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# **Marketing Fresh Fruit and Vegetable Imports in the United States: Status, Challenges and Opportunities**

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# Abstract

The importance of produce at the retail level in the United States has been recently confirmed by the *FreshTrack 2001* study: Supply Chain Management in the Produce Industry. Imports of fresh fruits and vegetables to the United States have been on the rise as they play an important role in satisfying a growing U.S. consumption trend. This exploratory research project attempted to identify the current status of imported produce at the retail level, to characterize the business practices of U.S. retailers, U.S. importers and foreign exporters in relation to marketing imported produce and, finally, to explore the opportunities and challenges faced by these three key supply chain participants in marketing imported produce in the United States. Research was conducted through the review of relevant trade and academic literature and the collection of primary information through surveys

sent to 34 U.S. retailers (of which 13 valid responses were collected) and through surveys administered in person to nine U.S. importers and nine foreign exporters. Results of these surveys confirm the increasing importance of imported fruits and vegetables at the retail level in the United States, point to the increasing role of U.S. grower/shippers as providers of imported produce in the United States and indicate that key issues currently faced by retailers in marketing imported produce are not necessarily the same issues being addressed by either U.S. importers or foreign exporters. Further and more in-depth research on the topics explored in this project is necessary in order to derive recommendations that will help retailers and importers in the United States and exporters in foreign countries achieve greater success in marketing imported produce in the U.S. market.

# Acknowledgements

The author wishes to thank the retailers, importers and exporters who participated in the study and shared their insights and experiences; Nancy Tucker from the Produce Marketing Association and Terry Long from the Agricultural Marketing Service of the United States Department of Agriculture, who were particularly helpful in defining some of the terms and contents of the surveys; Edward McLaughlin who enthusiastically supported the idea of conducting this research project and provided the necessary guidance, comments and editorial help; Janelle Tauer and Wendy Barret, who provided valuable help in editing the surveys and in administering the survey to retailers over the internet and Don Lebow for the final editing and publication of this report.

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# Introduction

One of the main results of the study, *FreshTrack 2001: Supply Chain Management in the Produce Industry* was the significant current contribution of the produce department to both sales and profits in supermarkets, contribution that is projected to continue into the following 5 years, according to participating companies' responses. Simultaneously, retailers reported on the increasing size and number of Stock Keeping Units (SKUs) of their produce departments during the past 5 years and into the future. In view of these results and given their relation to increasing imports of fresh fruits and vegetables into the United States, particularly in recent years, the Food Industry Management Program of Cornell University decided to undertake the present exploratory research project, as an extension to the *FreshTrack 2001* study.

The overall goal of this project was to identify the current role of imported produce at the retail level in the United States, to characterize the business practices related to marketing imported produce in the U.S. market of three key participants in the supply chain, namely, U.S. retailers, U.S. importers and foreign exporters, and, finally, to explore the opportunities and challenges currently

faced by these agents in marketing imported produce in the U.S. market.

The methodology used for this project included the review of relevant trade and academic literature on imports of fresh fruits and vegetables to the United States, the role of imports in the U.S. food industry and consumption of fresh fruits and vegetables in the United States. Additionally, primary information was collected from U.S. retailers that participated in the *FreshTrack 2001* study through an online survey, and from U.S. importing companies and foreign exporting companies through surveys administered in person, during the 2001 PMA Exhibition in Philadelphia.

Sections 1 and 2 in this report summarize the relevant information from the literature review on U.S. fresh fruits and vegetables' imports and consumption trends. Section 3 reports on the results from the survey administered to U.S. retailers, while Section 4 reports on the results of the survey administered to U.S. importers and foreign exporters. Section 5 summarizes the findings of this exploratory research project and concludes with the implications and outlook of these findings.



# Section 1

## The Market for Imported Fresh Fruits and Vegetables in the United States

### 1.1 General Trends of Imported Fresh Fruits and Vegetables

Imports of fresh and frozen fruits into the U.S. in 2000 were 7.3 million metric tons, worth \$3.2 billion, of which bananas and plantains accounted for 58.5% of the quantity and 35.7% of the value. In 2000, fresh fruits accounted for 98% of the volume and 95% of the value of these imports. Among imported frozen fruits, strawberries, raspberries, and blueberries represent, on average, 67% of both the volume and the value. U.S. imports of fresh and frozen vegetables for 2000 were 3.8 million metric tons and valued at \$ 2.8 billion. Fresh vegetables accounted for 83% of both the volume and the value of these imports in 2000. Potatoes and broccoli, together, represented 74% of the volume and 68% of the value of frozen vegetables' imports during this period.

As illustrated in Table 1.1, imports of these products have increased significantly between 1990 and 2000, with an annual growth rate of 7.8% for fruits (excluding bananas and plantains) and 8.1% for vegetables (excluding fresh and frozen potatoes). The products driving imports' growth during this period are melons, citrus, mangoes, pineapples and "other fruits" (mainly tropical and

exotics) among fruits; and tomatoes, peppers (including pimentos), "other vegetables" (mainly specialties), cucumbers, onions, squash, and broccoli and cauliflower (these two imported mainly as frozen products), among vegetables.

Between 1990 and 2000 share of total fresh and frozen fruit imports (excluding bananas and plantains) increased for avocados, citrus, mangoes, pineapples and "other fruits," indicating that their imports grew at a faster rate than the imports of the whole fresh and frozen fruits' category during this period (Figure 1.1). The increasing share of imports for products not grown in the United States, such as mangoes, pineapples and "other fruits" directly reflects consumption trends in the U.S. market and consumers' increasing interest in these products. Melons, mainly imported off-season, maintained their share of imports during the period as consumption in the United States increased significantly, while share for the rest of the products decreased between 1990 and 2000, even though their imported volumes showed sustained growth (except for peaches) as indicated in Table 1.1.

