Challenges and Opportunities in the U.S. Fresh Produce Industry

by

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Introduction

Fresh produce consumption in the United States expanded by 16 percent between 1978 and 1988. Grocery store produce sales reached 26.5 billion dollars in 1988 (*Supermarket Business*, Oct. 1989). Demand has been stimulated by numerous demographic and lifestyle trends, including: changing income distribution; an increase in ethnic expression; concerns over health and fitness; changing household size; and the overall aging of the population. On the other hand, growing consumer concern for the safety of produce could adversely affect consumption. In this dynamic environment, the U.S. fresh produce industry is faced with many challenges, or some might say opportunities, in the decade of the 1990s. This paper identifies key demand trends affecting fruit and vegetable marketers and discusses some of the challenges/opportunities they pose.

Demand Trends

The post-World War II era was characterized by an increasing rate of population growth, growing affluence, and a relatively homogeneous population. Under the joint conditions of population growth and its relative homogeneity, mass marketing strategies for food were the norm. Much less variety in food products were available than today, in terms of number, form and quality of products. However, more recent demographic and lifestyle trends caused the American market to become highly segmented with a marked increase in the diversity of consumers, and consequently, products demanded. Target marketing strategies replaced mass marketing in the 1980s, with more finely tuned segmentation strategies expected over the next decade. New product development occurred at a record rate in the 1980s, reaching 12,055 new products in 1989. In 1988, the average produce department handled 210 items, compared to 65 in 1975 (*Supermarket Business*, Oct. 1989). Current demographic and lifestyle trends suggest even greater diversity in both consumers and products in the 1990s.

Population Growth

In the 1980s the U.S. population growth rate declined to an annual rate of about .9 percent, compared to 1.8 percent annual growth in the late 1950s. Population growth is projected to decline further, to less than .5 percent in 2015 (The Food Institute, 1989). A slower rate means sales increases are more difficult for food firms to achieve. Companies/producers relying on the natural growth of the market to absorb more of their products may experience stagnation. The U.S. market has become "mature," intensifying competition. Produce industry firms have adopted new marketing strategies in response to this challenge.

Age Structure

Although the maturity of the U.S. market means slow growth for the food industry as a whole, the changing age structure of the population portends future growth in fruit and vegetable consumption. People consistently increase their expenditures on fresh produce as they age. For example, people in the 55-to-64 year age group consume 39 percent more fresh fruit and

34 percent more fresh vegetables than the national average (The Food Institute, 1989).

The aging of the baby boomers will make the 45 to 64 year age group the single largest segment (23%) of the population by the year 2000, or 61.4 million people. The next largest group will be the 35-to-44 year olds, accounting for over 16 percent of the population, or 44 million people (ibid.). The 35-to-54 year age group alone is expected to account for 55 percent of all food store spending in the year 2000. If consumers' current pattern of increasing produce consumption during these years continues, the produce industry should experience higher sales growth than the food industry average.

Furthermore, the changing U.S. age distribution should increase the demand for higher quality fruits and vegetables. As people move into the peak of their income earning years they purchase higher value products and greater diversity. For example, the preference of many mature consumers for superior taste has contributed to the growth in tree-ripened fruit sales and farmers markets. Even greater emphasis will be placed on ripeness and flavor in the future, with more consumers exhibiting an ability to pay for a differentiated product. Delivering this type of product poses numerous breeding, postharvest and distribution challenges to the industry.

Income Distribution

The demand for high value, high quality products is also being stimulated by changes in income distribution. Families earning $50,000 and more a year (in 1987 constant dollars) increased from 15.4 percent of the total in 1970 to 22.9 percent in 1987, while those in the middle-income ranges declined proportionally over the same period and lower income households remained stable (Food Institute Report, Oct. 1, 1988). These changes in income distribution stimulate greater produce consumption, as well as a demand for higher quality. Consumers earning $40,000 and more a year spend 28 percent more on fresh fruits and 25 percent more on fresh vegetables than those earning $20,000-29,999 a year (The Food Institute, 1989).

