.2</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>477</td>
<td>86.7</td>
</tr>
<tr>
<td>Female</td>
<td>1,645</td>
<td>89.4</td>
</tr>
<tr>
<td>All Households</td>
<td>2,133</td>
<td>80.6</td>
</tr>
</tbody>
</table>

*Chi-square analysis indicates that fresh tomato usage was statistically different for several demographic groups. They were household size, income, and age. Respective Chi-square probabilities were .0001, .0005 and .0001.*
### Appendix Table 2.--Primary reasons given for never buying tomatoes.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not like taste</td>
<td>153</td>
<td>57.3</td>
</tr>
<tr>
<td>High price</td>
<td>27</td>
<td>10.1</td>
</tr>
<tr>
<td>Health reasons (allergies, etc.)</td>
<td>26</td>
<td>9.7</td>
</tr>
<tr>
<td>Not ripe</td>
<td>17</td>
<td>6.4</td>
</tr>
<tr>
<td>Use only home-grown tomatoes</td>
<td>14</td>
<td>5.2</td>
</tr>
<tr>
<td>Not fresh</td>
<td>6</td>
<td>2.2</td>
</tr>
<tr>
<td>Bruised or damaged</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>Poor texture</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Do not or seldom buy groceries</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Package size too large</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>Short life</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>Miscellaneous(^a)</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Do not know</td>
<td>6</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>267</td>
<td><strong>100.0(^b)</strong></td>
</tr>
</tbody>
</table>

\(^a\)Miscellaneous includes "use only canned tomatoes," "not readily available," and "don't eat enough to buy them."

\(^b\)Does not sum to 100.0 due to rounding.
Appendix Table 3.--Primary reasons given for not buying tomatoes within the previous three months.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not like the taste of those available</td>
<td>49</td>
<td>33.6</td>
</tr>
<tr>
<td>Use only home-grown tomatoes</td>
<td>23</td>
<td>15.7</td>
</tr>
<tr>
<td>Not ripe</td>
<td>18</td>
<td>12.3</td>
</tr>
<tr>
<td>High price</td>
<td>14</td>
<td>9.6</td>
</tr>
<tr>
<td>Not fresh</td>
<td>12</td>
<td>8.2</td>
</tr>
<tr>
<td>Only buy them when locally in season</td>
<td>6</td>
<td>4.1</td>
</tr>
<tr>
<td>Poor texture</td>
<td>5</td>
<td>3.4</td>
</tr>
<tr>
<td>Health reasons (allergies, etc.)</td>
<td>6</td>
<td>4.1</td>
</tr>
<tr>
<td>Short life; bruised, damaged</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td>Miscellaneous(^a)</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td>Do not know</td>
<td>5</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td>146</td>
<td>100.0(^b)</td>
</tr>
</tbody>
</table>

\(^a\)Miscellaneous includes dislike of hothouse tomatoes, package size too large, and size of tomatoes too small.

\(^b\)Does not sum to 100.0 due to rounding.
### Appendix Table 4.--Primary reasons given for buying tomatoes available in winter and early spring.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good taste</td>
<td>802</td>
<td>38.9</td>
</tr>
<tr>
<td>Essential in recipes</td>
<td>330</td>
<td>16.0</td>
</tr>
<tr>
<td>Habit</td>
<td>328</td>
<td>15.9</td>
</tr>
<tr>
<td>Nutritious; low calorie</td>
<td>160</td>
<td>7.8</td>
</tr>
<tr>
<td>Only type available</td>
<td>122</td>
<td>5.9</td>
</tr>
<tr>
<td>Good color</td>
<td>112</td>
<td>5.4</td>
</tr>
<tr>
<td>Fresh</td>
<td>87</td>
<td>4.2</td>
</tr>
<tr>
<td>Low price</td>
<td>56</td>
<td>2.7</td>
</tr>
<tr>
<td>Texture</td>
<td>27</td>
<td>1.3</td>
</tr>
<tr>
<td>Easy to prepare; many ways to prepare</td>
<td>14</td>
<td>0.7</td>
</tr>
<tr>
<td>Advertisements</td>
<td>7</td>
<td>0.3</td>
</tr>
<tr>
<td>Miscellaneous(^a)</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Don't know</td>
<td></td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,060</td>
<td>100.0(^b)</td>
</tr>
</tbody>
</table>

\(^a\)Miscellaneous includes attributes such as long shelf life, smell, size, and those who like all aspects of tomatoes but could not isolate any one reason.

\(^b\)Does not sum to 100.0 due to rounding.
Appendix Table 5.—Average overall satisfaction ratings of winter and early spring round tomatoes, by selected socio-economic and demographic characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number</th>
<th>Mean Value&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>316</td>
<td>4.12</td>
</tr>
<tr>
<td>2</td>
<td>642</td>
<td>4.02</td>
</tr>
<tr>
<td>3</td>
<td>398</td>
<td>3.82</td>
</tr>
<tr>
<td>4</td>
<td>403</td>
<td>4.02</td>
</tr>
<tr>
<td>5 or more</td>
<td>315</td>
<td>3.82</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>320</td>
<td>3.52y</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>917</td>
<td>4.22y</td>
</tr>
<tr>
<td>Some college or vocational school</td>
<td>304</td>
<td>4.02y</td>
</tr>
<tr>
<td>College degree or more</td>
<td>534</td>
<td>4.02y</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>under 25</td>
<td>186</td>
<td>4.02y</td>
</tr>
<tr>
<td>25-34</td>
<td>498</td>
<td>4.12y</td>
</tr>
<tr>
<td>35-49</td>
<td>652</td>
<td>4.02y</td>
</tr>
<tr>
<td>50-64</td>
<td>435</td>
<td>4.12y</td>
</tr>
<tr>
<td>65 and older</td>
<td>303</td>
<td>3.62y</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>219</td>
<td>3.72y</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>370</td>
<td>3.72y</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>425</td>
<td>3.62y</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>374</td>
<td>4.12y</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>140</td>
<td>4.62y</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (not Hispanic)</td>
<td>1,830</td>
<td>4.52y</td>
</tr>
<tr>
<td>Black (not Hispanic)</td>
<td>175</td>
<td>3.92y</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24</td>
<td>4.12y</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>3.22y</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>468</td>
<td>3.82y</td>
</tr>
<tr>
<td>Female</td>
<td>1,611</td>
<td>4.12y</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>2,090</td>
<td>4.52y</td>
</tr>
</tbody>
</table>