**Table 1.1 Fresh and Frozen Fruits and Vegetables—Imported Volume for 2000<sup>1</sup> and Annual Growth Rates for the Period 1990 - 2000**

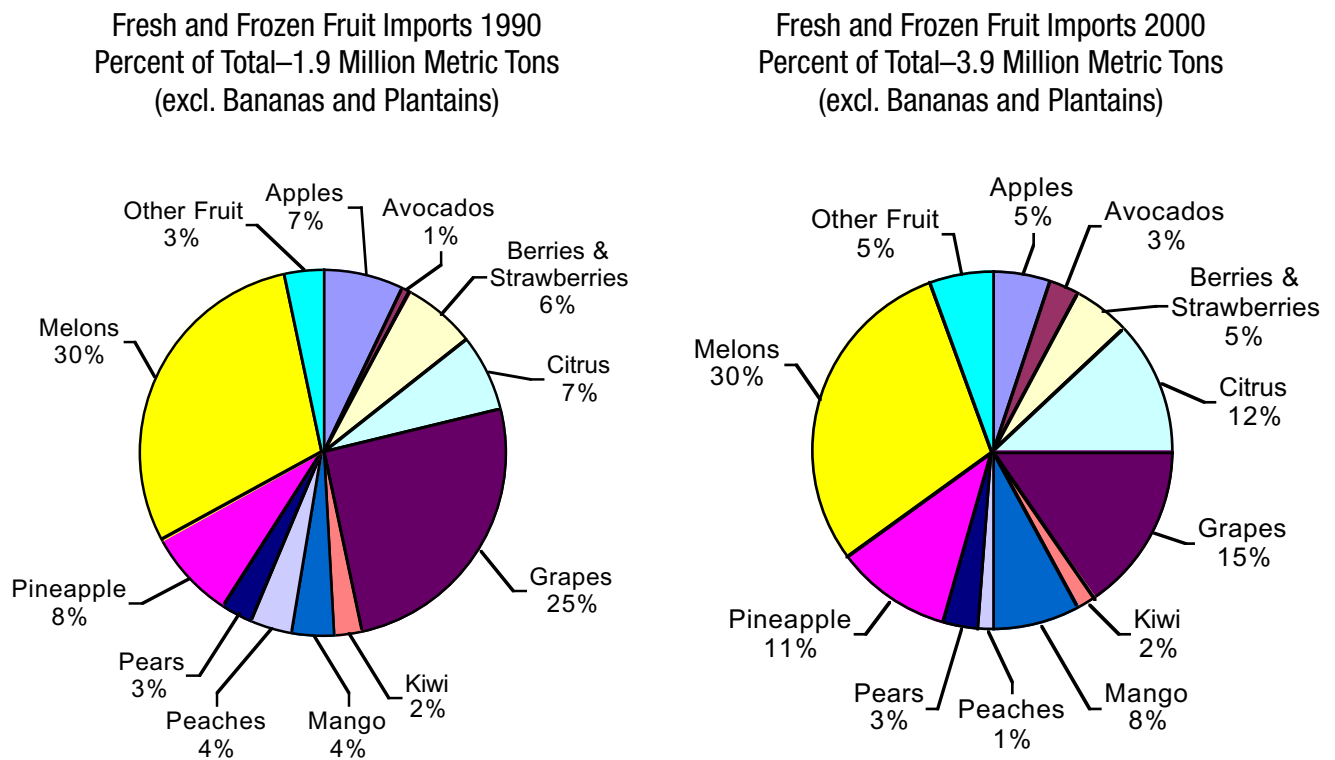
Fresh and Frozen Fruits *			Fresh and Frozen Vegetables **		
Product	2000 (MTx000)	Annual growth rate 1990-2000	Product	2000 (MTx000)	Annual growth rate 1990-2000
Apple	164	4.6	Asparagus	75	11.9
Avocado	79	17.0	Beans	40	8.7
Berries & Strawberries	152	5.9	Cabbage	41	5.6
Citrus	362	11.5	Carrots	80	4.8
Grapes	470	2.5	Broccoli & Cauliflower	245	4.6
Kiwi	52	6.6	Celery	29	9.4
Mango	240	13.5	Cucumbers	346	7.6
Peaches	44	-2.1	Eggplant	39	9.2
Pears	94	6.9	Endive	2	-1.4
Pineapples	323	10.8	Garlic	29	5.2
Melons	895	8.7	Lettuce	29	9.3
Other fruits	165	12.2	Okra	24	3.0
Total*	3,040	7.8	Onions	214	3.0
Bananas & Plantains	4,288	2.7	Peas	40	1.5
Total	7,328	4.5	Peppers & Pimentos	347	11.8
			Radishes	16	2.8
			Squash	152	8.0
			Tomatoes	730	11.4
			Other Vegetables	396	9.7
			Total**	2,874	8.1
			Potatoes	888	11.4
			Total	3,762	8.8

\* Excluding bananas and plantains \*\* Excluding fresh and frozen potatoes

Source: Foreign Agricultural Trade of the United States (FATUS),  
U.S. Agricultural Imports Data 1990 – 2000, [www.ers.usda.gov/db/fatus](http://www.ers.usda.gov/db/fatus).  
Calculations: Food Industry Management Program, Cornell University

<sup>1</sup> Data reported on U.S. imports of fresh and frozen fruits and vegetables varies depending upon data source. Tables in Appendix 1, for example, include imports' data for these products as reported by the Foreign Agricultural Services of the U.S. Department of Agriculture on its FASonline website: <http://www.fas.usda.gov/ustrade/>

**Figure 1.1 Fresh and Frozen Fruit Imports in 1990 and 2000, Percent of Total**



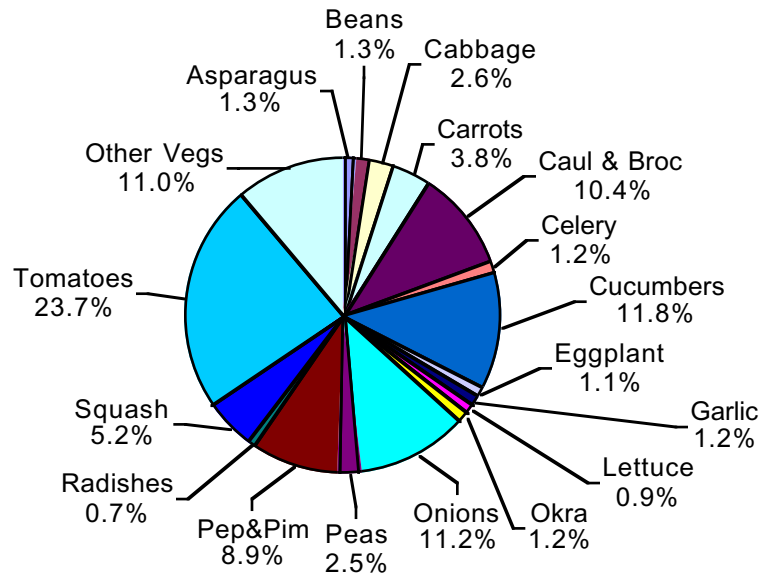
Source: Foreign Agricultural Trade of the United States (FATUS), U.S. Agricultural Imports Data 1990 & 2000, [www.ers.usda.gov/db/fatus](http://www.ers.usda.gov/db/fatus). Calculations: Food Industry Management Program, Cornell University