In general, the 1980s saw the emergence of clearly defined upscale and downscale markets. These contrasting segments will continue to coexist in the 1990s. Hence, while quality-conscious consumers should continue to grow, value-conscious consumers will remain an important market for the produce industry. Serving the diverging needs of these consumers will become an even greater challenge.

Household Size

The trend toward smaller households should also increase aggregate expenditures on fresh produce. Analysis of national household survey data by McCracken indicates that household size and spending on vegetables and potatoes are inversely correlated. Weekly per capita expenditures were 87 percent higher for one-person households than for households with more than six members. In addition to possible economies of scale of larger households in purchasing vegetables, McCracken hypothesizes that this may be explained by a preference for higher quality products by smaller households, due to greater ability to pay.

While the number of households grew by 13.9 percent between 1980 and 1988, the population grew by only 7.4 percent (The Food Institute, 1989). There were 91.5 million households in 1988 and the Census Bureau projects that the number of households will expand by 15 to 24 percent by the year 2000. This trend will continue to reduce the average household size (currently 2.66 members).

"Non-family" households are expected to grow faster than family households, meaning even fewer housewife-mothers doing the shopping. Families with children should represent only 20 percent of households by the year 2000, down from 31 percent in 1980 (*American Demographics*, 1989). By the year 2000 singles should represent 26 percent of households, presenting market opportunities for those developing food products with smaller packages. Indeed, food industry analysts predict that 50 percent of all supermarket food sales by the year 2000 will be in one- or two-person servings, another challenge for the produce industry.

Ethnic Populations

The growth in ethnic populations in the United States is a major factor contributing to the demand for product diversity within the produce department. Ethnic groups influence the general population and foods previously considered to be ethnic or regional in nature are increasingly consumed by a broader portion of the population. This helps explain the recent growth in shipments of oriental, Mexican, tropical, and other unusual vegetables--about 5 percent of fresh vegetable shipments in 1988 (USDA, Nov. 1989).

In California, minority ethnic groups are projected to make up almost half of the population by the year 2000 (Bovier and Martin, 1985). The growth in Hispanics and Asians should increase aggregate fresh produce consumption, as well as continue to broaden the product mix within the produce category. McCracken indicates that although only minor differences exist between expenditures on vegetables for white and black households, non-white/non-black households spend substantially more on vegetables and less on potatoes.

The proliferation of new, ethnic products in the produce department poses unique challenges. Growers, shippers, wholesalers, retailers and restauranteurs, are grappling with the production and packaging requirements, temperature management, storage, merchandising, preparation and other handling requirements of these specialty products.

Working Women, Convenience and Foodservice

A critical factor affecting food consumption patterns has been the entrance of women into the work force in record numbers. In 1987, 55 percent of women worked, with this proportion expected to continue increasing to 62 percent by the year 2000. The main impact has been to decrease time available for food preparation and to increase the demand for high and predictable quality foods, offering convenience and variety (Kinsey, 1986).

The growing importance of convenience is illustrated by the expansion of foodservice. U.S. consumers spend 45 percent of their food dollar on food away from home (*Restaurants and Institutions*, 1988). By the mid-1990s, the retail and foodservice industries are expected to share a 50-50 split in food dollars. Today trade experts estimate that 40 percent of all produce is distributed through foodservice channels, compared to 19 percent in 1980 (McLaughlin and Pierson, 1983). Already, foodservice uses more than 55 percent of all lettuce and 65 percent of all potatoes (Mayer, 1988).

"Fast-food" outlets have expanded the market for fresh produce by the addition of salad bars and pre-packaged salads. It has been estimated that McDonald's purchased 2 percent of the total U.S. lettuce crop and 1 percent of the fresh tomato crop in 1987 (Panyko, 1988). Upscale, white tablecloth restaurants are expanding the demand for both premium quality and exotic produce as well. Marketing to foodservice is a real challenge to grower/shippers who have traditionally focused on the packaging, pricing and quality needs of retailers. Meeting the needs of diverse foodservice segments will be a focal point of grower/shipper strategies in the next century.