<sup>a</sup>Means with the same letter are not significantly different at the 0.05 probability level. The mean values shown here are least squares means obtained with a general linear model which expressed the overall rating as a function of all socio-economic and demographic variables. Probabilistic choice models such as the multinomial logit or multinomial probit model would have been more technically correct, but computer software for these models was not readily available. The results shown are thought to be reasonable approximations, however.
### Appendix Table 6.--Average household tomato purchases, by ADI.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Average Number&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Times Purchased per Household per Month</td>
</tr>
<tr>
<td>R/L-2</td>
<td>3.3&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>New York</td>
<td>3.3&lt;sup&gt;zy&lt;/sup&gt;</td>
</tr>
<tr>
<td>R/L-1</td>
<td>3.1&lt;sup&gt;y&lt;/sup&gt;</td>
</tr>
<tr>
<td>Boston</td>
<td>3.0&lt;sup&gt;y&lt;/sup&gt;</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>2.6&lt;sup&gt;x&lt;/sup&gt;</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>2.6&lt;sup&gt;x&lt;/sup&gt;</td>
</tr>
<tr>
<td>All ADI's</td>
<td>3.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Number of Tomatoes Purchased Each Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>4.6&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>Boston</td>
<td>4.5&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>R/L-1</td>
<td>4.4&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>4.4&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>R/L 2</td>
<td>4.2&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>4.1&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>All ADI's</td>
<td>4.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Tomatoes Purchased per Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>R/L-1</td>
<td>16.7&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>R/L-2</td>
<td>16.3&lt;sup&gt;z&lt;/sup&gt;</td>
</tr>
<tr>
<td>New York</td>
<td>14.9&lt;sup&gt;zy&lt;/sup&gt;</td>
</tr>
<tr>
<td>Boston</td>
<td>14.9&lt;sup&gt;zy&lt;/sup&gt;</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>12.2&lt;sup&gt;zy&lt;/sup&gt;</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>11.0</td>
</tr>
<tr>
<td>All ADI's</td>
<td>14.3</td>
</tr>
</tbody>
</table>

<sup>a</sup>Averages (means) with the same letter are not significantly different at the 0.5 profitability level.
Appendix Table 7.--Average quantity of tomatoes purchased per month, by socio-economic and demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Means&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Tomatoes</td>
</tr>
<tr>
<td>Household Size</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>19.4z</td>
</tr>
<tr>
<td>4</td>
<td>18.6z</td>
</tr>
<tr>
<td>2</td>
<td>17.0z</td>
</tr>
<tr>
<td>3</td>
<td>16.9z</td>
</tr>
<tr>
<td>1</td>
<td>12.7</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>19.6z</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>17.1z</td>
</tr>
<tr>
<td>Some college or vocational school</td>
<td>15.7z</td>
</tr>
<tr>
<td>College graduate</td>
<td>15.2z</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>50-64</td>
<td>19.2z</td>
</tr>
<tr>
<td>35-49</td>
<td>17.0z</td>
</tr>
<tr>
<td>Under 25</td>
<td>16.4z</td>
</tr>
<tr>
<td>25-34</td>
<td>16.0z</td>
</tr>
<tr>
<td>65 or older</td>
<td>15.8z</td>
</tr>
<tr>
<td>Income</td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>19.7z</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>16.6z</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>16.5z</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>16.1z</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>15.6z</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>21.1z</td>
</tr>
<tr>
<td>Other</td>
<td>17.6z</td>
</tr>
<tr>
<td>White (not Hispanic)</td>
<td>14.9z</td>
</tr>
<tr>
<td>Black (not Hispanic)</td>
<td>13.9z</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>19.3</td>
</tr>
<tr>
<td>Female</td>
<td>14.4</td>
</tr>
</tbody>
</table>

<sup>a</sup>Means used are least squares means. They were estimated using a general linear model which expressed fresh tomato purchases as a function of the above socio-economic and demographic variables. Means with the same letter are not significantly different at the 0.05 probability level.
Appendix Table 8.--Serving methods, by significant demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sliced Without Dressing</th>
<th>Sliced With Dressing</th>
<th>In a Tossed Salad Without Dressing</th>
<th>In a Tossed Salad With Dressing</th>
<th>In a Sandwich or Hamburger</th>
<th>as an Ingredient in a Cooked Dish</th>
<th>Stuffed but Not Cooked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>--</td>
<td>53.1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>--</td>
<td>49.2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>--</td>
<td>49.7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>--</td>
<td>53.8</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5 or more</td>
<td>--</td>
<td>42.7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or</td>
<td>56.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>high school</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td>High school or technical</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>school graduate</td>
<td>47.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>43.8</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College graduate</td>
<td>40.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>43.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>74.9</td>
<td>20.9</td>
</tr>
<tr>
<td>25-34</td>
<td>41.8</td>
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<td></td>
<td></td>
<td></td>
<td>75.5</td>
<td>16.2</td>
</tr>
<tr>
<td>35-49</td>
<td>46.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>82.2</td>
<td>23.2</td>
</tr>
<tr>
<td>50-64</td>
<td>50.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75.4</td>
<td>23.3</td>
</tr>
<tr>
<td>65 or older</td>
<td>50.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>73.9</td>
<td>24.9</td>
</tr>
</tbody>
</table>

Continued
Appendix Table 8.—Serving methods, by significant demographic characteristic continued.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sliced Without Dressing</th>
<th>Sliced With Dressing</th>
<th>In a Tossed Salad Without Dressing</th>
<th>In a Tossed Salad With Dressing</th>
<th>On a Sandwich or Hamburger</th>
<th>In a Cooked Dish</th>
<th>Stuffed but Not Cooked</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>53.4</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>49.6</td>
<td>--</td>
<td>--</td>
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<td>--</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>48.6</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>41.5</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>$50,000 or over</td>
<td>39.2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (not Hispanic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black (not Hispanic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>43.9</td>
<td>50.3</td>
<td>32.1</td>
<td>79.9</td>
<td>75.6</td>
<td>44.0</td>
<td>21.3</td>
</tr>
</tbody>
</table>