Share of imports between 1990 and 2000 in the fresh and frozen vegetables' category (excluding potatoes) increased for tomatoes, peppers and pimentos, asparagus, and "other vegetables" (Figure 1.2). The introduction of new products to the tomato and pepper markets, such as greenhouse-grown tomatoes, vine-ripe tomatoes, and several smaller sized varieties (such as grape and yellow tomatoes) as well as a variety of colored bell peppers and hot peppers, have diversified these markets and improved the overall quality, thereby

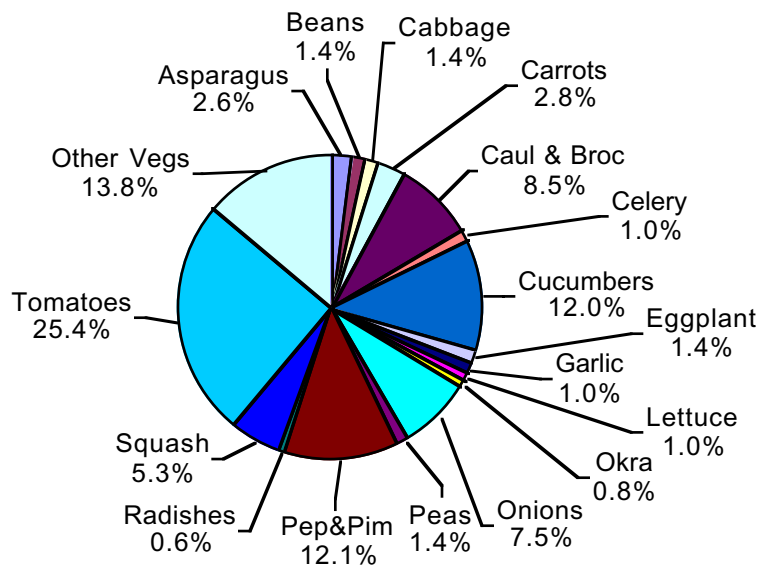
contributing to generating a growth in demand, which is being increasingly supplied with imports. The products grouped under "other vegetables" include the specialty vegetables and the roots and tubers demanded by the Hispanic and Asian populations; they reflect retailers' attempts to better service these rapidly growing segments of the market. Share of imports for the rest of the products decreased between 1990 and 2000, in spite of their growing import volumes during that period (except for endive) as illustrated in Table 1.1.

**Figure 1.2 Fresh and Frozen Vegetable Imports in 1990 and 2000, Percent of Total**

Percent Fresh and Frozen Vegetable Imports 1990  
 1.5 Million Metric Tons  
 (excl. Potatoes)



Percent Fresh and Frozen Vegetable Imports 2000  
 2.9 Million Metric Tons  
 (excl. Potatoes)



Source: Foreign Agricultural Trade of the United States (FATUS),  
 U.S. Agricultural Imports Data 1990 & 2000, [www.ers.usda.gov/db/fatus](http://www.ers.usda.gov/db/fatus).  
 Calculations: Food Industry Management Program, Cornell University

## 1.2 Countries of Origin of Imported Fruits and Vegetables

Major origins for imported fresh and frozen fruits into the U.S. market are Mexico, Chile, Costa Rica, Guatemala, Honduras, and Canada. Between 1990 and 2000, imports from Mexico and Costa Rica were particularly significant, given both their imports' volume in 2000 and their annual growth rates during this period. Other countries of origin are Peru, China, Spain, Australia, Brazil, Ecuador, and Argentina (Table 1.2).

Origins of imported fresh and frozen vegetables are more concentrated than for fruits, with 55% of

the volume in 2000 coming from Mexico and 34% from Canada (of which 68% correspond to fresh and frozen potatoes). Annual growth rates for imports from both of these sources between 1990 and 2000 were significant, particularly from Mexico (11.4%). During the same period, imports from Spain, Peru, the Netherlands, and Israel were comparatively smaller in volume but experienced far greater growth than imports from Mexico and Canada (Table 1.2).

**Table 1.2 Origins of Imported Fresh and Frozen Fruits and Vegetables to the U.S. Market**

Fresh and Frozen Fruits *			Fresh and Frozen Vegetables **		
Product	2000 (MTx000)	Annual growth rate 1990-2000	Product	2000 (MTx000)	Annual growth rate 1990-2000
<b>Major sources</b>					
Mexico	1,060	9.2	Mexico	2,075	11.4
Chile	593	1.8	Canada	1,295	7.7
Costa Rica	425	15.5			
Guatemala	196	17.3			
Honduras	133	7.4			
Canada	111	2.0			
<b>Smaller but high growth sources</b>					
Peru	13	68.8	Spain	13	41.2
China	6	46.8	Peru	54	33.2
Spain	94	25.5	Netherlands	52	17.5
Australia	27	25.9	Israel	10	11.4
Brazil	23	21.1			
Ecuador	29	20.5			
Argentina	62	12.3			

\* Excluding bananas and plantains    \*\* Including fresh and frozen potatoes

Source: Foreign Agricultural Trade of the United States (FATUS),  
U.S. Agricultural Imports Data 1990 - 2000, [www.ers.usda.gov/db/fatus](http://www.ers.usda.gov/db/fatus).  
Calculations: Food Industry Management Program, Cornell University

### **1.3 The Role of Imports in the U.S. Food Industry**

Imports of fruits and vegetables into the United States provide retailers with the possibility of a year-round supply for what are seasonal commodities in this market and of diversifying and innovating the produce department, with tropical and exotic produce. At the same time, retailers are faced with the challenges of ensuring permanent availability of safe produce to meet consumers' expectations. Although imports clearly represent a source of competition for domestic grower/shippers, benefits exist for those engaged in imports, as they are able to look for competitively priced sources of produce. In this way they are able to complement their own production and to provide a more diversified market basket to their customers, on a year-round basis. Challenges faced by shippers include assuring sufficient volumes of safe products delivered on time. Growers, on the other hand, have benefited from increased consumption derived

from year-round availability (grapes, for example). At the same time, they are faced with the challenges of greater competition, both from the same commodities coming from foreign countries as well as from other products that may be substituted for their products, by consumers.