Health and Nutrition

There has been a sizable increase in general knowledge about how diet and health are linked and the importance of maintaining physical fitness throughout life. Fresh produce has benefited from increasing health awareness. Per capita fresh vegetable consumption in 1988 was 100.3 pounds, up from 76.5 in 1978, and 1988 was the first year that fresh vegetable consumption equaled processed (USDA, Nov. 1989). The increase in fresh vegetable consumption partly came at the expense of canned vegetables, with canned consumption declining from 87 to 82.8 pounds. Per capita fresh fruit consumption in 1988 was 96.9 pounds, compared to 83 .7 in 1978, with total fruit consumption of 211.3 pounds (USDA, Aug. 1989).

In general, there has been a shift in product form toward more fresh-like and "natural" products. Many marketers have incorporated "lite" or "natural" on their labels, along with a myriad of stronger health claims, e.g., reduction of heart disease or cancer prevention. Broccoli and cauliflower have particularly benefited from these health claims, with per capita consumption increasing from 1.1 and .9 pounds per capita in 1978, respectively, to 4.2 and 2.9 pounds per capita in 1988.

Yet time pressures mean that consumer intentions to make healthful eating choices are not always consistent with actual practice. According to a study by Pillsbury, the largest and fastest growing consumer segment, representing 26 percent of the adult population, is made up of the "chase and grabbits," people who frequently eat on the run (Morris, 1986). Yet another rapidly growing segment at 20 percent of the adult population is classified by Pillsbury as highly health-conscious "careful cooks." These two food trends--towards convenience and healthfulness--pose many challenges and opportunities to produce marketers.

The development of new lightly processed products helps meet the demand for both healthful and convenient food. Pre-packaged salads, pre-cut fruit, broccoli and cauliflower florets, sliced mushrooms, cored pineapples, stir-fry vegetable mixes, packaged carrot and celery sticks, and pre-cut vegetables with cheese sauces in microwaveable trays are examples of the

industry's attempt to add value to produce without detracting from its fresh, natural image.

Food Safety

An increasing concern about food safety has recently focused on pesticide residues on plants and drug residues in animal products--brought on by the advent of more sensitive residue testing technology, the media's raising fears, inconsistencies in regulatory policies, exploitation of the food safety issue by parts of the food industry, and the politicization of the food safety issue as advocacy groups link it to their own agendas (Cook et al., 1990).

Several consumer surveys have identified pesticide residues as the public's number one food safety concern. The results of two major national surveys that are conducted annually are reported below. The *Packer*'s "Fresh Trends 1990" survey found that 86 percent of the respondents were concerned about chemical residues on produce. The Food Marketing Institute (FMI) in their "1989 Trends: Consumer Attitudes and the Supermarket" survey found that 82 percent of the respondents were concerned about pesticide residues on food.

Yet the limitations of consumer survey methodology compel caution in interpreting these findings. In 1989 the same FMI survey for the first time asked consumers about their food safety concerns in an open-ended format (i.e. without prompting on the specific concerns). In response, consumers identified spoilage and germs as the number one food safety concern, placing residues in fourth priority. This ranking is in line with the scientific consensus on relative food safety hazards. Further, when consumers were asked whether they were confident that the food in their supermarket was safe, 81 percent responded affirmatively. This would indicate that while consumers may be concerned in a general sense, this concern does not necessarily outweigh an underlying confidence in the system.

The *Packer* "Fresh Trends" survey would support this conclusion. Sixty percent of the respondents said that while they were concerned, they had not changed their buying habits. However, a notable 26 percent had modified their buying practices, up from 18 percent in 1988. Eleven percent had purchased organically grown fresh fruits and vegetables and 15 percent had sought out fresh produce merchandised as pesticide or residue free.

Yet the "Fresh Trends 1990" survey also found that other produce attributes rank higher than food safety messages when consumers make buying decisions. The top ranked factors were freshness/ripeness and taste/flavor, each mentioned as extremely or very important by 96 percent of the respondents. Other top-ranked factors were appearance/condition, mentioned by 94 percent, nutritional value by 65 percent; and 63 percent identified price as very important.

While 52 percent of the respondents felt "certified safe" was extremely important, presumably the above conditions must first be met before this would influence the buying decision. Only 17 percent ranked organically grown as very important, with a much higher preference for organics among lower income consumers. For example, 27 percent of those earning under $10,000 a year felt this characteristic was very important, compared to 13 percent of those with incomes over $30,000 a year.

