# Consumer Preferences for Fresh Fruit and Vegetable Retail Package Sizes[1]

by

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**Introduction**

Consumer interest in fresh produce has risen over the past ten years. Rogers attributes this increased demand to three main reasons (Rogers). First, and most obvious, is the belief held by consumers that fresh produce is related to good nutrition and health. The second reason is that personal income has become sufficiently large to permit the preference for fresh produce to grow without much concern over price. Finally, younger consumers have exhibited more daring in their acceptance of new and exotic produce items.

For many retail outlets the fresh produce department is a top profit generator. These profits can slip away quickly if the food distribution industry fails to keep its finger on the pulse of the consumer. The food industry can stay in touch with consumers' ever changing tastes and buying habits by directly asking consumers to indicate their wants and desires. Decisions based on old data can prove fatal within an industry as competitive as food retailing.

Approximately 40 percent of fresh fruits and vegetables are prepacked (Shepherd, et al.). Packaging of fresh produce offers advantages to consumer and retailer alike. Packaged produce allows for rapid selection of desired products and permits the retailers to market their products more efficiently.

[1]Work was accomplished under Project Del. No. 266.

Packaging of fresh fruits and vegetables generally allows quality to be maintained longer, thereby increasing the shelf life of the product (Peleg).

**Objectives**

In this study, the shopping patterns and preferences of Delaware consumers for fresh produce were analyzed. Specifically, the objectives are:

1. To determine consumers' preferences for package sizes for fresh produce and for partially prepared produce.

2. To determine if any relationship exists among package size preference, difficulty in finding the preferred package size and a consumer's desire for a bulk display of fresh produce.

3. To use the above information to make recommendations for improvement of marketing practices in the food industry.

**Procedure**

Five thousand questionnaires designed to measure the attitudes and buying patterns of consumers were mailed to randomly selected Delaware residents during September and October 1985. The sample was drawn from all households having a telephone and weighted according to the population base of each county in Delaware. While the use of a mailed questionnaire is a common and accepted method of data collection, the reader should be cautioned about the bias introduced as a result of any form of voluntary response. Those consumers who have an interest in the questionnaire's subject area are more likely to respond than are more apathetic consumers. This will compromise the randomness of the respondents (Bryson). However, the expense of removing the bias, for the purposes of this study, was greater than the benefit.

The questionnaire contained seven sections covering consumer shopping patterns, package size preference for fresh meat, package size preference for fresh produce; preferences for bulk foods, generic foods, locally produced products; and consumer demographic characteristics. This report will discuss the sections on respondent demographic and life style characteristics and package size preferences for fresh produce. 968 surveys were returned--a 19.4 percent response rate.

**Selected Consumer Characteristics**

Almost two-thirds of the respondents to this survey were female. The ages of the respondents are distributed over a wide range, 19 to 91. Over 20 percent are within the 55 to 64 age bracket. This age group is closely followed by the 45 to 54, 35 to 44, and 25 to 34 age groups, respectively (Table 1). According to the 1980 census of population, those consumers in the 34 and under age groups are under represented in the data by 13.7 percent. The 35 to 74 age groups are over represented by 23 percent, and the 75 and older age group is properly represented in the data. However, the U.S. population has continued to shift toward the older age groups since 1980, a fact which this data set reflects.

A majority of those responding had total household incomes within the middle to upper income brackets. Over 23 percent of the households had combined incomes of $50,000 or more, 32.6 percent were in the $30,000 to $49,999 income range, with 43.9 percent indicating their household earned a gross income of less than $30,000 a year (Table 1).

Those responding to the survey valued education. Over 16 percent indicated they had graduate school training. Almost 47 percent had completed or experienced some college while only slightly over 7 percent had not completed high school (Table 1).

Over 42 percent of those responding to the survey lived in a two-member household. This was followed by three-, four-, and one-member households with each size contributing 17.4, 17.2 and 13.6 percent respectively (Table 1).

Occupation was classified into five major categories: professional, retired, office and clerical workers, homemakers, and blue collar workers. Professionals and retired individuals were the two largest groups represented in the survey by 24.6 and 23.4 percent, respectively. These were followed by office and clerical workers, homemakers, and blue collar workers, representing 19.1, 18.1, and 11 percent of the respondents, respectively.