And while retailers, growers, and shippers in the United States contend with the opportunities and challenges of imported products, producers and exporters in foreign countries continue making efforts to take advantage of the opportunities of the growing and increasingly diversified U.S. fruit and vegetable market. Their main strategies include development of new products and/or new varieties, improvement in technologies, and distribution systems as well as more aggressive marketing and promotional programs.

### **1.4 New Products: Focus on a Changing Market**

Imported products over the last decade have become increasingly exotic. For example, products recently introduced, or soon projected to come to the U.S. market, include golden raspberries (during January-April), blueberries and blackberries (picked through mid April), organic raspberries, and red cherries for the Christmas holidays from Chile. Others include: white eggplant and purple and white eggplant (graffiti eggplant) shipped by

sea, as well as green, yellow, purple, and orange baby sweet peppers shipped by air from Holland; Golden kiwi from New Zealand; Sunblush Pineapple Supreme from Costa Rica; Sharon fruit persimmons (during November-March) and Sweet Pomelo from Israel; lemons from Argentina (during June-September); Tiger limes from Nicaragua; sweet corn and various root crops from Honduras; and new varieties of melons from Central America.

### **1.5 Imports' Outlook: Exporters' Strategies Underway**

Improvements in technology and distribution systems are currently being developed by exporters of fruits and vegetables to the United States. Several examples follow. An X-ray unit is being implemented by the Mexican government about 100 miles from the U.S.-Mexico border, as a mechanism to facilitate custom officers checking for contraband without having to open the truck, thereby avoiding delays and the corresponding

damage to the quality of products inside the truck. Additionally, officials and technologists are working on improving the packaging and cooling systems for products like papaya, to increase quality and shelf life and to avoid the need for repackaging in the United States.

Peru, which is expected to export 12,000 tons of sweet onions in 2000 (up from 800 tons five



years ago), is certifying the sweetness of their onions and assuring food safety through soil analysis testing via satellite.

Brazil is developing a 1 million hectares irrigation project in the northeast region of the country, for the production of several types of tropical and sub-tropical fruits for exports, including mangos, melons, limes, papayas and grapes. At the same time Brazil is working closely

with U.S. Animal and Plant Health Inspection Service (APHIS) representatives on the eradication of the fruit fly.

The government of China is promoting foreign investment and technology transfer for the production of high-value products, such as fruits and vegetables. And both Chile and Brazil have committed significant budgets to the promotion of their products in the U.S. market.



# Section 2

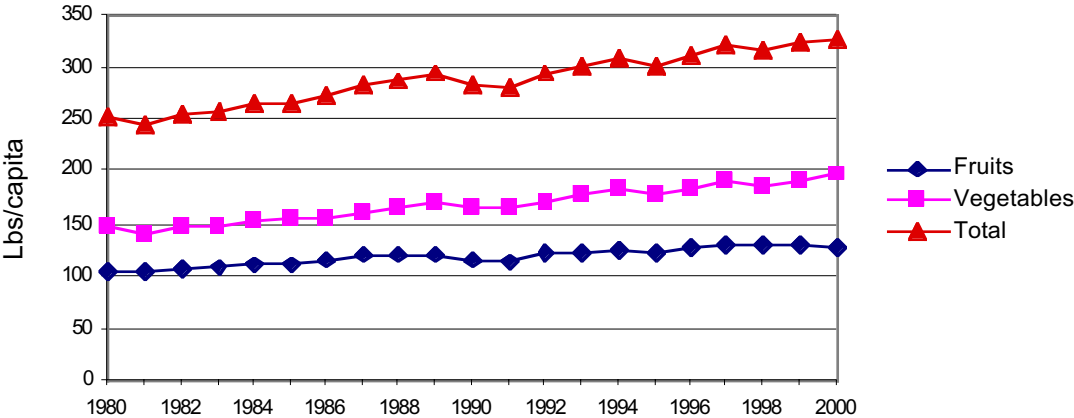
## U.S. Fresh Fruit and Vegetable Consumption Trends and the Role of Imports

### 2.1 Fresh Fruit and Vegetable Consumption Trends

Fresh fruit and vegetable per capita consumption in the United States increased from 254 lbs. in 1980 to 328.2 lbs. in 2000 (see Figure 2.1). The annual growth rate for per capita consumption of fresh fruits and vegetables during this period was 1.4%, with consumption of vegetables being more

dynamic, at 1.5% per year, and fruit consumption growing at a rate of 1.2% per year. However, during the past decade (1990- 2000) fruit consumption growth rate increased to 1.4% per year, while that for fresh vegetable consumption was 1.6% per year.