*Percentages are based upon 1,540 to 2,179 observations, depending on serving method. Statistical significance was determined with Chi-square analyses. For all categories where percentages are reported, P < 0.05.*
Appendix Table 9.--Respondents' willingness to serve a tossed salad without fresh tomatoes, by ADI.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Would</th>
<th>Would Not</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>66.6</td>
<td>33.4</td>
<td>100.0</td>
</tr>
<tr>
<td>R/L-1</td>
<td>62.7</td>
<td>37.3</td>
<td>100.0</td>
</tr>
<tr>
<td>R/L-2</td>
<td>65.4</td>
<td>34.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>70.8</td>
<td>29.2</td>
<td>100.0</td>
</tr>
<tr>
<td>New York</td>
<td>73.9</td>
<td>26.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>78.3</td>
<td>21.7</td>
<td>100.0</td>
</tr>
<tr>
<td>All ADI's</td>
<td>69.6</td>
<td>30.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentages are based upon 2,127 tomato-using households. Totals may not sum due to rounding. Chi-square analysis indicates there are significant differences among ADI's, P = 0.0001.*
### Appendix Table 10.--Respondents' Willingness to serve a tossed salad without fresh tomatoes, by demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Would Serve</th>
<th></th>
<th>Would Not Serve</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>187</td>
<td>56.7</td>
<td>143</td>
<td>43.3</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>654</td>
<td>70.2</td>
<td>278</td>
<td>29.8</td>
</tr>
<tr>
<td>Some college</td>
<td>209</td>
<td>60.1</td>
<td>90</td>
<td>39.9</td>
</tr>
<tr>
<td>College graduate</td>
<td>418</td>
<td>77.3</td>
<td>123</td>
<td>22.7</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>122</td>
<td>64.9</td>
<td>66</td>
<td>35.1</td>
</tr>
<tr>
<td>25-34</td>
<td>367</td>
<td>73.0</td>
<td>136</td>
<td>27.0</td>
</tr>
<tr>
<td>35-49</td>
<td>490</td>
<td>74.0</td>
<td>177</td>
<td>26.0</td>
</tr>
<tr>
<td>50-64</td>
<td>305</td>
<td>58.7</td>
<td>139</td>
<td>41.3</td>
</tr>
<tr>
<td>65 or older</td>
<td>185</td>
<td>59.3</td>
<td>127</td>
<td>40.7</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>129</td>
<td>57.6</td>
<td>95</td>
<td>42.4</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>261</td>
<td>70.0</td>
<td>112</td>
<td>30.0</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>321</td>
<td>73.8</td>
<td>114</td>
<td>26.2</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>296</td>
<td>78.7</td>
<td>80</td>
<td>21.3</td>
</tr>
<tr>
<td>$50,000 or over</td>
<td>113</td>
<td>79.0</td>
<td>30</td>
<td>21.0</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (not Hispanic)</td>
<td>1,330</td>
<td>71.5</td>
<td>531</td>
<td>28.5</td>
</tr>
<tr>
<td>Black (not Hispanic)</td>
<td>99</td>
<td>55.6</td>
<td>79</td>
<td>44.4</td>
</tr>
<tr>
<td>Hispanic</td>
<td>13</td>
<td>52.0</td>
<td>12</td>
<td>48.0</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>61.8</td>
<td>13</td>
<td>38.2</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>313</td>
<td>65.9</td>
<td>162</td>
<td>34.1</td>
</tr>
<tr>
<td>Female</td>
<td>1,161</td>
<td>70.7</td>
<td>400</td>
<td>29.2</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>1,247</td>
<td>70.4</td>
<td>524</td>
<td>29.6</td>
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</table>

*Chi-square analyses indicate that responses were related to all characteristics listed, P < 0.05 in all cases.*
Appendix Table 11.--Substitutes most often used for regular round tomatoes in a tossed salad.

<table>
<thead>
<tr>
<th>Substitute</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
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<tr>
<td>Nothing</td>
<td>384</td>
<td>26.1</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>266</td>
<td>18.1</td>
</tr>
<tr>
<td>Carrots</td>
<td>134</td>
<td>9.1</td>
</tr>
<tr>
<td>Radishes</td>
<td>104</td>
<td>7.1</td>
</tr>
<tr>
<td>Peppers</td>
<td>100</td>
<td>6.8</td>
</tr>
<tr>
<td>Cherry tomatoes</td>
<td>65</td>
<td>4.4</td>
</tr>
<tr>
<td>Celery</td>
<td>40</td>
<td>2.7</td>
</tr>
<tr>
<td>Onion</td>
<td>34</td>
<td>2.3</td>
</tr>
<tr>
<td>Mushrooms</td>
<td>26</td>
<td>1.8</td>
</tr>
<tr>
<td>Lettuce (other than iceberg)</td>
<td>19</td>
<td>1.3</td>
</tr>
<tr>
<td>Cabbage</td>
<td>16</td>
<td>1.1</td>
</tr>
<tr>
<td>Stewed tomatoes</td>
<td>16</td>
<td>1.1</td>
</tr>
<tr>
<td>Cheese</td>
<td>14</td>
<td>0.9</td>
</tr>
<tr>
<td>Avocado</td>
<td>11</td>
<td>0.7</td>
</tr>
<tr>
<td>Broccoli</td>
<td>10</td>
<td>0.7</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Other items</td>
<td>100</td>
<td>6.8</td>
</tr>
<tr>
<td>Do not know</td>
<td>120</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,469</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Percentages do not sum to 100.0 due to rounding.*
Appendix Table 12.—Consumers' preference for round tomatoes grown in either Florida or Mexico, by ADI.