When consumers were asked whether or not they prefer organic produce, regardless of cost, 31 percent agreed somewhat, while 17 percent agreed and only 9 percent agreed strongly. Although this indicates an interest in organics, it does not necessarily translate into buying behavior. Many conventional retailers experimenting with organic sections after the Alar controversy, found that consumer purchases of organics quickly subsided and sales results were disappointing. This may be related to the higher preference for organics among lower income consumers, who exhibit a limited ability to pay.

The higher importance placed on products labeled as "certified safe" (vs. organic) may be related to the fact that these products are frequently sold at the same price as conventional products. In contrast, organically grown products are commonly priced 25-30 percent above their conventional counterparts, with significantly higher price premiums not uncommon. Both higher prices and limited accessibility have been identified as factors limiting consumption of organics (Jolly, 1989).

When consumers were asked to rank six types of labeling information in terms of influencing their purchases, only 20 percent ranked as number one "that the item was grown organically or established safe by residue testing," while 28 percent said it was not at all important.

Addressing consumer food safety concerns in a responsible fashion is a major challenge to the produce industry. Just as nutritional labeling grew in the 1980s, food safety-oriented marketing labels will proliferate in the 1990s. Produce

firms may find that "marketing" food safety is a double-edged sword, an issue that will be addressed later.

Challenges and Opportunities

The growing consumer interest in fruits and vegetables caused the food retailing industry to reposition the produce department and expand its role. Throughout the 1980s the FMI Trends survey mentioned earlier, indicated that a primary customer criterion for selecting which grocery store to shop in was the quality of the produce department. Further, retail industry financial reports highlight the leading profitability of the produce department. The average produce department now accounts for 12 percent of total store space, 9 percent of total store sales and generates a 20 percent contribution to net store profit (*Supermarket Business*, Oct. 1989).

Consequently, fresh produce has become a critical element in the competitive strategy of many retailers, making year-round availability of produce a necessity. The challenge to supply seasonal, perishable products on a year-round basis has been a compelling factor in favor of imports and increased integration among grower-shippers, both nationally and internationally.

Understanding Consumers

In order to insure that produce maintains its pivotal role at the retail level, retailers must develop increasingly sophisticated ways for understanding the dynamic consumer environment. New technology will facilitate this process. Currently, customer card systems are being tested which record all purchases of enrolled consumers. These are generally Electronic Funds Transfer/ Point of Sale systems that debit customer checking accounts automatically at the point of sale, providing a record of purchases. Since participating consumers provide demographic information that is stored by the retailer, it is possible to analyze the effect of promotions and demographic factors on demand.

This kind of system permits retailers to design promotional programs targeted to specific consumer segments, possibly reached through direct mail, rather than through more expensive media approaches. As these EFT/POS systems evolve they will likely capture lifestyle or psychographic information, further improving targeting possibilities. The introduction of additional produce items to UPC scanning will also eventually permit more timely analysis of the effect of promotional and advertising programs on demand.

The need to understand consumers is vital for shippers and distributors as well. As retailers improve both the quality and management of information, suppliers could be at a disadvantage. Access to this information may become an increasingly controversial issue in the future, with shippers required to invest substantially more in market research than they are today.

New Products and Branding

While value-added and specialty products are proliferating, the size of the market for many of these products remains small. Willingness to pay for value-added products is still poorly understood. Further, distribution problems abound due to frequently greater perishability. New business partnerships are being forged to manage the requisite finely tuned physical distribution systems.

Many value-added products are being introduced on a branded basis, but branding is also emerging for traditional "commodity" type products. Successful produce brands have been extremely limited until recently because of the need to meet the following requirements: 1) year-round availability; 2) a consistent, high quality supply; 3) a differentiated product; and 4) proper handling all the way through the cold chain.

