

Customer Preferences for Michigan Apples: A Case Example of a Market Research Program for a Commodity Industry

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A series of market-research studies on Michigan apples are discussed in this paper. They provide a case example of a continuing program of market research to aid this industry. These included studies on changing preferences, needs, perceptions, practices and buying behavior for major customer segments of this industry, including consumers and grocery retailers, as well as mid-chain customer segments such as shippers and processors.

While this market research program includes several component studies, the overall integration of the information from the various component studies is especially important for the development of the industry's marketing strategies. The component studies which comprise the overall market research program to date include the following interrelated phases:

1. An initial survey of apple shippers as key mid-chain firms—emphasizing overview information on customer needs and preferences as well as priorities for needed market research information
2. A consumer focus group study
3. A large-sample consumer telephone survey on consumer preferences, behavior and attitudes
4. Consumer taste tests emphasizing fruit firmness and taste
5. Consumer visual tests regarding purchase preferences for fruit size and color
6. A survey of consumers using an in-store taste and sampling program
7. A follow-up survey of shippers that concentrated on apple varieties preferred for current and future markets
8. A similar survey of apple processors on apple varieties preferred for processed apple markets
9. A survey of grocery trade customers on their needs and preferences for fresh apples
10. Integrative analyses comparing and contrasting preference information obtained from the studies listed in 1–9.

The market research was done as part of broad-scope industry efforts to analyze, target and develop major strategic directions intended to position the industry for high performance and success in the future. These identified strategic directions have the goal of improving the industry's overall performance, including effectively meeting the needs of their consumer and trade customers in order to improve industry's competitiveness and economic viability.

The specific types of information, priority questions and customer targets for each of the component market-research studies were developed in close cooperation with industry leaders and major industry organizations such as the industry's generic promotional commission. The industry has used the information from these market-research studies to develop their evolving strategies to most effectively serve their customer needs and hence to compete in the changing markets for their industry.

In the highly competitive and dynamic environment of today's modern business world, it is very important for food industry suppliers to understand the changing needs and preferences of their customers. Large food firms such as food manufacturers typically devote substantial financial resources to continuous market research on their customers and how to advantageously meet their changing needs. Agricultural commodity industries also need a continuous flow of relevant market-research in-

formation in order for an industry's entire vertically-linked supply-marketing chain to adjust appropriately to these types of changes.

Obtaining market-research information on customer needs is often more difficult for a commodity industry than for a large food-manufacturing firm. These difficulties are related to the typical situation of agricultural industries in which many small and diverse firms must be coordinated through the supply-marketing chain with its several vertical levels between farm producers and final consumers.

There are substantial opportunities for business and food system economists at universities to do useful market research related to agricultural commodity industries. This type of research, especially

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when done in partnership with a commodity industry, can provide substantial and relevant information on changing customer needs—and hence aid in developing and implementing appropriate adjustment strategies for the vertical supply-marketing system of the commodity industry.

This research report summarizes a market-research program, including a series of interrelated specific research studies conducted in recent years, regarding changing customer needs and preferences related to the Michigan apple industry. These studies were designed and developed in close partnership with Michigan apple industry leaders, including the industry's generic promotional organization.

While this market-research program includes several component studies, the overall integration of the information from the various component studies is especially important for the development of the industry's marketing strategies. Results of the market research have been and continue to be implemented by the industry.

market-research studies As a Part of Industry Strategic Planning

The series of market-research studies discussed in this paper were done in the context and as a component of, broad-based industry strategic planning efforts within the Michigan apple industry. The goals of this strategic planning have included improved competitiveness, market growth, and strengthened economic viability of the industry. These strategic-planning efforts were made to aid the industry in its efforts to analyze its dynamic market situation, the major driving forces which are impacting it, and important problem areas which need industry attention. Development and encouragement of various strategies to aid the industry's needed adjustments to be successful within their dynamic and competitive business environment have also been given considerable emphasis (Ricks et al., July 1996).

The industry strategic planning process has included substantial and on-going involvement of industry leaders representing many segments of the industry, major industry organizations, and leading firms in several of the vertical levels of the marketing-supply chain. To facilitate the broad strategic-planning process and the continued involvement of the industry leadership representing the

various industry segments, a special industry council, designated the *Michigan Apple Industry Strategic Planning Task Force* (MAISPTF), was formed to act as an industry think-tank. This group includes representatives from growers, packers, shippers, processors, the industry's promotional commission, the grower bargaining association, the state horticultural society, trade associations of shippers and processors, the industry's research committee, various state grower organizations, the national growers' trade association, and the state Department of Agriculture. University representatives, including both extension and research, are also involved in a close partnership with the industry leadership for the on-going planning efforts. An important goal of this industry think-tank has been to explore and recommend various strategies which will contribute to the performance of the industry's vertically linked supply-marketing chain.

