Determinants of Apple Purchases for Ohio Consumers: Implications for Other States

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Many states are attempting to increase their production and marketing of fruits and vegetables. Ohio is no exception! Currently the state is exploring opportunities for increasing its production and marketing of Ohio-grown apples. Apples are perceived to offer expansion opportunities because of the state's production potential, consumers' positive perceptions of the quality of Ohio apples, the state's large population, and its proximity to other large population centers.

Since Ohio consumers represent the primary buyers of Ohio-grown apples, a general premise of this paper is that any planned expansion of apple production and marketing must emanate from a clear understanding of consumers' buying and consumption habits. To gain this understanding, a random sample of 500 consumers were surveyed. Of these 500 consumers surveyed, 191 responded and 161 of these returned surveys were complete and usable (Jones, 1995). This paper reports many of the findings from these 161 surveys.

Demographic and Socioeconomic Characteristics

Even though consumers across the entire state of Ohio represent the primary interest group for this study, available research funds limited the consumer survey to registered voters in Franklin county, the capital seat for the state. To evaluate the validity of this localized or cluster-type sampling, it seems appropriate to compare demographic and socioeconomic characteristics for the county, state and the respondents to this survey. Comparisons between the state and county show Franklin county to have a younger age distribution, higher levels of education, and higher incomes (Bureau of the Census). Likewise, respondents to the survey had higher levels of education and income than residents across the state. With respect to education, just 21.7 percent of the respondents to this survey had not received at least some college education. By contrast, when the state's population is limited to the 25 and above age group, 60.6 percent of the state's residents had received no college education.

With respect to income, 12.3 percent of the respondents to this survey had household incomes above $90,000. For the county and state, these percentages are 6 percent and 5 percent respectively. In short, demographic and socioeconomic comparisons show major differences among survey respondents, and residents of the county and state. Of interest to Ohio apple producers and marketers, of course, is whether these differences are significant enough to invalidate inferences from the sample to the larger population.

Careful analysis of the results reported by the respondents would suggest it is quite appropriate to draw inferences from the sample to the larger population. For example, results from this survey show little correlation between apple purchases and income, or apple purchases and education. Moreover, a factor with which apple consumption is most highly correlated, age, has a distribution in the sample which more closely approximate that for the state. As examples, limiting the relevant populations to those 20 and above, 24.6 percent of the residents in the state are 60 or older and 22.6 percent of the respondents to this survey are 60 or older. Also, 23.9 percent of the respondents to this survey are between the ages of 31-40, whereas 23.2 percent of those 20 and older in the state are between the ages of 31-40. These comparable figures across age groups suggest that the sample is quite representative of the larger population with respect to an important factor which is highly correlated with apple consumption.

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Focus of Questionnaire

Although a large number of questions appeared on the survey questionnaire, those addressing the primary concerns of apple producers and marketers constitute the focus of this paper. In a nutshell, these questions centered around three major issues: (1) What are the critical factors which determine consumers' apple purchases? (2) What are the long-term outlook for increased consumption of the newer apple varieties? and (3) What are the current and expected impacts of the 5-A-Day program? These issues are discussed at considerable length and a few graphs are presented to help focus the discussion.

Critical Factors Influencing Apple Purchase

From an identifiable set of attributes describing apples, consumers selected taste as the most important attribute influencing their purchase decision. This attribute was followed by firmness, overall quality, and skin condition. Color, an attribute which has historically influenced consumers' purchase decisions, was ranked 6th among 10 attributes (Figure 1). This is of particular significance to Ohio apple producers because these results suggest marketing opportunities for varieties which are not highly colored. Such description is quite common for many of the newer varieties such as Braeburn, Fuji, Gala, and Jonagold. Moreover, these newer varieties are likely to have enhanced sales potential if taste tests, like those conducted at Oregon State University, continue to show them to have superior taste to more traditional varieties (Stebbins, et al., 1991).

Closely related to the color attribute of an apple is the concept of waxing. Indeed waxing historically has been a method of enhancing color and the perceived purchase appeal of an apple. Yet the results of this study show that consumers have no strong preference for waxing. The results show that the shine of an apple influences the purchase decisions of just 35 percent of the respondents. Further, when color is included among five identifiable factors which cause consumers to alter their apple purchases, the results show that color is the least bothersome of five factors. Soft spots and bruising are by far the most detrimental factors, but even blemishes and stem punctures affect consumer purchases more adversely than poor color. Additionally, our results show that only a small percentage of consumers associate the flavor of an apple with its color. Thus, for our respondents, color appeared to not be a significant factor in purchasing decisions.