However, changing industry structure has stimulated the introduction of brands to fresh produce. Specifically, declining consumption of canned fruits and vegetables induced multinational food processors (e.g., Campbell Soup Company, Del Monte, Dole, Kraft) to enter the fresh market. These firms are attempting to apply their branded marketing strategies to produce and are contracting with producers in a variety of U.S. and foreign regions to insure a year-round presence in the market for their brands.

In an attempt to differentiate commodity type products, biotechnology firms have been linking up with produce marketers. This combination can produce value-added, convenience oriented, branded products with unique flavor attributes, all in one. A case in point is VegiSnax, developed by FreshWorld Inc., a joint venture of DNA Plant Technology and DuPont. VegiSnax are pre-cut, packaged celery and carrot sticks, made from differentiated carrot and celery varieties bred for superior flavor and other attributes. FreshWorld selected Sunkist to market VegiSnax because of its extensive distribution network and the need for local distribution control over a highly perishable pre-cut product.

Hence, the introduction of value-added produce will stimulate innovative marketing arrangements and greater industry integration. The link between improved varieties and branding is being explored by several other firms. For example, Sun World International is marketing proprietary varieties such as the Sun World seedless watermelon, DiVine ripe tomato, and Le Jeune and Le Rouge Royal peppers.

However, the success of branding remains to be demonstrated. Currently, consumer brand recognition of fresh produce items is low. Further, in the "Fresh Trends 1990" survey mentioned earlier, of 16 produce characteristics respondents were asked to rank according to their influence on the buying decision, branding was ranked last. The characteristic of price was identified as the least desirable aspect of branded produce.

Clearly, significant barriers confront the successful introduction of fresh produce brands. Nevertheless, branding could mean both an advertising and informational/merchandising jolt to the categories where they are introduced. Fresh produce has traditionally been under-merchandised and under-promoted relative to packaged food products. Successful brands could stimulate greater produce consumption, but at the expense of greater competition for smaller shippers.

Another area of technology which will likely affect industry structure is modified atmosphere packaging. As the United States catches up with Europe in this arena, we can expect chains to introduce their own private labels of pre-packaged produce, with much greater retail control over product quality and packaging specifications. From the shipper's perspective, modified atmosphere packaging will provide opportunities in new export markets but will make us more vulnerable to imports of certain commodities from distant regions.

The growth in product diversity is also requiring important adjustments in the fresh produce distribution system. Lack of knowledge of the proper handling regimes for specialty products and the trend toward mixed load shipments, both frequently contribute to poor arrivals. In the future, much greater emphasis must be placed on postharvest technology, at all levels of the system. Greater investment in improved temperature management technology at the carrier level is likely. Further, more attention to store level merchandising, including in-store sampling programs, is essential to improving the profitability of specialties.

Food Safety and the Proliferation of Safety-Oriented Marketing Labels

Consumers are receiving confusing and conflicting messages about food safety. Consumer advocates continue to call into question the safety of fresh produce. Yet the U.S. Surgeon General, National Cancer Institute, American Heart Association, and the American Cancer Society all tell consumers that fruits and vegetables can lower the risk of cancer and heart disease, as part of a high-fiber, low-fat diet.

Growers and retailers, for their part, publicly support government regulatory programs. Where problems exist they indicate that government programs should be modified and strengthened. Yet in an effort to restore public confidence in the safety of fresh produce, many growers and retailers are developing their own food safety labels, residue testing, or information programs. Labels developed in California such as Probiotic, Naturite, Primus, Pesticide Free, and NutriClean are now present in the national marketplace.

Consumer concern poses a major communication challenge to the industry. It can be met with informational programs designed to respond to consumer demand for more information (e.g., the Center for Produce Quality), or by programs designed to "market" food safety for strategic advantage. Given the difficulty of defining and regulating these emerging food safety labels, the produce industry itself may be contributing to public misinformation and confusion.

One of the most well known private residue testing programs is NutriClean, used by several retailers in California and nationally. Retailers contract with NutriClean (only one chain/market area) for the testing service but the samples are actually analyzed by independent private labs. In contrast to the wide coverage of commodities (over 200) and pesticides (over 100) captured by government monitoring programs, NutriClean's routine dock sampling program involves only 9 commodities tested for 14 pesticide residues. Since NutriClean is in addition to the sampling done by the government and is so limited in scope, many believe that the advertising claims of retailers are misleading.