| Preferred Source | Florida |       | Mexico |       | Indifferent |       | Total | Percent
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Boston</td>
<td>218</td>
<td>60.6</td>
<td>19</td>
<td>53</td>
<td>123</td>
<td>34.2</td>
<td>350</td>
<td>100.0</td>
</tr>
<tr>
<td>R/L-1</td>
<td>215</td>
<td>61.2</td>
<td>27</td>
<td>7.7</td>
<td>109</td>
<td>31.0</td>
<td>351</td>
<td>100.0</td>
</tr>
<tr>
<td>R/L-2</td>
<td>226</td>
<td>63.5</td>
<td>30</td>
<td>8.4</td>
<td>100</td>
<td>28.1</td>
<td>356</td>
<td>100.0</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>217</td>
<td>59.8</td>
<td>24</td>
<td>6.6</td>
<td>122</td>
<td>33.6</td>
<td>363</td>
<td>100.0</td>
</tr>
<tr>
<td>New York</td>
<td>252</td>
<td>70.0</td>
<td>18</td>
<td>5.0</td>
<td>90</td>
<td>25.0</td>
<td>360</td>
<td>100.0</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>220</td>
<td>64.1</td>
<td>14</td>
<td>4.1</td>
<td>109</td>
<td>31.8</td>
<td>343</td>
<td>100.0</td>
</tr>
<tr>
<td>All ADI's</td>
<td>1,348</td>
<td>63.2</td>
<td>132</td>
<td>6.2</td>
<td>653</td>
<td>30.6</td>
<td>2,133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

^aChi-square analysis indicates that preferences are significantly related by ADI: $P = 0.0381$.

^bPercentages may not sum to 100.0 due to rounding.
Appendix Table 13.--Consumer preference for round tomatoes grown in either Florida or Mexico, by selected demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Preferred Source</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mexico</td>
<td>Number</td>
<td>Percent</td>
<td>Florida</td>
<td>Number</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>14</td>
<td>7.4</td>
<td>138</td>
<td>73.4</td>
<td>36</td>
</tr>
<tr>
<td>25-34</td>
<td>25</td>
<td>4.9</td>
<td>339</td>
<td>67.1</td>
<td>141</td>
</tr>
<tr>
<td>35-49</td>
<td>34</td>
<td>5.1</td>
<td>413</td>
<td>62.2</td>
<td>217</td>
</tr>
<tr>
<td>50-64</td>
<td>18</td>
<td>8.5</td>
<td>271</td>
<td>60.9</td>
<td>136</td>
</tr>
<tr>
<td>65 or older</td>
<td>19</td>
<td>6.1</td>
<td>178</td>
<td>56.8</td>
<td>116</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>15</td>
<td>6.7</td>
<td>152</td>
<td>67.9</td>
<td>57</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>18</td>
<td>4.8</td>
<td>251</td>
<td>66.9</td>
<td>106</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>38</td>
<td>8.7</td>
<td>285</td>
<td>65.4</td>
<td>113</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>16</td>
<td>4.2</td>
<td>235</td>
<td>62.3</td>
<td>126</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>15</td>
<td>10.5</td>
<td>88</td>
<td>61.5</td>
<td>40</td>
</tr>
</tbody>
</table>

*aChi-square analysis indicates that preferences were significantly related to age and income. Chi-square probabilities were .0004 and .0254, respectively.*
Appendix Table 14.—Primary reasons given for choosing Mexican tomatoes.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste better</td>
<td>76</td>
<td>59.8</td>
</tr>
<tr>
<td>Better texture</td>
<td>15</td>
<td>11.8</td>
</tr>
<tr>
<td>Fresher</td>
<td>7</td>
<td>5.5</td>
</tr>
<tr>
<td>Good color</td>
<td>7</td>
<td>5.5</td>
</tr>
<tr>
<td>Good image of Mexico</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Better growing conditions</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Lower prices</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>Miscellaneous&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>127</td>
<td>100.0&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>Miscellaneous includes smell, bigger size, more like homegrown, etc.

<sup>b</sup>Does not sum to 100.0 due to rounding.
### Appendix Table 15.--Primary reasons given for choosing Florida tomatoes.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste better</td>
<td>385</td>
<td>29.9</td>
</tr>
<tr>
<td>Loyalty to U.S. products</td>
<td>216</td>
<td>16.8</td>
</tr>
<tr>
<td>Fresher, better physical condition</td>
<td>216</td>
<td>16.8</td>
</tr>
<tr>
<td>Favorable image of Florida</td>
<td>106</td>
<td>8.2</td>
</tr>
<tr>
<td>Better sanitation</td>
<td>92</td>
<td>7.1</td>
</tr>
<tr>
<td>Pesticides are regulated in Florida</td>
<td>65</td>
<td>5.1</td>
</tr>
<tr>
<td>Better texture</td>
<td>63</td>
<td>4.9</td>
</tr>
<tr>
<td>Lower prices</td>
<td>50</td>
<td>3.9</td>
</tr>
<tr>
<td>Good color</td>
<td>23</td>
<td>1.8</td>
</tr>
<tr>
<td>Poor image of Mexico</td>
<td>14</td>
<td>1.1</td>
</tr>
<tr>
<td>Miscellaneous(^a)</td>
<td>23</td>
<td>1.8</td>
</tr>
<tr>
<td>Do not know</td>
<td>34</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,287</td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

\(^a\)Miscellaneous includes better climate for growing tomatoes, better growing techniques, etc.
Appendix Table 16.—Shoppers' concerns about Mexican tomatoes.