**Table 1. Characteristics of Consumers Surveyed, Delaware, 1985**

| Characteristics | Percent |
|---|---|
| Age | |
| 24 and under | 2.76 |
| 25 to 34 | 18.07 |
| 35 to 44 | 18.70 |
| 45 to 54 | 19.45 |
| 55 to 64 | 20.19 |
| 65 to 74 | 15.73 |
| 75 and over | 5.10 |
| Income | |
| Less than $10,000 | 6.6 |
| $10,000 - $19,999 | 15.5 |
| $20,000 - $29,999 | 21.8 |
| $30,000 - $39,999 | 18.8 |
| $40,000 - $49,999 | 13.8 |
| $50,000 or more | 23.5 |
| Education | |
| 1 through 11 | 7.3 |
| High School Diploma | 29.5 |
| Some College | 24.3 |
| College Degree | 22.5 |
| Graduate School | 16.4 |
| Family Size | |
| 1 | 13.6 |
| 2 | 42.6 |
| 3 | 17.4 |
| 4 | 17.2 |
| 5 | 6.7 |
| Over 5 | 2.5 |

Source: Consumer Mail Survey and Calculations

**Results**

*Consumer Package Size Preferences For Fresh Produce*

The consumers were asked to indicate the size of package they preferred for the major items of fresh produce. Further questions were related to whether they had encountered any difficulty in finding this package size and whether they would prefer this item in a bulk display.

This section of the paper contains a series of tables presenting the preferred package sizes, problems in finding desired package size, and preference for fresh produce bulk displays.

Fresh Fruit. Consumers were asked to state their preferences for eight fresh fruit items; the major results are presented in Table 2. For apples, over 45 percent of those responding indicated a preference for the three-pound package. This is consistent with the findings of work done by Feick which showed that in 1977 the top preferred package size for apples by Delaware consumers was the three-pound unit.

Other popular apple package sizes were the two- and five-pound sizes, preferred by 19.4 and 13.1 percent of the respondents, respectively. Only 11.2 percent experienced any difficulty in finding the preferred size. However, the package sizes hardest to find were the one- and two-pound packages, by 24.6 and 15.1 percent respectively. The more popular the desired apple package size, the fewer the problems associated with finding that package (Table 3). A large percentage (88.9%) still preferred apples in a bulk display.

The most popular package size for blueberries was the pint container, preferred by 81 percent of the respondents. Only 7.2 percent indicated having any problems finding the package size they wanted. Only 4 percent of those stating a preference for the one-pint package experienced any problems, while those wanting a quart container had trouble 13.5 percent of the time (Table 2).

**Table 2. Top Package Size Preferences for Fresh Fruit, Delaware, 1985**

| Item | Pkg. Size Preferred | Respondents (number) | Respondents (percent) | Difficulty in Finding Size (percent) | Preferring Item in Bulk Display (percent) |
|---|---|---|---|---|---|
| Apples | All | 715 | | 11.2 | 88.9 |
| (lbs.) | 3 | 324 | 45.3 | 6.2 | 71.0 |
| | 2 | 139 | 19.4 | 15.1 | 81.3 |
| | 5 | 94 | 13.1 | 4.3 | 74.5 |
| | 1 | 61 | 8.1 | 24.6 | 72.1 |
| Blueberries | All | 527 | | 7.2 | 45.3 |
| (pints) | 1 | 427 | 81.0 | 4.0 | 29.7 |
| | 2 | 74 | 14.0 | 13.5 | 41.9 |
| Grapefruit | All | 613 | | 12.7 | 90.3 |
| (number) | 2 | 174 | 28.4 | 9.8 | 78.7 |
| | 4 | 153 | 25.0 | 15.7 | 75.8 |
| | 3 | 115 | 18.8 | 6.1 | 64.3 |
| | 6 | 91 | 14.8 | 7.7 | 69.2 |
| Grapes | All | 688 | | 15.8 | 88.3 |
| (lbs.) | 1 | 255 | 37.1 | 14.9 | 67.5 |
| | 2 | 243 | 35.3 | 11.9 | 73.7 |
| | 3 | 83 | 12.1 | 14.5 | 89.2 |
| Oranges | All | 665 | | 16.9 | 91.4 |
| (number) | 6 | 264 | 39.7 | 17.8 | 78.4 |
| | 12 | 148 | 22.3 | 8.8 | 67.6 |
| | 10 | 74 | 11.1 | 8.1 | 77.0 |
| Peaches | All | 558 | | 19.4 | 93.9 |
| (lbs.) | 3 | 173 | 31.0 | 18.5 | 85.5 |
| | 2 | 169 | 30.3 | 14.2 | 78.1 |
| | 1 | 81 | 14.5 | 12.3 | 81.5 |
| Pears | All | 506 | | 18.8 | 93.4 |
| (lbs.) | 2 | 185 | 36.6 | 16.2 | 81.6 |
| | 1 | 115 | 22.7 | 12.2 | 76.5 |
| | 3 | 113 | 22.3 | 14.2 | 82.3 |
| Strawberries | All | 623 | | 7.5 | 58.2 |
| (pints) | 1 | 359 | 57.6 | 1.9 | 42.1 |
| | 2 | 207 | 33.2 | 12.6 | 44.0 |