Although consumer rankings of apple attributes suggest diminished importance of highly colored traditional varieties such as Red and Golden Delicious apples, these traditional varieties continue to dominate sales in Ohio. Yet, for those consumers who have tried the newer varieties, these varieties tend to represent a large share of their total apple consumption. Simply put, consumers appear to be in two groups: those who have tried and like the newer varieties, and those who have not tried and therefore cannot like the newer varieties. Yet, given the importance of taste and the evidence from Oregon supporting better-tasting newer varieties, it seems reasonable to conjecture that many consumers have not yet experienced the newer varieties. Given the preference ordering as expressed by the respondents to this survey, Ohio apple marketers appear to have new opportunities for developing marketing strategies which de-emphasize color and re-emphasize the more desirable attributes which are important to consumers.

Outlook for Increased Marketing of Newer Apple Varieties

Marketing any new product generally requires the development of a strategy to induce consumers to try the product. New varieties of apples are no exception! The results from this survey show quite clearly that most consumers are unfamiliar with the newer apple varieties (Figure 2). This unfamiliarity exists despite the fact that these newer varieties are nearly always displayed side-by-side with the traditional varieties. The fact that many consumers have not purchased these newer varieties may be due to several factors. First, consumers may perceive some utility or satisfaction risk in purchasing unknown varieties because apples may not be viewed by them to be a homogeneous commodity. Second, there may be too much of a price differential (premium on the newer varieties) between the traditional and newer varieties. And finally, con-

Figure 1. Consumers' Highest Ranking of Ten Attributes of Apples.

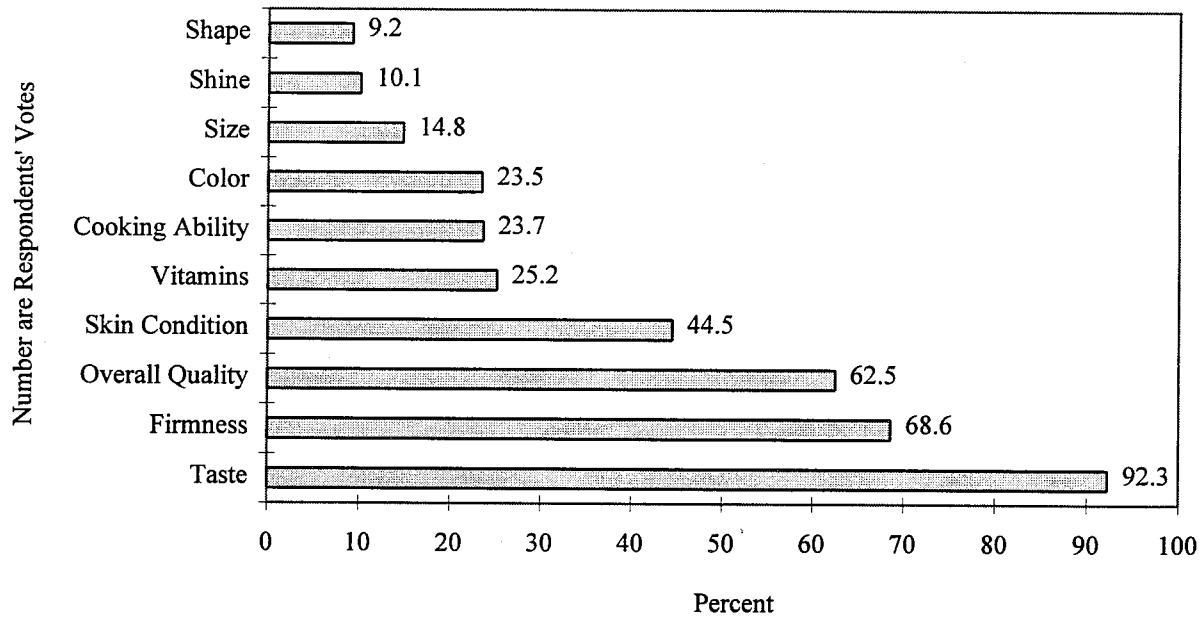
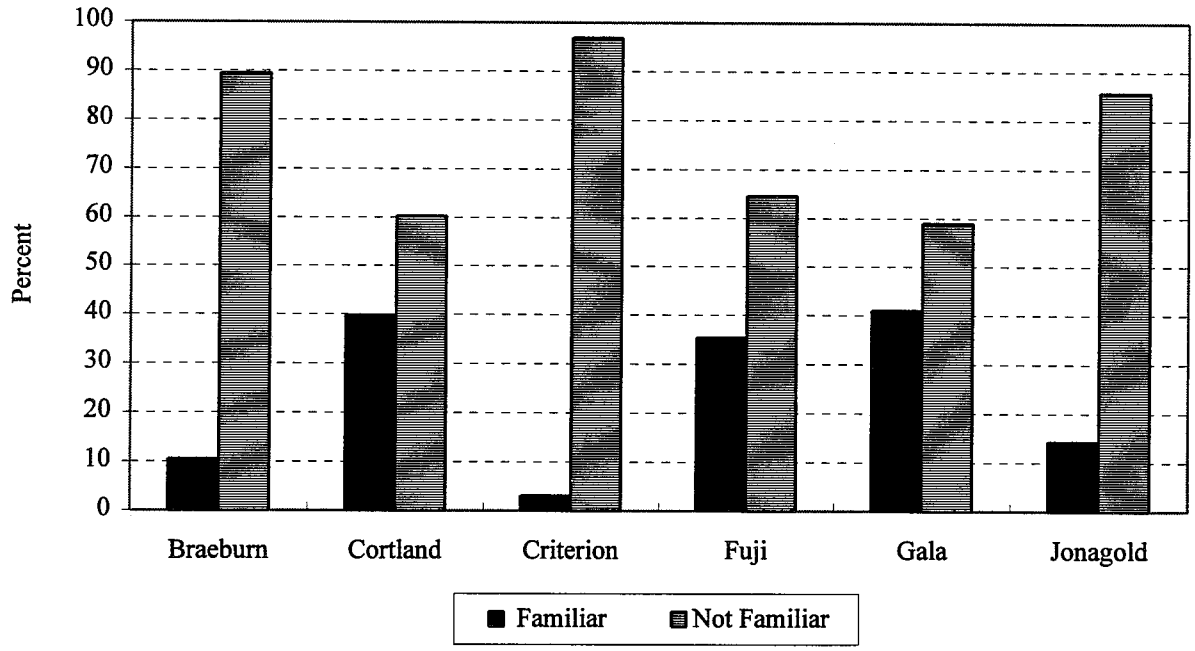