In the early phases of the analysis and discussions by this group there was strong agreement that the entire industry needs to be highly *market* and *customer* oriented rather than *production* oriented. It was also agreed that this market and customer orientation is needed at each of the vertically linked segments of the industry's marketing-supply chain.

The MAISPTF emphasized that this increased customer and market orientation included a need for an on-going series of market-research studies. Industry leaders agreed that this market research was needed to obtain more specific and up-to-date information about changing customer needs, preferences, requirements, purchase decisions, and standard operating procedures important for apple markets.

Initial Industry Surveys

An early phase of the series of market-research studies was an initial survey of the Michigan apple shippers. This survey was requested by the MAISPTF to identify key needs and priorities of this segment of mid-chain customers and to determine the research priorities of this industry segment (Ricks and Woods). A similar survey of the grower segment of the industry was also requested (Ricks, Woods, and Lyford).

Results of the initial surveys of the industry's shipper and grower segments indicated strong support for more market research as a part of the industry's efforts to improve its competitiveness.

With this strong support from both the industry leadership planning group and the industry's rank and file, plans were made to develop and conduct a further series of market-research studies to provide information on the industry's customers.

A Consumer Focus Group Study

An important early component of the apple market research was a consumer focus-group study. These focus groups used in-depth discussions to explore consumers' perceptions, preferences, reasons for apple purchases, positive and negative experiences with apples, knowledge of apple varieties, psychological associations, and various other aspects related to consumer demand for apples. The specific topics and questions to be explored with the focus groups were developed in close cooperation with industry representatives from the Michigan Apple Committee (MAC), the industry's promotional commission.

One key topic which was discussed with the consumers in these focus groups was related to which characteristics of apples are most important for their purchase decisions. These consumers indicated that the following characteristics are especially important: firmness and crunchiness; freedom from bruises and blemishes; outward appearance, including color and fruit size; flavor; and keeping quality (Beggs, Ricks, and Heinze). Many of the consumers in the focus groups explained that a very negative experience with apples occurs when they buy beautiful bright-red apples which turn out to be soft and/or mealy. They emphasized that for their repeat purchases it is very important for them to experience apples which are firm, crisp, and crunchy when they eat them.

Another key objective of the focus group study was to obtain information on consumer buying behavior and purchase decisions regarding apples retailed in bags compared to apples retailed in bulk displays (which are supplied by the apple industry as tray-pack apples). The consumer focus group participants explained why they buy either bagged apples or those from bulk in-store displays.

This information on consumer preferences and buying behavior has been used by the industry to develop specific strategies for expanding markets for Michigan apples in both bags and tray packs for bulk display at retail. For example, information

on consumers' reasons for preferring bagged apples has been used in marketing efforts with trade customers to encourage retailers to carry more bagged apples along with bulk display apples to meet the consumer preferences for both of these types of packs. Another strategy has been to emphasize tray pack for some of the newer varieties from Michigan for bulk display at retail for those consumers who prefer to purchase apples in this way.

Another important objective of the focus-group studies was to obtain information from consumers on their overall perceptions and positive associations with apples. It was found that consumers have positive associations with apples which include "healthiness, contribute to a nutritious diet, are good for snacks, tasty and juicy." Some consumers also said that they have "positive associations of apples with farm markets and enjoyable trips to the country for good apples and pleasant experiences."

The industry has emphasized these positive associations in their advertising, promotions, and trade merchandising. They have also used this information to explain the positive attributes of apples in consumer-information articles published in newspapers and magazines.

The results of the consumer focus-groups studies also were used by the industry to develop specific questions for the next phase of the market research—a large-sample consumer telephone survey. The questions in this telephone survey regarding which apple characteristics consumers regard as important were based upon the results of the consumer focus-group discussions.