Source: Consumer Mail Survey and Calculations

**Table 3. Respondent Difficulty in Finding Desired Fresh Fruit Package Size In Terms of Ordered Size Preferences and Size Popularity**

| | | Package Size Ordered Preferences | | Package Size Popularity | |
|---|---|---|---|---|---|
| Item | Respondents (percent) | (significance) (level) | (gamma) (level) | (significance) (level) | (gamma) (level) |
| Apples | 11.2 | .000 | .343 | .000 | .277 |
| Blueberries | 7.2 | .000 | -.671 | .000 | .664 |
| Grapefruit | 12.7 | NS | | NS | |
| Grapes | 15.8 | NS | | NS | |
| Oranges | 16.9 | .027 | .222 | .014 | -.127 |
| Peaches | 19.4 | NS | | NS | |
| Pears | 18.8 | NS | | NS | |
| Strawberries | 7.5 | .000 | -.658 | .000 | .638 |

Source: Consumer mail survey and calculations

NS = Not significant at the 95% confidence level.

**Table 4. Respondents' Desire to See Fresh Fruit in a Bulk Display, By Ordered Package Size Preferences and Package Size Popularity**

| | | Package Size Ordered Preferences | | Package Size Popularity | |
|---|---|---|---|---|---|
| Item | Respondents (percent) | (significance) (level) | (gamma) (level) | (significance) (level) | (gamma) (level) |
| Apples | 88.9 | NS | | NS | |
| Blueberries | 45.3 | NS | | NS | |
| Grapefruit | 90.3 | .024 | -.229 | .039 | .222 |
| Grapes | 88.3 | NS | | NS | |
| Oranges | 91.4 | .001 | -.417 | .001 | -.045 |
| Peaches | 93.9 | NS | | NS | |
| Pears | 93.4 | NS | | NS | |
| Strawberries | 58.2 | NS | | NS | |

Source: Consumer mail survey and calculations

NS = Not significant at the 95% confidence level.

Over 90 percent of the consumers responding said they like to see grapefruit in bulk displays. The most popular package sizes for grapefruit mentioned were the two- and four-unit packages, preferred, respectively, by 28.4 and 25.0 percent of those indicating a package size preference for grapefruit. The two- and four-grapefruit packages were the hardest to find by 9.8 and 15.7 percent of those desiring those package sizes. Overall, 12.7 percent indicated they had any package size problems with grapefruit (Table 2).

Over a third (37.1%) of the consumers selected a one-pound package as their preference for grapes. The two-pound size was selected by 35.3 percent, while the three-pound unit was a distant third choice by 12.1 percent. One- and three-pound grape packages were reported to be the hardest to find by 14.9 and 14.5 percent of those showing those respective preferences. Over 88 percent of the consumers responding indicated they preferred to see grapes in a bulk display (Table 2).

When buying oranges, over one-third (39.7%) of the consumers made the six-orange container their top selection (Table 2). The large twelve- and ten-item packages were the choices of an additional 22.3 and 11.1 percent of the respondents. About twice the percentage of consumers had trouble finding the six-unit package as the twelve- and ten-unit packages. But the significance of this relationship is weak. A large majority of the consumers (91.4%) preferred to see oranges in a bulk display with bulk preference significantly increasing as the desired package size decreased (Table 4).