Consumer focus groups conducted by the author indicate consumer ambivalence about many of the new food safety-oriented marketing labels. For example, labels such as "no detectable

residues" do not necessarily reassure consumers, as it makes them consider what might be in the product that is not being detected. Similarly, retail testing programs on limited items in the produce department may cause consumers to wonder about the safety of items not being tested. A study conducted for the apple industry after the Alar controversy found that those retailers not calling attention to Alar with signage such as "Alar Free," experienced the least detrimental effect on sales.

Numerous grower/shippers have begun using private laboratories to monitor residue levels on their products. Generally, pre-harvest samples are taken with results obtained prior to harvest. Most shippers are not aiming toward a no-detectable residue standard, but rather confirmation that no illegal residues are present. Some shippers are using residue testing as a marketing tool, while others simply use it as an internal quality control mechanism.

Although some shippers are also making changes in their growing practices, attempting to minimize pesticides and focus on biological control methods where feasible, these labels do not necessarily imply any change. The California Department of Food and Agriculture (CDFA) has long had a major marketplace surveillance program which samples for pesticide residues. Consistently, about 80 percent of the samples taken have no detectable residues and only .3 percent have illegal residues over the established federal tolerance (Archibald and Winter). Consequently, most conventional produce already has no detectable residues and the majority of legal residues are less than 50 percent of the tolerance. While the cost of residue testing programs is significant, expanded sampling, both by the government and private shippers, has been merely confirming the low violation rates.

Preliminary results from focus groups conducted by the author indicate that many of the food safety-oriented marketing labels recently introduced by shippers, provide little useful information to consumers. Consumers note these labels carry no guarantees and tell them little about growing practices. This is not surprising when you consider that those consumers most intensely concerned about pesticide residues frequently have environmental concerns about conventional growing practices as well. Merely placing a "tested" or "no detectable residue" label on the product does not allay this concern. On the other hand, many consumers responded favorably to information that briefly explains what is being done by growers to reduce pesticide usage, and that government testing programs are in place to monitor fresh produce.

While consumer interest in food safety-oriented marketing labels such as organic and pesticide free may be growing, consumer willingness to pay a price premium is another matter. To date demand for this kind of product appears to be limited to around 10 to 15 percent of the population. Many large conventional growers who now farm their land organically report that they can sell only a minor portion of their crop, due to insufficient demand. Since price premiums cannot be relied on, producers developing these labels can be expected to strive for production and marketing costs which are competitive with those of conventional producers. As always, it is easy for growers to saturate a market niche.

Conclusions

Demographic and lifestyle trends in the United States have induced a disintegration of the mass market into a highly segmented one. In addition, slower population growth is increasing competition. Both these trends will make target marketing strategies even more critical in the 1990s. Yet in today's fragmented consumer and media markets, the productivity of promotional efforts is declining. Consequently, market share battles will become more costly in the future, requiring increasingly localized approaches. Understanding consumers will be a critical factor in developing efficient target marketing approaches. This will require improved data collection and information management systems. Access to information could become a controversial issue as the information gap widens between the grower and retailer ends of the distribution system.

Two major yet seemingly divergent consumer trends--convenience seeking and nutrition awareness--will require an integrated approach in food marketing. For example, better nutritional information could be printed on a convenient package. Products and firms that can meet the demand for convenient, yet healthful and flavorful foods will be well positioned in the food marketing industry of the 1990s.

A plethora of food safety-oriented labels are currently being marketed, and they appear to be sending mixed and confusing signals to consumers. The question arises, are firms providing useful information to consumers (i.e., adding value to their products), or are they simply adding costs which increase the price of food without any clear benefit to consumers? The debate over

this issue is likely to continue for some time, as companies experiment in the marketplace with alternative food safety approaches.

In order to tap fully the potential for increased consumption of fresh produce, the industry should continue to emphasize variety, different but consistent quality levels for both upscale and downscale consumer segments, breeding for improved taste, matching packaging technologies with the needs of each market segment, and developing more innovative merchandising strategies--particularly for the rapidly growing specialties category.

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