**Figure 2.1 U. S. per Capita Consumption of Fresh Fruits and Vegetables 1980-2000**



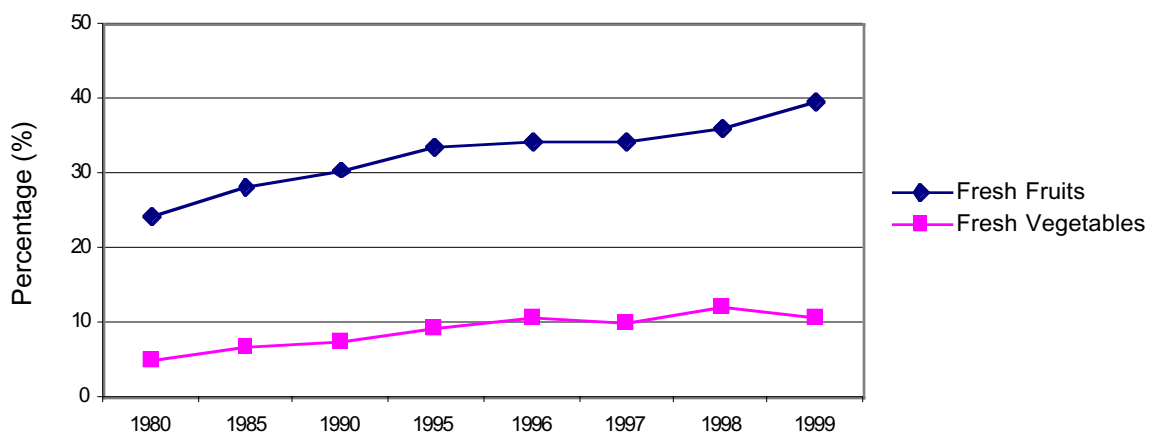
Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Fruit and Tree Nuts, Situation and Outlook Yearbook, October 2001*. Economic Research Service, <http://www.ers.usda.gov/publications>

## 2.1.1 Imports' Share of Consumption

When examining the role that imports of fruits and vegetables play in supplying the U.S. market, data on imports' share of consumption are key. According to ERS<sup>2</sup>, except for products not normally grown domestically, over the long run, the proportion of domestic demand satisfied by imports reflects supply factors as well as relative consumer demand for imported and domestically produced products.

Imports' share of consumption, defined as the portion of food consumed domestically that is imported from foreign countries, has been increasing significantly for fruits and vegetables over recent years. While the average imports' share of overall U.S. food consumption remains below 10%, imports' share of consumption for fresh fruits increased from 24.2% in 1980 to 39.6% in 1999 and for fresh vegetables from 5.4% to 10.9% (Figure 2.2).

**Figure 2.2 Imports' Share of U.S. Consumption Fresh Fruits and Vegetables 1980-1999**



Source: U.S. Department of Agriculture. *Import Share of Food Disappearance for Selected Foods, Selected Years, 1970-1999*. Economic Research Service.  
<http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>

## 2.1.2 Factors Influencing Consumption Trends

Changes in consumption of fresh fruits and vegetables in the United States can be explained by several factors. Publication of the Food Pyramid Guidelines in the mid' 80s, and the implementation of the "5 a Day Program", along with an increasing consumer awareness of the benefits of consumption of fruits and vegetables for health, particularly

among the aging population, have all played a key role. Recent research results indicating the positive effects of consumption of specific fresh fruits and vegetables on the prevention of certain diseases such as cancer and heart conditions, have created an increased demand for products such as broccoli, tomato and blueberries.

<sup>2</sup> U.S. Department of Agriculture. *U.S. Agricultural Trade Update*. June 27, 2001. Economic Research Service

The present size and growth of the Hispanic and Asian populations in the United States, along with their increasing buying power, have also had a significant impact on food consumption trends. Fresh fruits and vegetables are an important part of the traditional consumption habits of these population groups. Since these groups spend more than the average U.S. consumer on this type of products, particularly on tropical and specialty produce, they have a significant impact on their demand and sales in the United States.

The increasing use of fruits and vegetables in foodservice (particularly pre-cut vegetables), the popularity of cooking shows on television and the incorporation of unique ingredients in recipes by innovative chefs, have also contributed to

generating a higher consumption of fruits and vegetables, particularly for new and exotic products.

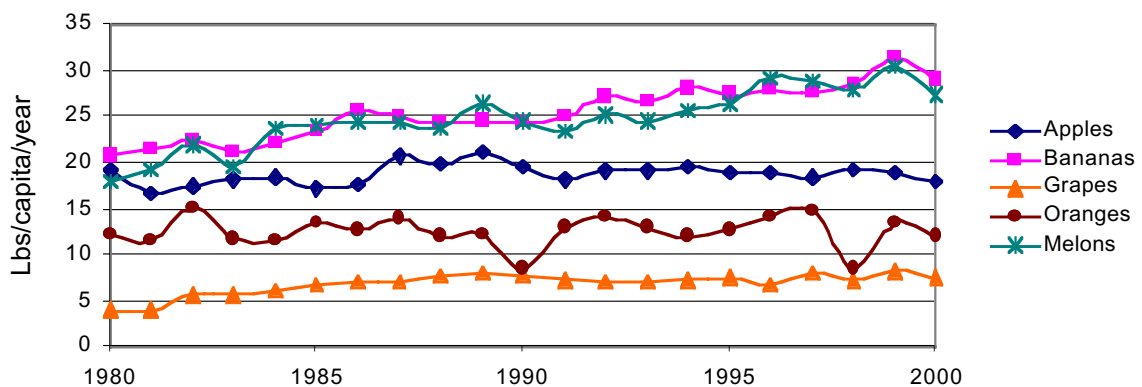
Imports of fruits and vegetables have also contributed significantly to the observed trend. Imports of off-season fruits to complement domestic production have allowed for year-round availability of many products with a positive impact on per capita consumption. Imports of tropical and specialty products have helped the U.S. industry in targeting ethnic consumer groups within the country while, at the same time, allowing them to diversify and innovate the produce department for traditional consumer targets.

## 2.2 U.S. Fresh Fruit Consumption Trends

Per capita consumption of fresh fruits in the United States went from 104.8 lbs. in 1980 to 130.1 lbs. in 2000, with an annual growth rate of 1.2% during that period. Amongst the fruits with the highest per capita consumption levels, bananas were number one at 29.2 lbs. in 2000, only slightly above the consumption level of melons<sup>3</sup> (27.4 lbs.) but

significantly above that for apples, at 17.9 lbs./capita that year (Figure 2.3a). And while consumption of bananas and melons, along with grapes, increased during the period under study, consumption of apples and oranges was relatively flat and that for peaches, avocados and grapefruit exhibited a downward trend (Table 2.1).