Thirty-one percent of the consumers selected the three-pound pack as their top choice for fresh peaches. The two-pound container was preferred by another 30.3 percent, while the one-pound unit was the preferred size of an additional 14.5 percent. Almost one-fifth (19.4%) of the consumers responding revealed they had experienced problems in finding their desired package size. More consumers (93.9%) preferred to see peaches in bulk displays than any other fruit considered in this study (Table 2).

When purchasing pears, over one-third (36.6%) of the consumers preferred a two-pound package. The one-pound unit was the top choice of 22.7 percent of the consumers surveyed, followed by the three-pound package with 22.3 percent of the respondents. Almost 19 percent of the consumers responding indicated problems in locating their desired package size. Consumers wanting the two- and three-unit package experienced the most difficulty and also said they wanted to see pears in bulk display more often (Table 2).

As for fresh strawberries, over one-half (57.6%) of the consumers surveyed wanted pint containers. The quart container was selected by an additional 33.2 percent. Only 7.5 percent said they had encountered problems finding their desired package size. Of those having problems, only 1.9 percent preferred the pint container while 12.6 percent preferred the quart container (Table 2). Fifty-eight percent of the respondents preferred to see strawberries in a bulk display; however, of those who showed a preference for the pint container, only 42.1 percent wanted a bulk display (Table 2).

<u>Fresh Vegetables</u>. Consumers were asked to state their preferences for eleven fresh vegetables and the major results are presented in Table 5. For fresh asparagus, the one-pound unit was desired by 60.9 percent of the consumers and the two-pound size by an additional 23.1 percent. Over 21 percent of responding consumers indicated having difficulty in finding their desired package size. Those favoring the one- and two-pound packages reported trouble 15.4 and 14.9 percent of the time, respectively (Table 5). Respondents indicated they had significantly more trouble finding their desired asparagus package the larger and less popular the package size (Table 6). Overall, 8 percent of the consumers responding preferred asparagus to be in a bulk display (Table 5).

For carrot purchases, the one-pound package was the preference of 55.3 percent of the Delaware consumers. An additional 20.4 percent of the respondents selected the two-pound package, while 15.1 percent wanted the larger three-pound unit. Less than 7 percent

**Table 5. Top Package Size Preferences for Fresh Vegetables, Delaware, 1985**

| Item | Pkg. Size Preferred | Respondents (number) | Respondents (percent) | Difficulty in Finding Size (percent) | Preferring Item in Bulk Display (percent) |
|---|---|---|---|---|---|
| Asparagus | All | 524 | | 21.1 | 88.3 |
| (lbs.) | 1 | 319 | 60.9 | 15.4 | 73.4 |
| | 2 | 121 | 23.1 | 14.9 | 78.5 |
| Carrots | All | 736 | | 6.9 | 54.3 |
| (lbs.) | 1 | 407 | 55.3 | 6.1 | 40.3 |
| | 2 | 150 | 20.4 | 4.7 | 36.7 |
| | 3 | 111 | 15.1 | 3.6 | 31.5 |
| Sweet Corn | All | 649 | | 21.2 | 90.0 |
| (ears) | 6 | 248 | 38.2 | 13.3 | 75.4 |
| | 12 | 135 | 20.8 | 12.6 | 74.8 |
| | 4 | 123 | 19.0 | 17.9 | 74.0 |
| Green | All | 485 | | 17.4 | 89.5 |
| Snap Beans | 1 | 254 | 52.4 | 9.8 | 75.2 |
| (lbs.) | 2 | 134 | 27.6 | 16.4 | 77.6 |
| Lima Beans | All | 340 | | 24.7 | 84.4 |
| (lbs.) | 1 | 169 | 49.7 | 14.2 | 69.8 |
| | 2 | 102 | 30.0 | 25.5 | 77.5 |
| Onions | All | 710 | | 11.8 | 80.7 |
| (lbs.) | 3 | 293 | 41.3 | 4.8 | 55.6 |
| | 1 | 158 | 22.3 | 15.8 | 73.4 |
| | 2 | 118 | 16.6 | 17.8 | 72.9 |
| Peas | All | 356 | | 20.5 | 84.6 |
| (lbs.) | 1 | 181 | 50.8 | 15.5 | 71.8 |
| | 2 | 103 | 28.9 | 17.5 | 67.0 |
| Peppers | All | 556 | | 16.4 | 92.3 |
| (number) | 2 | 196 | 35.3 | 13.8 | 76.5 |
| | 1 | 116 | 20.9 | 12.1 | 82.8 |
| | 3 | 93 | 16.7 | 9.7 | 78.5 |
| Potatoes | All | 466 | | 11.1 | 90.7 |
| (lbs.) | 5 | 359 | 46.5 | 2.5 | 47.9 |
| | 10 | 228 | 29.5 | 1.8 | 34.2 |
| Sweet | All | 772 | | 11.1 | 66.8 |
| Potatoes | 2 | 132 | 28.3 | 21.2 | 82.6 |
| (lbs.) | 3 | 103 | 22.1 | 12.6 | 79.6 |
| | 1 | 84 | 18.0 | 19.0 | 71.4 |
| Tomatoes | All | 591 | | 14.0 | 91.5 |
| (lbs.) | 2 | 200 | 33.8 | 12.0 | 76.5 |
| | 1 | 179 | 30.3 | 7.3 | 75.4 |
| | 3 | 117 | 19.8 | 14.5 | 82.1 |