<table>
<thead>
<tr>
<th>Concern</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No concerns</td>
<td>1,501</td>
<td>71.1</td>
</tr>
<tr>
<td>Loyalty to U.S. products</td>
<td>233</td>
<td>11.0</td>
</tr>
<tr>
<td>Sanitation</td>
<td>149</td>
<td>7.1</td>
</tr>
<tr>
<td>Pesticide residue or other chemicals</td>
<td>103</td>
<td>4.9</td>
</tr>
<tr>
<td>Bad taste</td>
<td>21</td>
<td>1.0</td>
</tr>
<tr>
<td>Bad texture</td>
<td>21</td>
<td>1.0</td>
</tr>
<tr>
<td>Not ripe</td>
<td>15</td>
<td>0.7</td>
</tr>
<tr>
<td>Too ripe</td>
<td>14</td>
<td>0.7</td>
</tr>
<tr>
<td>Freshness</td>
<td>7</td>
<td>0.3</td>
</tr>
<tr>
<td>Miscellaneous&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>Do not know</td>
<td>36</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,110</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

<sup>a</sup>Miscellaneous includes high prices, environment, distrust of foreign foods, etc.
Appendix Table 17.--Usual storage of tomatoes by selected demographic characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Usual Storage Method</th>
<th>Total</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refrigerated</td>
<td>Room Temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>35.6</td>
<td>64.4</td>
<td>188</td>
<td>100.0</td>
</tr>
<tr>
<td>25-34</td>
<td>28.5</td>
<td>71.5</td>
<td>505</td>
<td>100.0</td>
</tr>
<tr>
<td>35-49</td>
<td>24.5</td>
<td>75.5</td>
<td>662</td>
<td>100.0</td>
</tr>
<tr>
<td>50-64</td>
<td>23.5</td>
<td>76.5</td>
<td>442</td>
<td>100.0</td>
</tr>
<tr>
<td>65 or older</td>
<td>20.8</td>
<td>79.2</td>
<td>312</td>
<td>100.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (not Hispanic)</td>
<td>25.1</td>
<td>74.9</td>
<td>1,862</td>
<td>100.0</td>
</tr>
<tr>
<td>Black (not Hispanic)</td>
<td>28.2</td>
<td>71.7</td>
<td>177</td>
<td>100.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>48.0</td>
<td>52.0</td>
<td>25</td>
<td>100.0</td>
</tr>
<tr>
<td>Other</td>
<td>32.3</td>
<td>67.6</td>
<td>34</td>
<td>100.0</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32.7</td>
<td>67.3</td>
<td>477</td>
<td>100.0</td>
</tr>
<tr>
<td>Female</td>
<td>23.7</td>
<td>76.3</td>
<td>1,639</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^a\)Chi-square analysis indicates the usual storage method was significantly different (P < 0.05) for various age, race, and sex categories.

\(^b\)Percentages may not sum to 100.0 due to rounding.
Appendix Table 18.--Storage of fully red ripe tomatoes by education level.

<table>
<thead>
<tr>
<th>Education</th>
<th>Type of Storage</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refrigerated</td>
<td>Number</td>
<td>Percent</td>
<td>Room Temperature</td>
<td>Number</td>
<td>Percent</td>
<td>Total</td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td></td>
<td>116</td>
<td>60.8</td>
<td>94</td>
<td>39.2</td>
<td>240</td>
<td>100.0</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td></td>
<td>519</td>
<td>72.8</td>
<td>194</td>
<td>27.2</td>
<td>713</td>
<td>100.0</td>
</tr>
<tr>
<td>Some college</td>
<td></td>
<td>178</td>
<td>78.4</td>
<td>49</td>
<td>21.6</td>
<td>227</td>
<td>100.0</td>
</tr>
<tr>
<td>College graduate</td>
<td></td>
<td>302</td>
<td>78.2</td>
<td>84</td>
<td>21.8</td>
<td>386</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Chi-square analysis indicates a statistically significant relationship between type of storage used for fully ripe tomatoes and education level, $P = .0001$. 
Appendix Table 19—"Correct" placement of round tomatoes during storage.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Stem Up</th>
<th>Stem Down</th>
<th>On Their Sides</th>
<th>Do Not Know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>--------</td>
<td>-----------</td>
<td>----------------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>Boston</td>
<td>44.7</td>
<td>17.5</td>
<td>6.7</td>
<td>31.1</td>
<td>360</td>
</tr>
<tr>
<td>R/L-1</td>
<td>34.8</td>
<td>39.9</td>
<td>1.7</td>
<td>23.6</td>
<td>351</td>
</tr>
<tr>
<td>R/L-2</td>
<td>36.3</td>
<td>38.0</td>
<td>2.5</td>
<td>23.1</td>
<td>355</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>38.6</td>
<td>26.2</td>
<td>6.3</td>
<td>28.9</td>
<td>363</td>
</tr>
<tr>
<td>New York</td>
<td>43.3</td>
<td>21.5</td>
<td>3.1</td>
<td>32.1</td>
<td>358</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>37.7</td>
<td>34.2</td>
<td>3.5</td>
<td>24.6</td>
<td>342</td>
</tr>
<tr>
<td>All ADI's</td>
<td>39.3</td>
<td>29.4</td>
<td>4.0</td>
<td>27.3</td>
<td>2,129</td>
</tr>
</tbody>
</table>

*Chi-square analysis indicates statistically significant differences in responses by ADI, P = 0.0001.*
Appendix Table 20.--Usual serving temperature for uncooked tomatoes.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Serving Temperature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cold</td>
<td>Room Temperature</td>
</tr>
<tr>
<td>Boston</td>
<td>64.3</td>
<td>35.6</td>
</tr>
<tr>
<td>R/L-1</td>
<td>43.9</td>
<td>56.1</td>
</tr>
<tr>
<td>R/L-2</td>
<td>41.0</td>
<td>59.0</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>58.2</td>
<td>41.8</td>
</tr>
<tr>
<td>New York</td>
<td>56.4</td>
<td>43.6</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>58.2</td>
<td>41.8</td>
</tr>
<tr>
<td>All ADI's</td>
<td>53.7</td>
<td>46.3</td>
</tr>
</tbody>
</table>

\(^a^\text{Chi-square analysis indicates a statistically significant relationship between usual serving temperature for uncooked tomatoes and ADI, } P = 0.0001.\)
Appendix Table 21.—Usual serving temperature of uncooked tomatoes by selected demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Serving Temperature</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cold Room Temperature</td>
<td>Number</td>
</tr>
<tr>
<td>---- Percent ----</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>44.4</td>
<td>55.6</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>54.9</td>
<td>45.1</td>
</tr>
<tr>
<td>Some college</td>
<td>57.8</td>
<td>42.2</td>
</tr>
<tr>
<td>College graduate</td>
<td>55.1</td>
<td>44.5</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>63.3</td>
<td>36.7</td>
</tr>
<tr>
<td>25-34</td>
<td>55.4</td>
<td>44.5</td>
</tr>
<tr>
<td>35-49</td>
<td>53.6</td>
<td>46.4</td>
</tr>
<tr>
<td>50-64</td>
<td>51.9</td>
<td>48.1</td>
</tr>
<tr>
<td>65 or older</td>
<td>46.6</td>
<td>53.3</td>
</tr>
</tbody>
</table>

\^Chi-square analysis indicates a statistically significant relationship between serving temperature by various educational and age groups, \( P < 0.05 \).