Consumer Telephone Survey

A major component of the series of market-research studies was a consumer telephone survey. The objective of this telephone survey was to obtain information from a large sample of consumers about their preferences, attitudes, psychological associations, and buying behavior regarding apples. Although these goals are similar to those for the focus groups, a limitation of the focus-group approach is that it involves only a small sample of consumers. Therefore, a telephone survey with a large sample of consumers was undertaken as the next step of the market research in order build onto and to further explore and test the information from the earlier focus groups.

The consumer telephone survey was conducted in three major metropolitan markets: Detroit, Chicago and Kansas City. These markets were recommended by the MAC because they are major markets for Michigan apples.

During this telephone survey, one of the questions asked was, "What apple characteristics are most important to you as a consumer when you are making your apple purchase decisions?" Flavor, unbruised and unblemished, and crispness were said to be "very important" by 81–91 percent of the consumers (Ricks et al., 1995). This consumer-preference information indicates that the apple industry and grocery retailers need to give special attention to providing apples with these characteristics in order to effectively meet consumer preferences.

In contrast to very high ratings which consumers gave to factors such as crispness and flavor, only 36–46 percent of the consumers said that color, variety, and price are very important for their apple purchase decisions. Only 20 percent of consumers said that fruit size is a very important characteristic for their apple purchase decisions. Many consumers did indicate that color, variety, price, and fruit size are "somewhat important" to them.

The consumer-survey findings of a medium importance for color and price along with a relatively low importance for fruit size are interesting results—especially since grocery buyers have historically placed great emphasis on red color, low prices, and large fruit size when they buy apples from the industry's shippers. The survey results suggested that retailers should work more closely with the apple-supplying industry on providing crisp, flavorful, unbruised apples and put less emphasis on very high color, low prices, and large fruit size.

The consumer survey results also showed that the state of origin of the apples—where they are grown—is of relatively minor importance to most consumers. On the other hand, information from the focus-group study indicated that some consumers use the state of origin of the apples—e.g., Michigan or Washington—as an identifiable proxy for other desired apple characteristics.

The Michigan apple industry has made substantial use of the information from the consumer telephone survey and the consumer focus groups to develop a number of strategies. One important industry response has been the development of a special emphasis on a set of strategies for providing

firm, crisp apples for the consumers. This involves a complex set of several strategies and management practices which are needed at all vertical levels between growers, storage operators, packers, and shippers. The market-research results helped the industry more widely recognize the importance of the complex but difficult set of coordination strategies and management practices which are needed within the industry to provide crisp apples and hence more effectively serve the changing preferences of its consumer customers.

The Michigan apple industry also used the market-research results to support their continued and increased emphases on *flavor* in their advertising and promotions such as those by the MAC. Another industry response to the results of the consumer telephone survey was a recommendation for additional consumer market research regarding specific color and fruit-size preferences by consumers. This recommendation by the industry led to later market-research studies involving visual tests of consumer purchase preferences related to color and fruit size.

The market-research information from both the consumer telephone survey and the focus-group research on why some consumers have preferences for purchasing apples in bags has been used by the MAC in their work with trade customers. These industry efforts are aimed at influencing retailers to provide substantial shelf space for Michigan bagged apples as well as consumer promotions for these Michigan apples.

A Consumer Survey Related to In-Store Demos

The market-research series of studies on apples included a small survey undertaken in connection with some of the in-store demonstrations conducted for certain Michigan varieties. This survey was done in part to test the effectiveness of this in-store-demo marketing approach, which has been increasingly emphasized by the Michigan Apple Committee during recent years.

One question in this in-store-demo survey was, "Now that you have tasted this variety, would you consider buying it?" A very high 95 percent of the consumers who sampled the relatively new variety said that they would consider buying that variety in the future (Ricks). This suggested a high degree of positive responses by the consumers to the in-

store sampling and confirmed the importance of the industry's increased emphasis on in-store sampling that was being done by the MAC.

Another question was, "What do you like about this variety?" Ninety-eight percent of the consumers had positive comments about the sampled variety of apples. These comments provided information about the positive characteristics of the variety which was later used to develop new advertising and promotional materials about the variety.

As a result of the very positive responses by consumer participants in the in-store-demo survey, the MAC decided to give even greater emphasis to in-store demos and sampling—especially for new varieties that are less familiar to many consumers. Thus in-store demos have been expanded as a part of that organization's long-run strategic plan.