**Figure 2.3a U.S. per Capita Consumption of Selected Fresh Fruits**



Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Fruit and Tree Nuts Situation and Outlook Yearbook, October 2001*. Economic Research Service, <http://www.ers.usda.gov/publications>

<sup>3</sup> Includes melons and watermelons

**Table 2.1 Annual Growth Rates in Per Capita Consumption of Selected Fresh Fruits between 1980 and 2000**

Product	%	Product	%
Total Fresh Fruits	1.2	Bananas	1.8
Mango	10.1	Lemons	1.2
Limes	6.8	Pears	1.2
Papayas	6.4	Apples	0.2
Strawberries	3.9	Oranges	-0.1
Pineapples	3.2	Grapefruit	-0.9
Grapes	2.4	Avocados	-0.6
Melons	1.9	Peaches	-1.1

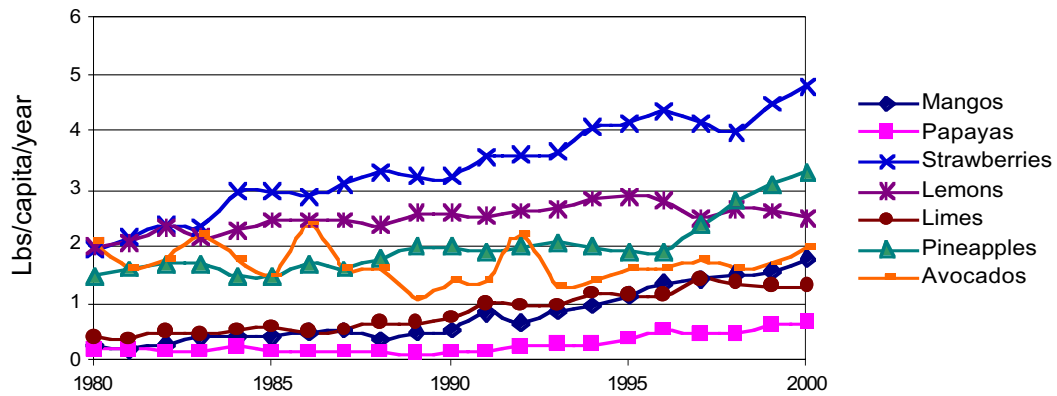
Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Fruits and Tree Nuts, Situation and Outlook Yearbook, October 2001*. Economic Research Service, <http://www.ers.usda.gov/publications>  
 Calculations: Food Industry Management Program, Cornell University

Consumption of most of the fruits in Figure 2.3b was much more dynamic between 1980 and 2000, than for those in Figure 2.3a. Strawberries, with a per capita consumption of 4.8 lbs. in 2000, is the leader in this group, while per capita consumption of mangoes, with an annual growth rate of 10.1% during this period, was the most dynamic (Table 2.1). The second most dynamic consumption growth rate in this group corresponds to limes

(6.8%) followed by papaya (6.4%), strawberry (3.9%), pineapples (3.2%) and grapes (2.4%). Avocados is the exception in this group, with a decreasing consumption trend of -0.6%/yr, between 1980 and 2000. However, this trend has reversed somewhat since 1993 (Figure 2.3b), thanks to more varieties being introduced and to the more recent year-round availability of this product, as well as to the increasing popularity of guacamole among mainstream consumers.

**Figure 2.3b**

**U.S. per Capita Consumption of Selected Fresh Fruits**



Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Fruit and Tree Nuts, Situation and Outlook Yearbook, July 2001*. Economic Research Service, <http://www.ers.usda.gov/publications>

**2.2.1 The Role of Imports on U.S. Consumption of Fresh Fruits**

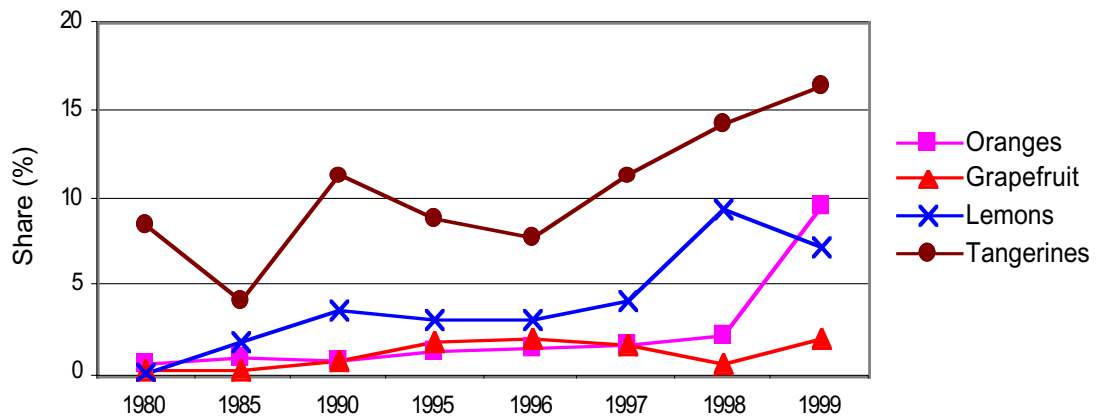
Among fruits, imports' share of U.S. consumption of citrus fruits has increased the most, from 1.8% in 1980 to 13.4% in 1999. Within this category, limes, tangerines (mainly clementines) and lemons have been the three main products leading the observed trend (Figure 2.4). Although not shown

in the Figure 2.4 below<sup>4</sup>, lime imports' share of consumption increased dramatically between 1980 and 1999, from 42.9% to 92.4%.