\^Percentages may not sum to 100.0 due to rounding.
Appendix Table 22.--Consumers' satisfaction levels with regular round tomatoes as influenced by the adoption of room temperature storage.

<table>
<thead>
<tr>
<th>Respondent Group</th>
<th>Greater</th>
<th>No Change</th>
<th>Less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>Recent switchers</td>
<td>54.4</td>
<td>607</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Other switchers</td>
<td>51.0</td>
<td>963</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>All respondents</td>
<td>60.0</td>
<td>1,570</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) All respondents used room temperature storage for fresh tomatoes. "Recent switchers" were those that had adopted room temperature storage within the past three years, and "other switchers" had done so more than three years ago. Chi-square analysis indicates a significant difference in responses between the two groups. \( P = 0.0001.\)

\(^b\) Percentages may not sum to 100.0 due to rounding.
Appendix Table 23.—Consumers' satisfaction levels with regular round tomatoes as influenced by the adoption of room temperature storage, by age groups.

<table>
<thead>
<tr>
<th>Age</th>
<th>Satisfaction Level</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Under 25</td>
<td>Greater</td>
<td>52</td>
<td>43.0</td>
<td>57</td>
<td>47.1</td>
</tr>
<tr>
<td>25-34</td>
<td>No Change</td>
<td>207</td>
<td>57.5</td>
<td>138</td>
<td>38.3</td>
</tr>
<tr>
<td>35-49</td>
<td>Less</td>
<td>291</td>
<td>58.5</td>
<td>180</td>
<td>36.2</td>
</tr>
<tr>
<td>50-64</td>
<td></td>
<td>220</td>
<td>65.1</td>
<td>104</td>
<td>30.8</td>
</tr>
<tr>
<td>65 or older</td>
<td></td>
<td>260</td>
<td>67.2</td>
<td>73</td>
<td>29.5</td>
</tr>
</tbody>
</table>

*Chi-square analysis indicates a statistically significant relationship between age and satisfaction experienced as a result of room temperature storage, \( P = 0.0003 \).
<table>
<thead>
<tr>
<th>Source</th>
<th>Boston</th>
<th>R/L-1</th>
<th>R/L-2</th>
<th>Philadelphia</th>
<th>New York</th>
<th>Pittsburg</th>
<th>All ADI's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word of mouth</td>
<td>36.6</td>
<td>38.1</td>
<td>34.7</td>
<td>45.3</td>
<td>45.2</td>
<td>41.9</td>
<td>40.5</td>
</tr>
<tr>
<td>Discovered myself</td>
<td>15.8</td>
<td>40.5</td>
<td>47.4</td>
<td>31.5</td>
<td>44.2</td>
<td>34.3</td>
<td>35.8</td>
</tr>
<tr>
<td>Do not remember</td>
<td>17.8</td>
<td>28.5</td>
<td>41.0</td>
<td>18.5</td>
<td>10.6</td>
<td>17.1</td>
<td>21.3</td>
</tr>
<tr>
<td>T.V. commercials</td>
<td>15.8</td>
<td>1.2</td>
<td>10.5</td>
<td>12.9</td>
<td>17.3</td>
<td>9.5</td>
<td>13.3</td>
</tr>
<tr>
<td>Magazine stories</td>
<td>13.9</td>
<td>15.5</td>
<td>3.1</td>
<td>11.1</td>
<td>12.5</td>
<td>13.3</td>
<td>11.5</td>
</tr>
<tr>
<td>Newspaper stories</td>
<td>8.9</td>
<td>3.3</td>
<td>3.1</td>
<td>10.2</td>
<td>7.7</td>
<td>8.6</td>
<td>7.2</td>
</tr>
<tr>
<td>Magazine ads</td>
<td>8.9</td>
<td>8.3</td>
<td>5.3</td>
<td>4.6</td>
<td>8.6</td>
<td>4.8</td>
<td>6.7</td>
</tr>
<tr>
<td>Other T.V.</td>
<td>4.9</td>
<td>0.1</td>
<td>2.1</td>
<td>6.5</td>
<td>4.8</td>
<td>6.7</td>
<td>4.3</td>
</tr>
<tr>
<td>In-store signs</td>
<td>4.0</td>
<td>4.3</td>
<td>1.0</td>
<td>4.6</td>
<td>2.9</td>
<td>3.8</td>
<td>3.5</td>
</tr>
<tr>
<td>Store personnel</td>
<td>3.0</td>
<td>3.3</td>
<td>2.1</td>
<td>1.8</td>
<td>2.9</td>
<td>6.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Leaflets</td>
<td>1.0</td>
<td>2.1</td>
<td>2.1</td>
<td>2.8</td>
<td>3.8</td>
<td>0.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Information on package</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>1.0</td>
<td>1.9</td>
<td>0.5</td>
</tr>
</tbody>
</table>

*Percentages are not summed due to multiple responses. Percentages are based on responses of 101, 84, 95, 108, 104, and 105 from Boston, Roanoke/Lynchburg 1, Roanoke/Lynchburg 2, Philadelphia, New York and Pittsburg, respectively, and 597 responses over all ADI's.

The base used to calculate this percentage excludes observations in R/L-1 because no television commercials had been aired prior to April 1, 1985.
Appendix Table 25. Adjusted percentages of recent switchers to room temperature storage citing television commercials as a reason for switching.