Consumer Taste Tests

Because consumers indicate that fruit firmness or crispness strongly influences their repeat-purchase decisions, the industry recommended that an important next phase of the market research should include taste tests for firmness. The taste-test study was conducted primarily to determine the specific level of apple condition or firmness the industry should provide to adequately satisfy consumer preferences and hence to maximize sales. The industry indicated that this information is needed in order to help target the appropriate goals for fruit firmness required by the coordinated series of quality improvement steps in the various vertical levels of the supply chain.

In this study, consumers tasted apples with three levels of fruit firmness as measured by pressure tests, the standard quality-control measure. Three levels of firmness were suggested by industry leaders as commonly recognized levels for high-, medium-, and low-condition apples. After tasting the apples with the different levels of firmness or condition, consumers were asked to indicate their level of satisfaction with each degree of crispness and whether or not they would buy such an apple.

The resulting consumer responses from these taste tests showed that most consumers prefer apples with a medium pressure of 13–14 lbs. of pressure for their purchases of both the Red Delicious and Empire varieties (Greaves, Ricks, and Heinze). The apples with low pressure (8–12 lbs.

pressure) were rated much less satisfactory than were the apples with 13–14 pounds of pressure. For Red Delicious, 94 percent of the consumers said they either "definitely would buy" or "maybe would buy" apples with the 13–14 lb. degree of firmness. By contrast, 38 percent of consumers said they either "definitely would buy" or "maybe would buy" the low-pressure Red Delicious. These consumer preferences indicate that for greater consumer satisfaction with purchases of Red Delicious, the industry should try to provide apples with 13–14 lbs. pressure.

In addition, the industry has considered the possibility of the development and implementation of an industry-wide program to provide greater incentives and customer assurance that the industry will supply high-condition crisp apples that meet consumer preferences. Two alternative approaches for such industry-wide programs for improved condition apples include:

- (1) Possible new grade standards for Michigan that would include a measurement of fruit firmness as part of the grade.
- (2) A possible new state program with mandatory minimum levels of fruit firmness below which apples could not be sold for fresh market. This would be an even stronger approach to assure consumers and trade customers that they would consistently receive high condition apples.

If such programs are pursued further by the industry, the taste-test market research results could be used as an informational base for setting appropriate levels of condition for either of these types of new quality-improvement programs. Although the industry has discussed the development of new program approaches to encourage the production of high-quality fruit, there has not been sufficient consensus developed within the industry to proceed with any such program. It remains to be seen if the industry will develop such programs in the future.

Consumer Visual Tests

Because of the results of the consumer telephone survey and the consumer focus groups which showed that consumers rate color of only medium importance, whereas grocery retailers historically have given quite high importance to highly red color, the industry recommended that the market

research series of studies should include visual tests for consumer preferences regarding apple color. The main purpose of these visual tests for color was to determine what degree of red color is preferred by consumers for their apple purchases.

Consumers were shown apples with three different degrees of red color, and asked which of these apples they would purchase. For Red Delicious the tested levels of color were 90-percent red, 80-percent red, and 60-percent red. For Empire the tested levels of color were 80 percent, 60 percent, and 40 percent because Empire tends to be a less completely red variety).

The results showed that while somewhat more consumers preferred the 90-percent red color, 67 percent of the consumers said that they either "definitely would buy" or "maybe would buy" the 80-percent colored Red Delicious (Greaves, Ricks, and Heinze). This indicates that the 80-percent-colored Red Delicious may be adequate for many consumers and would be worthwhile for grocery stores to carry. This is a somewhat lower percentage of color than is typically required by grocery retailer customers for Red Delicious. If grocery customers would regularly stock and carry the 80-percent colored Red Delicious this would help the Michigan industry increase its apple sales.

Results of the consumer visual preferences for color of Empire apples showed that 85 percent of the consumers indicated that either they "definitely would buy" or "maybe would buy" the 80-percent-colored Empire, while only 47 percent of the consumers indicated that they "definitely would buy" or "maybe would buy" the 60-percent-colored Empire. These results indicate that although consumers do not expect as high a percentage of color for Empire as for Red Delicious, the industry needs to strive for the 80-percent color level for the greatest consumer satisfaction and purchases with Empire.

Consumer Visual Tests for Fruit Size

The industry recommended that the market research should include a study of consumer visual tests for their fruit-size preferences. This was recommended because the earlier consumer telephone survey and consumer focus groups showed that consumers rate fruit size as of relatively minor importance, while grocery-trade customers have historically given substantially greater emphasis to larger fruit size

for their purchase requirements. Furthermore, a high percentage of consumers in the telephone survey indicated that they prefer "medium-size" apples rather than "large" apples. Therefore the industry recommended that these visual tests for fruit size be done in order to provide further information on the specific sizes of apples preferred by consumers. A related goal of these visual tests was to determine more specifically what consumers mean when they say they prefer "medium-size" apples.