Imports' share of consumption of non-citrus has always been significant. Moreover, its share

**Figure 2.4**

**Imports' Share of U.S. Consumption Fresh Citrus Fruits 1980-1999**



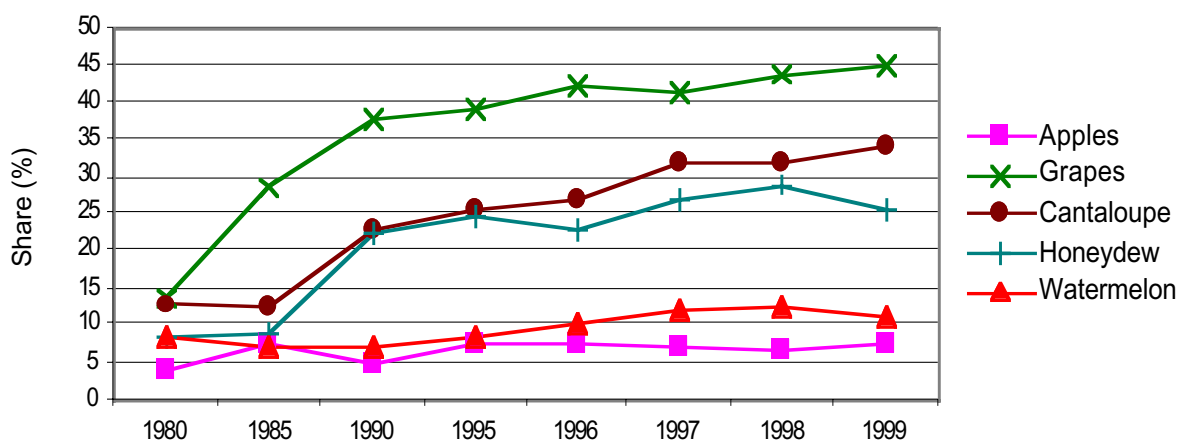
Source: U.S. Department of Agriculture. *Import Share of Food Disappearance for Selected Foods, Selected Years, 1970-1999*. Economic Research Service. <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>

<sup>4</sup> Including limes would increase the scale of this figure and would make it very difficult to see the growth changes in the other products.

increased from 31.6% to 44.4%, between 1980 and 1999. As shown in Figures 2.5a and 2.5b, several products in this category exhibited marked increases in their share of consumption during this period. Grapes and melons (Cantaloupe and Honeydew), among the products imported off-season, and mango, papaya and pineapple, among the imported tropical fruits, were the major products driving this trend. It is worth pointing out the significant increase of avocado imports' share of consumption in recent years, from 13.6% in 1997 to 28.7% in 1999 (Figure 2.5b).

The increase in imports' share of consumption for tangerines in the United States is directly related to the successful marketing of clementines, not available domestically yet. They are currently imported mainly from Spain, and to a lesser degree from Morocco and South Africa. This very sweet, seedless, blemishless, easy-peeling citrus fruit has attracted so many consumers, that it has prompted a doubling of imports year after year, over the last years.

**Figure 2.5a Imports' Share of U.S. Consumption-Selected Fresh Fruits 1980-1999**



Source: U.S. Department of Agriculture. *Import Share of Food Disappearance for Selected Foods, Selected Years, 1970-1999*. Economic Research Service. <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>

Grapes and melons are now available year round through imports of good quality fruit during the off-season, mainly from Chile in the case of grapes, and from Mexico and Central America in the case of melons. The role of imports in boosting consumption of these two products has been widely acknowledged by the U.S. industry. Additionally, melon consumption has also been impacted by its success in the pre-cut fruit market, where consumer's desire for healthy foods that are convenient, has been addressed.

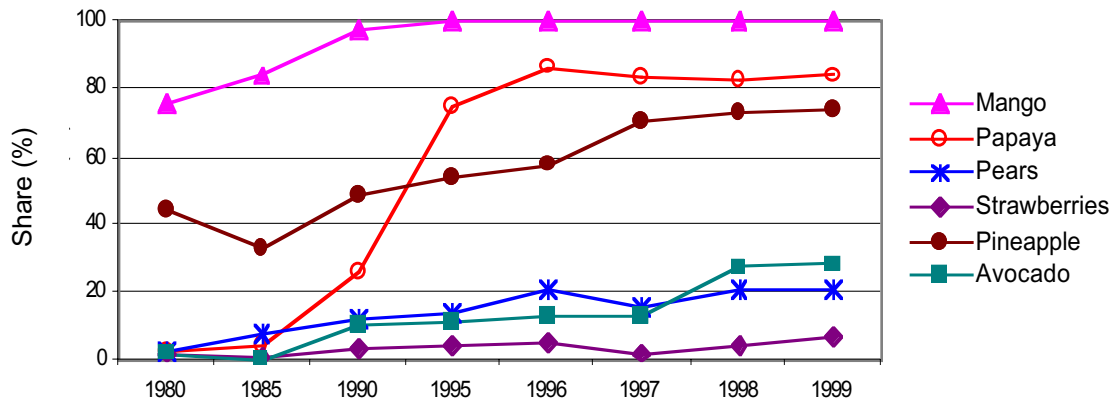
The growth in consumption of mango and papaya is directly linked to the expansion of the Asian and Hispanic populations in the United States. Increased availability and improved quality

of these fruits have contributed to increasing demand among mainstream consumers too. Nearly all mangoes and a significant percentage of papayas are supplied from foreign sources.

In the case of pineapple, the introduction to the market in 1996 of the Del Monte Gold, a new variety totally imported from Costa Rica, was the main factor in boosting per capita consumption of this product in the United States, after a period of relative stagnation. The improved eating quality and more attractive external appearance of this new variety, along with its incorporation to the pre-cut fruit category, have been the keys to its increased consumption, despite a much higher price.



**Figure 2.5b Imports' Share of U.S. Consumption-Selected Fresh Fruits 1980-1999**



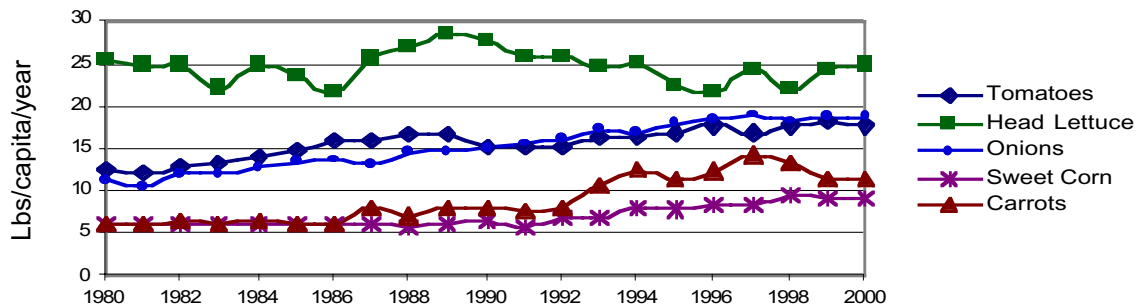
Source: U.S. Department of Agriculture. *Import Share of Food Disappearance for Selected Foods, Selected Years, 1970-1999*. Economic Research Service. <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>