<table>
<thead>
<tr>
<th>ADI</th>
<th>Adjusted Percentage$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>26.2</td>
</tr>
<tr>
<td>R/L-1</td>
<td>3.0</td>
</tr>
<tr>
<td>R/L-2</td>
<td>35.7</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>23.7</td>
</tr>
<tr>
<td>New York</td>
<td>28.1</td>
</tr>
<tr>
<td>Pittsburg</td>
<td>16.9</td>
</tr>
<tr>
<td>All ADI's except R/L-1</td>
<td>25.1$^b$</td>
</tr>
<tr>
<td>All ADI's except R/L-1 and R/L-2</td>
<td>23.9</td>
</tr>
</tbody>
</table>

$^a$"Word of mouth," "discovered myself," and "do not remember" responses shown in Appendix Table 24 are eliminated and percentages recalculated as shown here.

$^b$Excludes R/L-1 because no television commercials had been used prior to interviews.
Appendix Table 26.—A comparison of socio-economic and demographic characteristics of respondents in R/L-1 and R/L-2.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>R/L-1</th>
<th>R/L-2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Household Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>70</td>
<td>17.4</td>
</tr>
<tr>
<td>2</td>
<td>135</td>
<td>33.6</td>
</tr>
<tr>
<td>3</td>
<td>78</td>
<td>19.4</td>
</tr>
<tr>
<td>4</td>
<td>59</td>
<td>14.7</td>
</tr>
<tr>
<td>5 or more</td>
<td>60</td>
<td>14.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>402</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>107</td>
<td>26.7</td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>174</td>
<td>43.5</td>
</tr>
<tr>
<td>Some college</td>
<td>57</td>
<td>14.2</td>
</tr>
<tr>
<td>College graduate</td>
<td>62</td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>400</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>31</td>
<td>7.7</td>
</tr>
<tr>
<td>25-34</td>
<td>78</td>
<td>19.5</td>
</tr>
<tr>
<td>35-49</td>
<td>130</td>
<td>32.5</td>
</tr>
<tr>
<td>50-64</td>
<td>86</td>
<td>21.5</td>
</tr>
<tr>
<td>65 or older</td>
<td>75</td>
<td>18.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>400</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>62</td>
<td>20.4</td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>67</td>
<td>20.6</td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>81</td>
<td>26.6</td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>55</td>
<td>18.1</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>14</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>304</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Continued
## Appendix Table 27.--Recall of television commercials by significant demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Recalled</th>
<th>Not Recalled</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>----------</td>
<td>--------------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Edu Level</strong></td>
<td>----------</td>
<td>--------------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>22.1</td>
<td>77.9</td>
<td>330</td>
<td>100.0</td>
</tr>
<tr>
<td>High school or technical school</td>
<td>19.7</td>
<td>80.3</td>
<td>934</td>
<td>100.0</td>
</tr>
<tr>
<td>graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>18.8</td>
<td>81.2</td>
<td>309</td>
<td>100.0</td>
</tr>
<tr>
<td>College graduate</td>
<td>13.7</td>
<td>86.3</td>
<td>541</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>----------</td>
<td>--------------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Under 25</td>
<td>23.4</td>
<td>76.6</td>
<td>188</td>
<td>100.0</td>
</tr>
<tr>
<td>25-34</td>
<td>22.2</td>
<td>77.8</td>
<td>504</td>
<td>100.0</td>
</tr>
<tr>
<td>35-49</td>
<td>17.0</td>
<td>82.9</td>
<td>664</td>
<td>100.0</td>
</tr>
<tr>
<td>50-64</td>
<td>16.7</td>
<td>83.3</td>
<td>444</td>
<td>100.0</td>
</tr>
<tr>
<td>65 or older</td>
<td>15.6</td>
<td>84.3</td>
<td>313</td>
<td>100.0</td>
</tr>
</tbody>
</table>

---

*Chi-square analyses indicated a significant relationship between recall and each characteristic listed below, \( P < 0.05 \).*

*Percentages may not sum to 100.0 due to rounding.*
### Appendix Table 28.--Recall of tomato recipes, leaflets or booklets, by significant demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Recalled</th>
<th>Not Recalled</th>
<th>Total</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>32.4</td>
<td>67.6</td>
<td>327</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>High school or technical school</td>
<td>23.3</td>
<td>76.7</td>
<td>931</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>26.9</td>
<td>73.1</td>
<td>308</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>College graduate</td>
<td>28.2</td>
<td>71.8</td>
<td>536</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>21.0</td>
<td>79.0</td>
<td>476</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>28.0</td>
<td>72.0</td>
<td>1,631</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

---

*Chi-square analyses indicated a significant relationship between recall and each characteristic listed below, P < 0.05.*

*Percentages may not sum to 100.0 due to rounding.*
Appendix Table 29.--Number of magazine subscriptions per household.

<table>
<thead>
<tr>
<th>Subscriptions(^a) per Household</th>
<th>Number</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eight</td>
<td>33</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Seven</td>
<td>53</td>
<td>2.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Six</td>
<td>68</td>
<td>3.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Five</td>
<td>109</td>
<td>5.2</td>
<td>12.5</td>
</tr>
<tr>
<td>Four</td>
<td>173</td>
<td>8.3</td>
<td>20.8</td>
</tr>
<tr>
<td>Three</td>
<td>234</td>
<td>11.2</td>
<td>32.0</td>
</tr>
<tr>
<td>Two</td>
<td>281</td>
<td>13.4</td>
<td>45.4</td>
</tr>
<tr>
<td>One</td>
<td>415</td>
<td>19.9</td>
<td>65.3</td>
</tr>
<tr>
<td>None</td>
<td>723</td>
<td>34.6</td>
<td>100.0(^b)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,089</td>
<td>100.0(^b)</td>
<td>--</td>
</tr>
</tbody>
</table>

\(^a\) Includes only the eight magazines that were used for FTE tomato advertising.

\(^b\) Does not sum to 100.0 due to rounding.
Appendix Table 30.--Magazine subscriptions by ADI.