In the consumer visual tests for fruit size the consumers were shown different sizes of apples and asked which sizes they would buy. There were three sizes of apples for the Red Delicious variety and three for the Empire variety, although with a somewhat different range of size categories.

The results for Red Delicious showed that although some consumers indicated that they prefer somewhat larger fruit, 71–80 percent of the consumers said they either "definitely would buy" or "maybe would buy" the 100- or 125-count Red Delicious (Greaves, Ricks, and Heinze), indicating that it would be appropriate for grocery retailers to stock this size. This is favorable market-research information for the Michigan industry because these size apples are more commonly produced in Michigan than are the larger sizes.

Shipper Survey on Varieties in Demand

An important aspect of meeting customer needs and preferences is growing the varieties of apples which provide the characteristics which consumers and trade customers desire. These include varieties which provide the preferred firmness and flavor, are not easily bruised, have adequate fruit color and size, and have good shelf life in the retail store.

Although consumer and trade-customer preferences for apple varieties can change rapidly, a long-lived perennial tree crop such as apples requires many years and large long-term investments by growers. Switching varieties to meet changing customer preferences is difficult and costly. Because of this, the apple industry and especially the apple growers need to anticipate as best they can many years in advance which varieties will be in demand and should therefore be planted, grown, and maintained in their apple orchards. With rapidly changing market demands and consumer preferences for different varieties which have the de-

sired characteristics, predicting the varieties which will be needed in the future is a very difficult job.

Because of these difficulties, along with the substantial importance of accurately predicting which varieties will be needed in the future, the apple industry gives a priority to obtaining as much and as accurate information as possible about expected future demand for the different apple varieties. The MAISPTF therefore recommended a market-research study to survey the Michigan apple shippers regarding their best available and up-to-date information on expected future demands for Michigan apple varieties for fresh market. The shippers were recommended as this survey's focus because they are key mid-chain firms with substantial knowledge about changing market needs for apple varieties, demand factors, and other market requirements related to varieties. This study involved a mail survey which was sent to all Michigan apple shippers.

Results of the survey showed that shippers at that time (1996) ranked the top five varieties for fresh-market demand for Michigan in the future to include Red Delicious, Gala, Golden Delicious, Jonagold, and Jonathan. The survey also obtained additional information about which apple varieties shippers expected would be needed in volume in future years. These included Red Delicious, Golden Delicious, Gala, Jonathan, Jonagold, McIntosh, Empire, and Fuji (Ricks et al., 1996a).

Industry leaders suggested that two specific follow-up analyses be done to build on the information obtained with this shipper variety survey: an analysis of the Michigan varieties being grown compared to the demand information obtained from the shipper survey; and a similar variety survey of Michigan processors, because of the substantial percentage of the Michigan apple crop marketed through processors. Results of this processor survey would then accompany the shipper variety survey in an expanded information package to help the industry adapt to meet changing market demands.

Survey of Michigan Processors on Apple Varieties in Demand for Processing Markets

In response to the recommendation by industry leaders, the next phase of the market-research studies involved a processor variety survey for the

purpose of obtaining up-to-date information from these key mid-chain firms regarding the apple varieties most needed to meet their requirements and those expected to be most in demand in the future. This processor variety survey was sent by mail to all Michigan apple processors.

The different varieties were given an overall ranking according to various aspects including suitability for processing, future demand, and processors' suggestions for grower plantings for processing markets. For this overall summary ranking, Golden Delicious, Ida Red, and Mutsu received an overall grade of "A." Northern Spy and Rome received an overall grade of "B." Jonathan, Winesap, Cortland, and Empire received a "C" grade. McIntosh, Spartan, Winter Banana, and Greening received a "D." An overall rating of "F" was received by Red Delicious and Paula Red for processing markets. The relatively new varieties of Jonagold and Fuji received relatively high overall ratings of "B," although many processors said that they had not yet had enough experience with these two varieties to accurately rank them (Ricks and Sterns, 1997).