Source: Consumer mail survey and calculations

**Table 6. Respondent Difficulty in Finding Desired Fresh Vegetable Package Size in Terms of Ordered Size Preferences and Size Popularity**

| Item | Respondents (percent) | Package Size Ordered Preferences (significance) (level) | Package Size Ordered Preferences (gamma) (level) | Package Size Popularity (significance) (level) | Package Size Popularity (gamma) (level) |
|---|---|---|---|---|---|
| Asparagus | 21.1 | .036 | -.222 | .000 | .301 |
| Carrots | 6.9 | NS | | .046 | .065 |
| Sweet Corn | 21.2 | .009 | .222 | .003 | .250 |
| Green Snap Beans | 17.4 | .004 | -.343 | .004 | .348 |
| Lima Beans | 24.7 | .026 | -.304 | .003 | .362 |
| Onions | 11.8 | .000 | .379 | .000 | .277 |
| Peas | 20.5 | .045 | -.196 | .018 | .190 |
| Peppers | 16.4 | NS | | NS | |
| Potatoes | 11.1 | .000 | .630 | .000 | .827 |
| Sweet Potatoes | 17.9 | NS | | .031 | -.218 |
| Tomatoes | 14.0 | NS | | .042 | .121 |

Source: Consumer mail survey and calculations

NS = Not significant at the 95% confidence level.

**Table 7. Respondents' Desire to See Fresh Vegetables in a Bulk Display, By Ordered Package Size Preferences and Package Size Popularity**

| Item | Respondents (percent) | Package Size Ordered Preferences (significance) (level) | Package Size Ordered Preferences (gamma) (level) | Package Size Popularity (significance) (level) | Package Size Popularity (gamma) (level) |
|---|---|---|---|---|---|
| Asparagus | 88.3 | NS | | NS | |
| Carrots | 54.3 | NS | | NS | |
| Sweet Corn | 90.0 | NS | | NS | |
| Green Snap Beans | 89.5 | NS | | NS | |
| Lima Beans | 84.4 | .035 | .330 | .015 | -.227 |
| Onions | 80.7 | .000 | -.331 | .001 | -.180 |
| Peas | 84.6 | NS | | NS | |
| Peppers | 92.3 | .003 | -.215 | .006 | .281 |
| Potatoes | 66.8 | .000 | -.545 | .000 | -.105 |
| Sweet Potatoes | 90.7 | NS | | NS | |
| Tomatoes | 91.5 | NS | | NS | |

Source: Consumer mail survey and calculations

NS = Not significant at the 95% confidence level.

indicated any problems in finding their favorite size package of carrots (Table 5). Consumers' difficulty in finding their desired package size of carrots decreases as the favored package size increases in popularity (Table 6). Overall, 54.3 percent of the respondents wanted to see carrots displayed in bulk (Table 5).

When purchasing sweet corn, 38.2 percent of the consumers wanted a package containing six ears. Twelve ears was the preferred unit for another 20.8 percent, and the four-ear size by an additional 18.9 percent of the respondents. Over one-fifth (21.2%) of those responding had trouble locating their desired package size of sweet corn (Table 5). Consumers said they have significantly greater trouble finding their desired sweet corn package size the smaller and/or less popular the desired package size (Table 6). Ninety percent of the consumers responding favored a bulk display for sweet corn.