<table>
<thead>
<tr>
<th>Magazine</th>
<th>Boston</th>
<th>R/L-1</th>
<th>R/L-2</th>
<th>Philadelphia</th>
<th>New York</th>
<th>Pittsburgh</th>
<th>All ADI's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Circle</td>
<td>34.5</td>
<td>23.4</td>
<td>32.6</td>
<td>32.9</td>
<td>31.7</td>
<td>32.9</td>
<td>31.3</td>
</tr>
<tr>
<td>Better Homes &amp; Gardens</td>
<td>29.3</td>
<td>32.1</td>
<td>36.1</td>
<td>29.2</td>
<td>30.8</td>
<td>30.0</td>
<td>31.2</td>
</tr>
<tr>
<td>Good Housekeeping</td>
<td>25.3</td>
<td>27.5</td>
<td>33.1</td>
<td>29.2</td>
<td>26.3</td>
<td>28.0</td>
<td>28.3</td>
</tr>
<tr>
<td>Woman's Day</td>
<td>29.3</td>
<td>20.5</td>
<td>29.1</td>
<td>29.0</td>
<td>28.4</td>
<td>28.3</td>
<td>27.4</td>
</tr>
<tr>
<td>Ladies Home Journal</td>
<td>18.1</td>
<td>21.9</td>
<td>17.1</td>
<td>20.6</td>
<td>19.5</td>
<td>18.7</td>
<td>21.0</td>
</tr>
<tr>
<td>McCall's</td>
<td>16.2</td>
<td>24.3</td>
<td>24.6</td>
<td>16.5</td>
<td>21.3</td>
<td>21.4</td>
<td>20.7</td>
</tr>
<tr>
<td>Redbook</td>
<td>15.5</td>
<td>17.3</td>
<td>17.3</td>
<td>15.4</td>
<td>17.3</td>
<td>15.8</td>
<td>16.4</td>
</tr>
<tr>
<td>Southern Living</td>
<td>3.7</td>
<td>26.9</td>
<td>30.3</td>
<td>4.7</td>
<td>3.3</td>
<td>5.8</td>
<td>12.5</td>
</tr>
<tr>
<td>Average Subscription Rate</td>
<td>21.5</td>
<td>24.2</td>
<td>28.8</td>
<td>22.2</td>
<td>22.1</td>
<td>22.6</td>
<td>23.6</td>
</tr>
</tbody>
</table>
Appendix Table 31.--Recall of magazine ads by significant demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Recalled</th>
<th>Not Recalled</th>
<th>Total</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Level</td>
<td>----------</td>
<td>--------------</td>
<td>-------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>19.1</td>
<td>80.9</td>
<td>330</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>High school or technical school graduate</td>
<td>16.7</td>
<td>83.3</td>
<td>935</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>13.6</td>
<td>86.4</td>
<td>309</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>College graduate</td>
<td>11.8</td>
<td>88.2</td>
<td>641</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>----------</td>
<td>--------------</td>
<td>-------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Under 25</td>
<td>15.0</td>
<td>85.0</td>
<td>187</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>11.5</td>
<td>88.5</td>
<td>505</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>35-49</td>
<td>17.2</td>
<td>82.8</td>
<td>664</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>50-64</td>
<td>19.1</td>
<td>80.9</td>
<td>445</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>65 or older</td>
<td>13.1</td>
<td>86.9</td>
<td>313</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>----------</td>
<td>--------------</td>
<td>-------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Male</td>
<td>11.7</td>
<td>88.3</td>
<td>477</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>16.5</td>
<td>83.5</td>
<td>1,644</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

\[a\]Chi-square analyses indicated a significant relationship between recall and each characteristic listed below, $P < 0.05$.

\[b\]Percentages may not sum to 100.0 due to rounding.
Appendix Table 32.--Recall of in-store posters by age.

<table>
<thead>
<tr>
<th>Age^a</th>
<th>Recalled</th>
<th>Not Recalled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Under 25</td>
<td>19.7</td>
<td>188</td>
<td>100.0</td>
</tr>
<tr>
<td>25-34</td>
<td>15.2</td>
<td>505</td>
<td>100.0</td>
</tr>
<tr>
<td>35-49</td>
<td>12.4</td>
<td>662</td>
<td>100.0</td>
</tr>
<tr>
<td>40-64</td>
<td>15.8</td>
<td>444</td>
<td>100.0</td>
</tr>
<tr>
<td>65 or older</td>
<td>10.5</td>
<td>313</td>
<td>100.0</td>
</tr>
</tbody>
</table>

^a Chi-square analyses indicated a significant relationship between recall and age, P < 0.05.

^b Percentages may not sum to 100.0 due to rounding.
Appendix Table 33.--Recall of other television, by income.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Recalled</th>
<th>Not Recalled</th>
<th>Total</th>
<th>Number</th>
<th>Percent</th>
<th>Percent^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>18.8</td>
<td>81.2</td>
<td></td>
<td>224</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>$10,000-19,999</td>
<td>14.7</td>
<td>85.2</td>
<td></td>
<td>373</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>$20,000-34,999</td>
<td>15.1</td>
<td>84.9</td>
<td></td>
<td>436</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>$35,000-49,999</td>
<td>11.7</td>
<td>88.3</td>
<td></td>
<td>375</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>5.6</td>
<td>94.4</td>
<td></td>
<td>143</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

^a Chi-square analyses indicated a significant relationship between recall and income, P < 0.05.

^b Percentages may not sum to 100.0 due to rounding.
Appendix Table 34.--Recall of radio commercials, by significant demographic characteristic.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Recalled</th>
<th>Not Recalled</th>
<th>Total</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some grade school or high school</td>
<td>10.0</td>
<td>90.0</td>
<td>329</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>High school or technical school</td>
<td>6.1</td>
<td>93.9</td>
<td>935</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>5.5</td>
<td>94.5</td>
<td>309</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>College graduate</td>
<td>5.4</td>
<td>94.6</td>
<td>538</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>3.2</td>
<td>96.8</td>
<td>188</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>7.0</td>
<td>93.0</td>
<td>503</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>35-49</td>
<td>6.2</td>
<td>93.8</td>
<td>661</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>50-64</td>
<td>5.2</td>
<td>94.8</td>
<td>445</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>65 or older</td>
<td>9.9</td>
<td>90.1</td>
<td>313</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

\[a\] Chi-square analyses indicated a significant relationship between recall and each characteristic listed below, $P < 0.05$.

\[b\] Percentages may not sum to 100.0 due to rounding.