Grower Acreage Adjustments by Variety Related to Changing Demand

A major purpose of the shipper and processor variety surveys was to provide market research to aid growers with their orchard planting and removal decisions. A Michigan orchard survey completed in 2001 shows how growers have recently adjusted their acreages by variety since the earlier surveys on expected demand. These adjustments provide data on actual industry adjustments which can be compared to the previous indications of needed adjustments provided by the earlier variety demand surveys of key shipper and processor marketers.

Gala—The earlier variety surveys—especially the shipper survey for fresh markets—indicated an expected increasing demand and an indicated opportunity for a substantial increase in plantings of Gala in Michigan. The 2001 orchard survey indicates that growers responded consistently with the earlier survey projections, increasing their Gala plantings by 110 percent since 1995.

Rome, Winesap, Paula Red, and Greening—The variety surveys of shippers and processors indicated that there would be decreasing demand for

these four varieties and hence a need for significant reduction of acreage of these varieties by Michigan growers. The 2001 orchard survey shows that since 1995 Michigan growers have decreased their acreages of these four varieties substantially: down by 27 percent for Rome, 62 percent for Wine-sap, 36 percent for Paula Red, and 38 percent for Greening. These significant downward acreage adjustments indicate that growers have been responding consistently with the declining demands for these varieties as projected in the earlier variety surveys.

Survey of Grocery Trade Customers

An important later-phase component of the series of market-research studies on Michigan apples was a survey of grocery retailer trade customers. The main objective of this grocery trade survey was to obtain up-to-date information from key grocery customers on the needs, preferences, and requirements of these trade customers regarding Michigan apples, including their suggestions for ways the Michigan apple industry could both meet the needs of these grocery customers and help them more effectively serve the final consumers.

This survey was conducted through personal interviews with most of the grocery trade customers in three main metropolitan markets. These markets were suggested by apple-industry leaders, especially the MAC, because of their importance for Michigan apples.

One highlight of the results was that most grocery customers indicated that the Michigan apple industry had substantially improved the quality of its apples between 1993 and 1998 (Sterns and Ricks, 1998a). The grocery customers said that Michigan's performance was especially improved in providing consistently good condition apples that are sufficiently firm and crisp, qualities previously identified by the industry as being of particular importance.

Another topic explored in the trade survey was, "How can the Michigan apple industry help the trade customers sell more Michigan apples?" Most of the trade respondents indicated that they wanted more of the MAC's effective promotional programs. For example, many trade customers stated that they wanted more advertising, more tie-ins, and coupons in the bags to promote Michigan apples.

They also wanted more promotional payments paid to them to supplement their own Michigan-apple advertising budgets. Others suggested that Michigan needs to continue to develop higher-quality tray packs and increase volume of the newer varieties that meet consumer preferences.

When asked, "What can be done to influence consumers' willingness to try new varieties?" all of the trade customers said that efforts to introduce new varieties should include in-store demonstrations and consumer sampling of the new variety. These trade customers also commonly stated that a combination of marketing and promotional programs for the new varieties that includes advertising, price specials, point-of-sale materials, and in-store sampling is most effective in helping to establish these new varieties in the minds of consumers (Sterns and Ricks, 1998b).

Another topic discussed with the trade customers was the effectiveness of promotional materials provided by the Michigan apple industry, especially by the MAC and by shippers. At the time of this survey, the MAC was in the early stages of introducing new promotional materials for use in bulk-bin displays in grocery store produce departments. The surveyed retailer customers were very positive about these new materials and their future potential. They said these promotional materials should be eye-catching and colorful and suggested they be expanded to include wrap-around materials for the bases of display shelves. Many also said that recipes should be included.

Based on the results of this survey, the MAC has expanded its advertising and promotional programs, given increased emphasis to in-store demos, and expanded promotional emphasis on new varieties by devoting considerable effort to the development of colorful new promotional materials including bin-displays, wraparound skirts for store display cases, and other POS materials. The MAC has also developed new recipes and informational materials emphasizing the array of new and older Michigan varieties. These have been received very positively by trade customers.

Comparing Results from the Trade Survey and the Consumer Survey

An important objective of both the grocery trade survey and the consumer telephone survey was to

obtain information on the relative importance of various characteristics of apples which are important in influencing the apple buying decisions of both consumers and trade customers. This information can be very useful to the industry in determining which of these characteristics deserve to be given the greatest emphases in the industry's strategies to increase demand and sales for Michigan apples.