The one-pound package for green snap beans was the selection of 52.4 percent of the consumers surveyed, with the two-pound package preferred by 27.6 percent. Less than 10 percent of the consumers preferring the one-pound package indicated they had experienced any problems in finding that package size, while 16.4 percent of those preferring the two-pound unit stated they did have trouble locating their desired package size (Table 5). Almost 90 percent of the responding consumers indicated they liked to see green snap beans available in bulk (Table 5).

When purchasing fresh lima beans, nearly half (49.7%) of the consumers selected the one-pound package. The two-pound size was preferred by 30 percent of the consumers. The percentage of those having difficulty in finding their desired package size almost doubled from the one-pound (14.2%) to the two-pound unit (25.5%) (Table 5). As with green snap beans, there is significant but moderately weak statistical evidence to suggest that respondents preferring the smaller and more popular lima bean packages had fewer problems finding their desired package size (Table 6). Almost 25 percent of the consumers responding indicated they had encountered package size problems with fresh lima beans.

Eighty-five percent of those responding wanted to see lima beans available in bulk. The preferences for a bulk display was less for those preferring the one- and two-pound packages at 69.8 and 77.5 percent, respectively (Table 5). There is significant evidence suggesting the larger and less popular the desired package size the greater the desire to see lima beans in a bulk display (Table 7).

The top onion package size was the three-pound unit, desired by 41.3 percent of the respondents. The second most popular pack was the one-pound size selected by 22.3 percent of the consumers (Table 5). Generally, the more popular and larger the onion package size, the lower the incidence of problems associated with finding the desired package size (Table 6). Only 4.8 percent of the consumers preferring the three-pound unit experienced difficulty in finding their desired package size, while those desiring the one- and two-pound package had trouble 15.8 and 17.8 percent of the time, respectively (Table 5).

Overall, 80.7 percent of the onion buying consumers preferred to see onions in bulk displays. However, only 55.6 percent of the consumers purchasing the more popular three-pound unit wanted bulk displays. There is a slight tendency on the part of consumers preferring the larger and more popular onion packages sizes to have somewhat less desire to see this item in a bulk display (Table 7).

Approximately half (50.9%) of the consumers wanted a one-pound package when buying fresh peas and the two-pound package was desired by 28.9 percent of the consumers. Over 20 percent of the consumers who shopped for fresh peas said they had problems finding their desired package size. Of those desiring a two-pound package, 17.5 percent indicated they had encountered problems, while 15.5 percent of those wanting a one-pound unit said they had experienced trouble (Table 5). Almost 85 percent of responding consumers liked to see fresh peas in bulk display (Table 5).

When buying peppers, 35.3 percent of the respondents wanted a two-unit package. Consumers indicated they had less trouble finding the three-unit package (9.7%) than the more popular one- (12.1%) and two-unit (13.8%) packages. More consumers (92.3%) preferred to see the pepper in bulk display than any of the fresh vegetables considered in this study (Table 5). Consumers had a significantly greater desire to see peppers in a bulk display the smaller and more popular the desired package sizes (Table 7).

The five-pound pack was the most popular size of 46.5 percent of the consumers when purchasing potatoes, and 29.5 percent of the consumers preferred the ten-pound pack. Approximately 11 percent of the respondents reported any problems associated in finding their desired potato package size. Consumers buying the five- and ten-pound packages only experienced trouble 2.5 and 1.8 percent of the time, respectively (Table 5). Consumers preferring the larger and more popular potato packages experience fewer problems finding those unit sizes (Table 6). Next to carrots, fewer consumers (66.8%) preferred potatoes in a bulk display than any other fresh vegetable in this study. Table 7 suggests that the larger and more popular the desired potato package the smaller the desire on the part of the consumer to see potatoes in a bulk display.

For sweet potatoes, 28.3 percent of the consumers wanted a two-pound package, 22.1 percent the three-pound pack, and 18 percent the one-pound package. Over 28 percent of the consumers experienced problems finding their desired package size of sweet potatoes (Table 5). The more popular the desired package size the greater the problems associated with finding the desired unit pack (Table 6). Consumers overwhelmingly supported the concept that sweet potatoes be offered in a bulk display (Table 5).