Figure 2. Consumer Familiarity with Newer Apple Varieties.



sumers may make their purchase decisions on the basis of previous experiences (Nerlove, 1958). Regardless of whether any or all of these factors account for consumers' lack of familiarity with the newer varieties, it is clear that Ohio apple marketers must find an effective way to induce consumers to at least try their commodities.

For a typical branded or manufactured product, a low introductory price is a common strategy employed to induce consumer to try unknown

products (Monroe, 1990). For a fresh, unbranded commodity like apples, this strategy is likely to be less effective than other non-price promotion. For example, given the prominence of taste in influencing consumer purchase decisions, a marketing strategy which utilizes this attribute of apples is likely to be more effective than price promotion. Of course, some reduction in the premium over traditional varieties may have to be coupled with taste promotions. For many outlets, an effective marketing strategy for apples may simply involve the display of free sample slices during peak shopping hours. Once consumers experience the taste of newer varieties, results from this study suggest that they become frequent purchasers of these apples. For example, Fuji apples represent 23 percent of the total apple purchases for those consumers who have been won over to their taste. Similarly, Gala apples represent 23 percent of total apple purchases for a large number of consumers of this variety. These sizable purchases are significant when evaluated from the standpoint that Red and Golden Delicious apples represented more than 73 percent of total apple purchases for at least 67 percent of all respondents.

For four of the most commonly known new apple varieties -- Braeburn, Fuji, Gala, and Jonagold -- an average of 86 percent of the respondents did not purchase any of these varieties (Figure 3). A promotional strategy which moves just a small percentage of these potential consumers to become regular purchasers could be seen as an effective marketing effort. Indeed, it would likely precipitate market growth for these newer apple varieties. At this early stage of development for newer apple varieties, it is quite apparent that mere availability (supply) is not creating its own demand. If producers of the newer apple varieties wish to have these commodities become serious competitors in the apple market, then it seems reasonable to provide some purchase inducements to potential consumers.