The surveyed grocery trade customers and consumers were asked to rate the relative importance of a set of characteristics of apples which influence their apple buying decisions, including flavor, unbruised, unblemished, crispness, color, variety, price, fruit size, and origin of the apple (production region). Since retailers try to provide product characteristics preferred by their customers, it would be logical to expect a high degree of similarity in the rankings of the relative importance of apple characteristics by both consumers and the grocery retailer trade customers.

The results from the consumer market-research survey and the grocery-retailer survey showed high agreement between retailers and consumers regarding the relative importance of some characteristics, but there were some substantial differences in relative rankings for other characteristics.

The relative-importance rankings for flavor, unbruised, unblemished, and crispness were fairly similar for both the consumers and trade customers (Sterns and Ricks, 1999). Between 88 and 100 percent of both trade customers and consumers rated these characteristics important for their apple buying decisions. One relatively minor difference was that the consumers rated both crispness and flavor "very important" somewhat more often than did the trade customers.

Major differences were found in the ratings of apple color between consumers and trade customers. Trade customers rated a high degree of apple color much more important than did the consumers. Seventy-three percent of the trade customers but only 46 percent of the consumers ranked color as very important. In addition, 96 percent of the trade customers but only 76 percent of the consumers said that color is either somewhat important or extremely important.

Several possible explanations exist for these significant differences in ratings of apple color by the trade customers and the consumers. One is that

grocery retailers say that consumers' actual purchase *behavior* for apples is heavily influenced by apple color, especially for highly red apples, even though consumers *say* that color is less important than several other characteristics. That is, trade customers say that "the consumer buys with her/his eyes." A more detailed explanation, based upon information from the consumer focus groups, the consumer telephone survey, and the trade survey research, suggests that appealing color has a high influence on consumers' initial or impulse purchases of apples—which are emphasized by retailers—while consumers' repeat purchases of apples are heavily influenced by other characteristics that are not readily visible such as crispness, flavor, and freedom from bruising.

Another factor influencing the differences in the relative rating of color is that, as indicated in the trade survey, retailers give substantial importance to color—especially the bright red color for apples—as an important factor in providing an attractive and appealing produce department for the store. Another possible explanation for the differences in the relative importance of color is that with increasing preference and demand for some of the newer varieties with less than full red color and a corresponding decreasing demand for Red Delicious with its full red color, there may be a lag in the full understanding by retailers of the magnitude of the changing consumer preferences regarding apple color.

The relative rankings for price as a factor influencing purchase decisions also differed between the consumer survey and the trade survey. Although both consumers and trade customers rated price as considerably less important than a number of other apple characteristics such as flavor, crispness, and bruising, more consumers gave a higher importance to price than did the retailers. Seventy-eight percent of the surveyed consumers said that price was important to their buying decisions, while only 50 percent of the trade customers said that price is important to their buying decisions. In addition, 39 percent of consumers but only 23 percent of the trade customers said that price is extremely important in influencing their apple purchase decisions.

These are very interesting results, particularly in view of the common trade-customer practice of striving for the lowest possible prices in their purchase negotiations with apple shipper suppliers.