For tomatoes, one-third (33.8%) of the respondents wanted to purchase two-pound packages (Table 5). A one-pound pack was the top choice of another 30.3 percent, with a three-pound quantity being preferred by an additional 19.8 percent of the consumers. Consumers indicating they had experienced problems finding their desired tomato pack decreased as the package size popularity increased (Table 6). Overall, 91.5 percent of the consumers liked to see fresh tomatoes in a bulk display (Table 7).

*Partially Prepared Produce*

Consumers were asked to indicate their willingness to purchase partially prepared produce items, on a regular basis, if such items were made available in their local stores (Table 8). A sectioned watermelon and fresh fruit salad were the top partially prepared produce items selected by 38.0 and 24.9 percent of the respondents, respectively. It is often more difficult for a one- or two-member household to store and consume a large whole watermelon before it loses quality, while fresh fruit salad is very time consuming for the consumer to prepare. These consumer preferred fruit items were followed by shelled lima beans (24.7%) and shelled peas (20.7%).

The items receiving the lowest consumer willingness to purchase rating were melon balls (12.0%), salad mix (13.0%), celery sticks (13.2%), and carrot sticks (13.6%) (Table 8).

**Table 8. Consumers Willing to Purchase Partially Prepared Produce, Delaware, 1985**

| Product | Number of Respondents | Percentage of Respondents |
|---|---|---|
| Carrot Sticks | 129 | 13.6 |
| Celery Sticks | 125 | 13.2 |
| Cole Slaw | 163 | 17.2 |
| Fresh Fruit Salad | 236 | 24.9 |
| Half Cantaloupe | 142 | 15.0 |
| Melon Balls | 114 | 12.0 |
| Salad Mix | 123 | 13.0 |
| Shelled Lima Beans | 234 | 24.7 |
| Shelled Peas | 196 | 20.7 |
| ¼ or ½ Watermelon | 361 | 38.0 |

Source: Consumer mail survey and calculations.

## Summary and Conclusions

The typical shopper who responded to this survey was a price-conscious female who preferred shopping at a supermarket on a weekly basis. If she worked outside the home, she more than likely was a professional. She was from an average family size of 2.75 members with an annual gross household income of around $30,000.

Even though consumers may have a preferred produce package size, they still like to see fresh fruits and vegetables in a bulk display. The items not receiving a high positive response for a bulk display were blueberries, strawberries, carrots, and potatoes.

This study found that as the desired package size became smaller the consumer had more trouble finding that size for apples, oranges, corn, onions, and potatoes. As the desired package size became larger the consumer had more trouble finding that size for blueberries, strawberries, asparagus, green snap beans, lima beans, and peas. In terms of bulk display, the smaller the desired package size the more the consumer wanted to see a bulk display of grapefruit, oranges, onions, peppers, and potatoes.

The study showed that as the desired produce size package became more popular the consumer had less trouble finding that size when she shopped for apples, blueberries, strawberries, asparagus, carrots, corn, green snap beans, lima beans, onions, peas, potatoes, and tomatoes.

Consumer time, produce size, and freshness tend to be the factors in determining whether partially prepared produce items will be bought on a regular basis.

With the demand pressures being placed on the smaller more popular fresh produce package sizes, wholesale and retail managers need to be more responsive to changes in package size demand. If these managers will do this they will keep the produce departments supplied with the quantity and package sizes preferred by their customers. Retail produce managers also need to pay closer attention to the quality of their products, especially those items that have a relatively short shelf life. If fresher local produce can be obtained and marketed consumers can see the difference, they will respond. To maintain a high quality image for fresh produce it will be necessary for produce managers to cull produce that is showing signs of deterioration rather than to reduce the item's price in an attempt to recover some of the cost.

There is a need to evaluate further consumer packaging preferences in terms of various demographic characteristics. This information can assist market managers in targeting and meeting the needs of different demographic groups.

Market research is an essential part of running a successful food retail business. Benefits are to be gained by keeping abreast of the shopping patterns and changes in consumer tastes and preferences. The food industry needs to update constantly its figures on the demographic characteristics and trends and consider their impact as related to store operation.

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