Current and Expected Impact of the 5-A-Day Program

Because many apple producers are depending on these newer varieties for expanded production, some educational and promotional efforts are likely to be required to get consumers to taste these newer varieties. With respect to the 5-A-Day program, Ohio apple producers and marketers have succeeded in informing consumers about the program. Over 85 percent of Ohio consumers are aware of the 5-A-Day program, as compared to 19 percent nationwide. Yet, the responsiveness of Ohio consumers to the 5-A-Day message closely mirrors that shown for consumers nationwide. Twenty-six percent of those consumers in Ohio who have heard the 5-A-Day message have increased their consumption of apples (survey data). By contrast, 29 percent of those consumers nationwide who have heard the 5-A-Day message have increased their consumption of produce (The Packer, 1996). These responses suggest that there is a considerable timelag between consumers' exposure to information and their response to it.

One reason consumers may be slow in responding to information about the importance of increased consumption of fruits and vegetables is that they often receive conflicting information. For example, beta carotene has been emphasized as an important vitamin for reducing the incidence of cancer and heart disease, but a recent study involving beta carotene supplements was terminated prematurely because the revealed incidence of these diseases actually increased (The Columbus Dispatch, 1996). Such abrupt termination of a research study generates negative publicity and increases consumer uncertainty about the healthful benefits of fruits and vegetables. To diminish or help alleviate consumer uncertainty about the value of increased consumption of fruits and vegetables, it seems reasonable to suggest ways for generating and disseminating credible information (Evans and Berman, 1992). To this end, the national produce industry could possibly identify a national and prominent personality to speak for the industry. Similarly, Ohio apple producers and marketers could identify a prominent and trustworthy Ohioan to promote increased apple consumption. Perhaps the most important role this person could play during the early phases of these promotional efforts would be one of facilitating taste demonstrations at apple marketing outlets. Such promotions have the potential for being more effective than current approaches used by the Produce for Better Health Foundation.

Figure 3. Percent of Respondents Not Purchasing Newer Varieties in 1993.