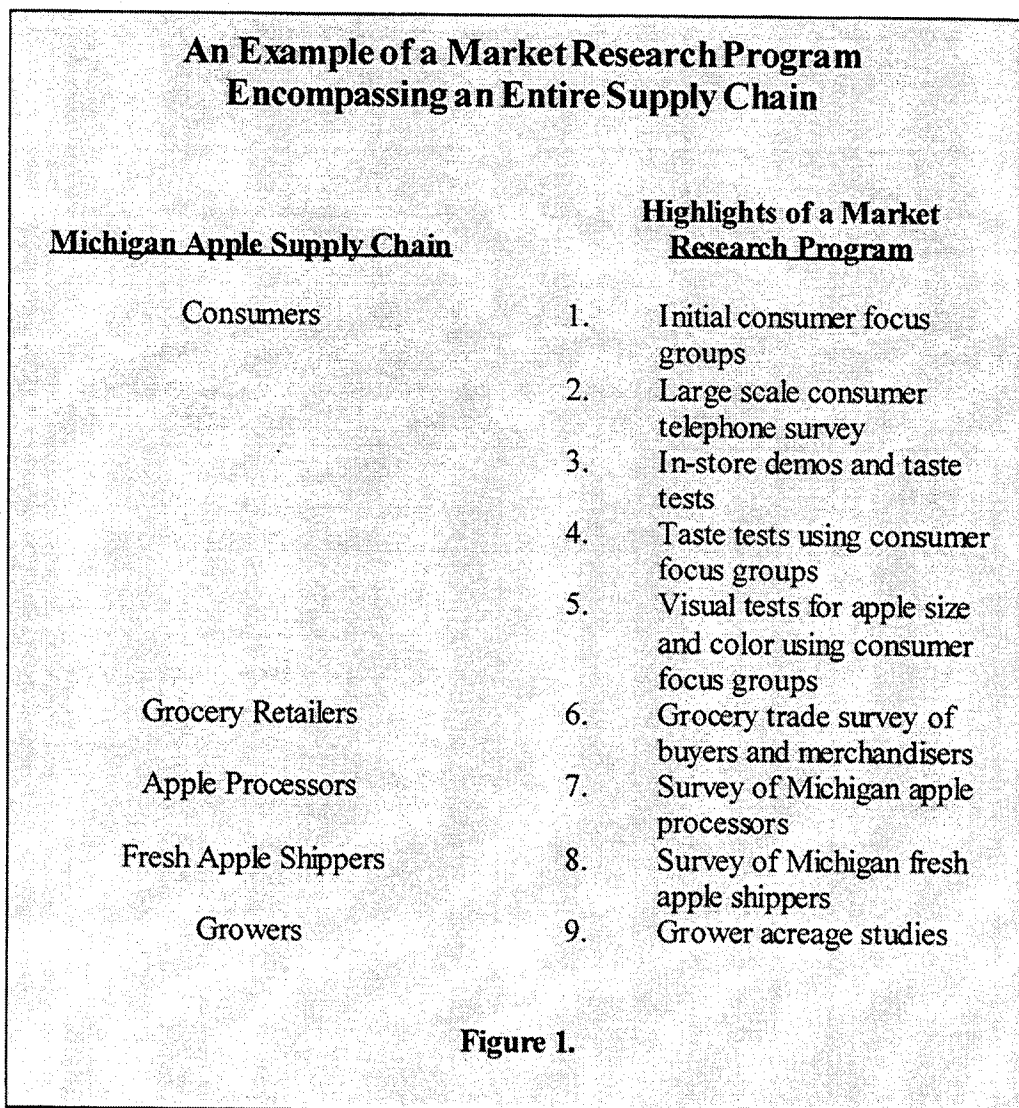
Apple industry people commonly ask the question, "If retailers say that price is only moderately important, why do they consistently bargain so hard for the lowest possible prices for their apple purchases from the supplying industry?"

New 2001 Shipper Survey on Varieties in Demand for Fresh Market

The latest component of the series of market-research studies which have been done on Michigan apples is an updated survey (not yet compiled) of Michigan shippers regarding the apple varieties they expect to be in demand during the next few years. This survey, which is very similar to the earlier shipper survey on fresh market varieties, is

being conducted because market conditions and customer preferences for varieties seem to be changing rapidly and industry leaders need updated information to help the industry pro-actively adjust to changing markets and customer preferences in regard to varieties.

Preliminary results of this most recent survey on the demand for fresh market varieties shows that shippers expect that Red Delicious, Gala, Jonathan, McIntosh, Golden Delicious, Rome, Empire, and Jonagold will be the most popular Michigan-grown varieties in the near future. Also, the results indicate an increased demand for McIntosh and Fuji but a decreased demand for Golden Delicious, Red Delicious, Rome, Empire, and Jonagold over the projections from five years ago.



Summary

The series of market-research studies on Michigan apples, which are discussed in this paper and summarized in Figure 1, provide a case example of a continuing program of market research over a period of several years. This program was designed specifically to aid this industry by providing relevant information on changing customer needs. This includes an interrelated series of studies on the changing preferences, needs, perceptions, practices, and buying behavior of major customer segments for this industry. The specific types of information, priority questions, and customer targets for each of the component market-research studies were developed in close cooperation with industry leaders and major industry organizations such as the industry's generic promotional commission.

This market-research program was conducted in the context of broad apple-industry efforts to analyze and target major strategic directions to effectively meet the needs of their consumer and trade customers. The intended goal of these efforts was to improve the performance, competitiveness and economic viability of this industry. The industry has used the information resulting from these studies to develop their evolving strategies to more effectively serve their customers' needs and to compete in ever-changing apple markets.

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