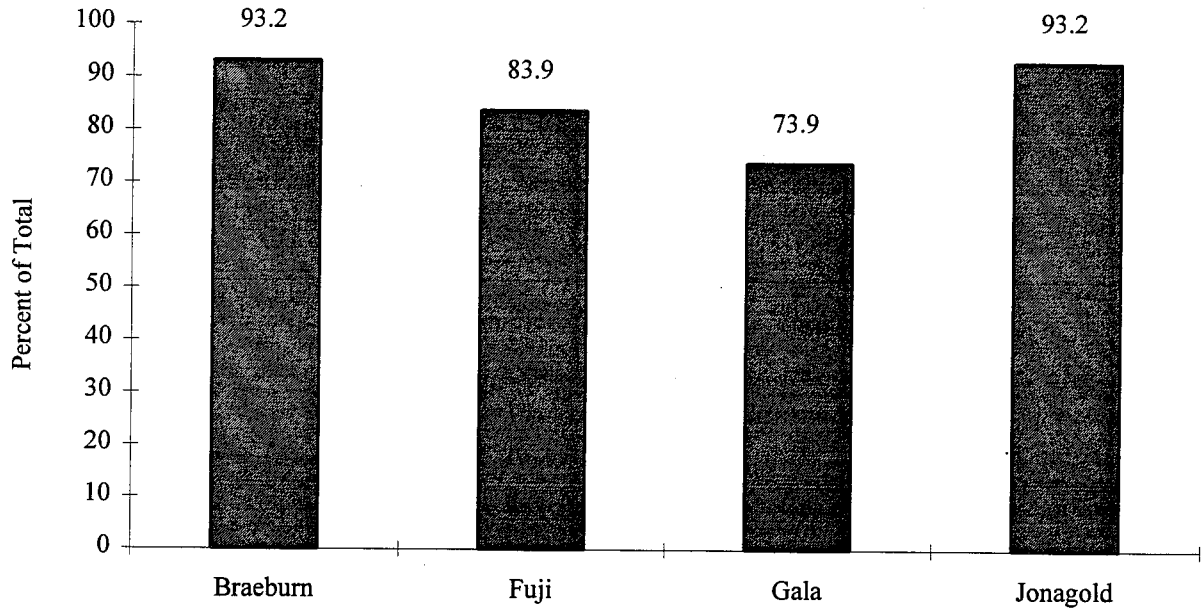
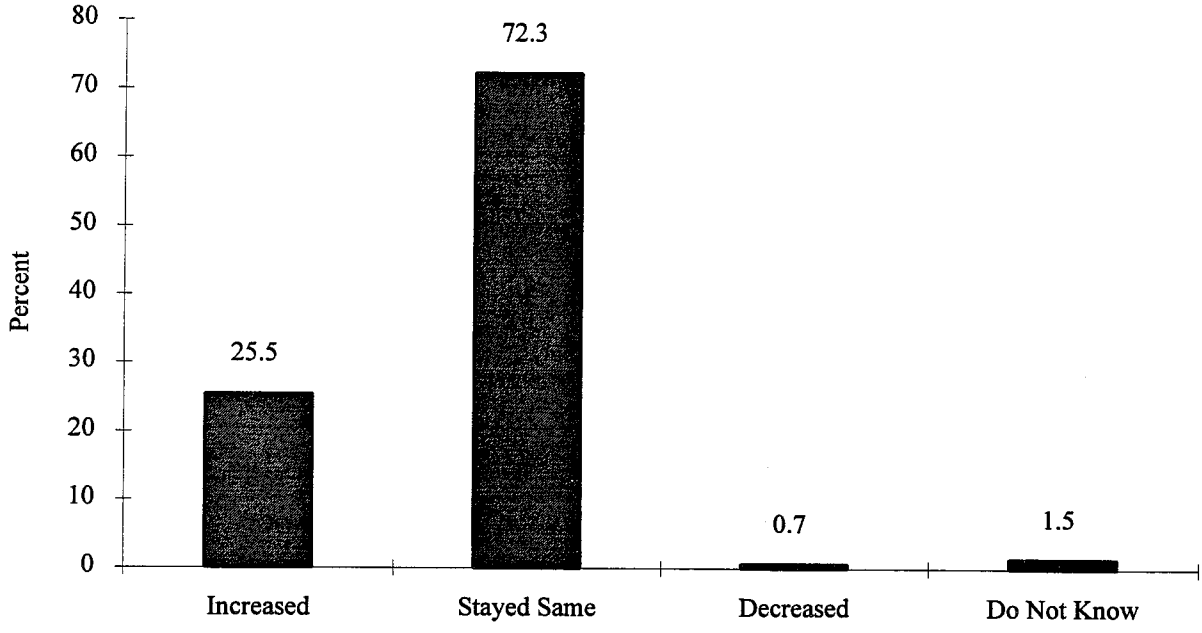


Figure 4. Impact of the 5-a-Day Program on Apple Consumption.



Implications for Other States

Although these survey results are focused on Ohio, other states wishing to expand their production and marketing of new apple varieties also must become responsive to the buying and consumption habits of consumers. Results from this study make it clear that consumers are slow to experiment with new apple varieties, slow to respond to positive information about the healthful benefits of apples, and generally have little incli-

nation to move beyond their current consumption level of fruits and vegetables.

Another lesson revealed from these survey results is that simple messages highlighting the healthful attributes of a commodity are not likely to move a large number of consumers to higher levels of produce consumption. Perhaps consumers are not yet convinced that the information they receive about the healthful benefits of produce is coming from an unbiased, third-party source. In the presence of such condition, states are left with the option of communicating clear and convincing messages about produce. Indeed it is suggested here that major commodity groups, such as apple producers, may wish to utilize the services of a credible personality to disseminate messages about its commodity. Alternative and more effective options may be possible, but clearly existing approaches have not been effective either in getting consumers to increase their overall consumption of produce, or in getting them to try new varieties of commodities.

Conclusion

Results from a random sample of 500 consumers show that habit persistence plays a major role in the purchase decisions of consumers. Marketers of newer apple varieties must find ways to entice consumers to at least try their commodities. Once tried, taste tests suggest that consumers will continue to purchase and consume these newer-arieties. Moreover, the results show that the appeal of newer apple varieties cut across all segments of the population. That is, well-educated consumers with high incomes are no more likely to purchase newer apple varieties than less-educated consumers with lower incomes. This condition can be beneficial to apple marketers because it suggests that their target market consists not of niche groups, but the entire population.

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