### 2.3 U.S. Fresh Vegetable Consumption Trends

In the United States per capita consumption of fresh vegetables went from 148.8 lbs. in 1980 to 198.1 lbs. in 2000, an annual growth rate of 1.5%. Figure 2.6a illustrates the consumption trend of five of the major fresh vegetables. Head lettuce with 24.4 lbs./capita in 2000 is the vegetable with the highest absolute consumption level, but, at the same time, it is the only one with a slightly decreasing consumption trend (-0.2%/yr) between 1980 and

2000. The diversification of the lettuce category and incorporation of other varieties of lettuces into bagged salads, are the main reasons for this decline. Consumption of romaine, leaf and other specialty lettuces has gone up, at the expense of head lettuce. And, while consumption of cabbage was relatively flat, between 1980 and 2000, consumption of sweet corn, tomatoes, onions and carrots increased (Figure 2.6a and Table 2.2).

**Figure 2.6a U.S. per Capita Consumption of Selected Fresh Vegetables 1980-2000**



Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Vegetables and Specialties Situation and Outlook Yearbook, July 2001*.  
 Economic Research Service, <http://www.ers.usda.gov/publications>

Per capita consumption of vegetables included in Figure 2.6b, although lower than that for vegetables in Figure 2.6a, was much more dynamic between 1980 and 2000, except for celery which decreased at an annual rate of  $-0.7$  (Table 2.2). The leading products in consumption within this group are bell

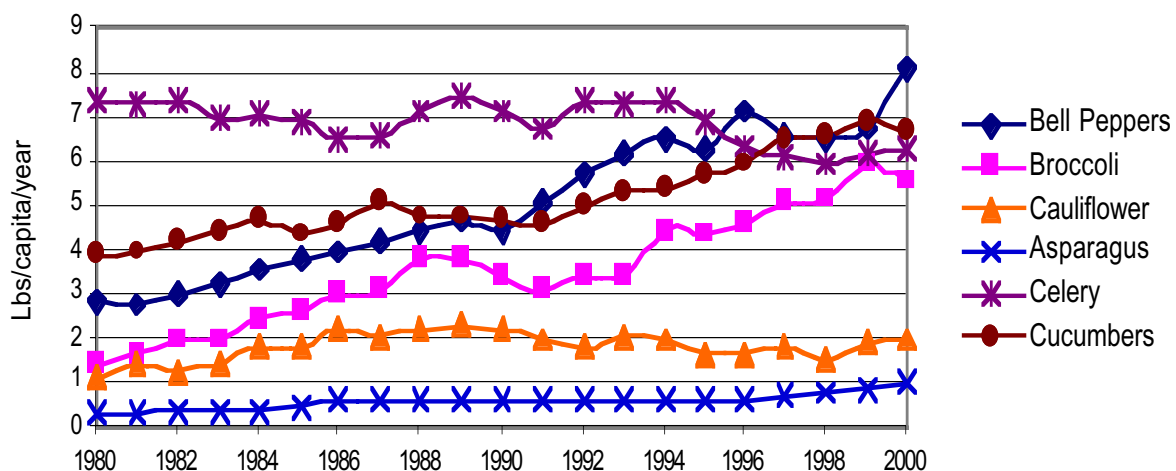
peppers, cucumbers and broccoli, with per capita consumption levels of 8.1 lbs., 6.7 lbs., and 5.6 lbs., respectively, for year 2000 and annual growth rates of 5.1%, 2.6% and 6.1%, respectively, between 1980 and 2000 (Table 2.2).

**Table 2.2 Annual Growth Rates in Per capita Consumption of Selected Fresh Vegetables between 1980 and 2000**

Product	%	Product	%
Total Fresh Vegetables	1.5	Onions	2.8
Broccoli	6.1	Tomatoes	1.7
Bell peppers	5.1	Sweet corn	2.3
Asparagus	4.5	Cabbage	0.3
Carrots	4.3	Head lettuce	-0.2
Cucumbers	2.6	Celery	-0.7
Cauliflower	1.3		

Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Vegetables and Specialties Situation and Outlook Yearbook, July 2001*. Economic Research Service, <http://www.ers.usda.gov/publications>  
 Calculations: Food Industry Management Program, Cornell University

**Figure 2.6b U.S. per Capita Consumption of Selected Fresh Vegetable 1980-2000**



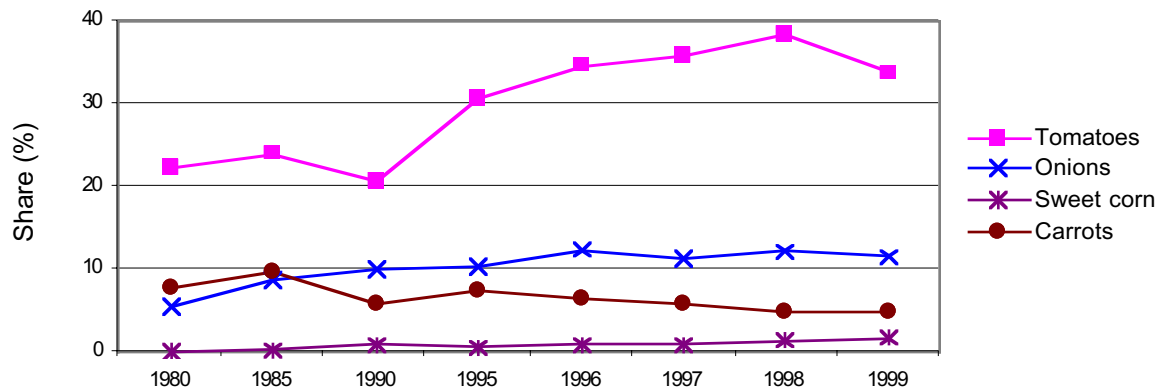
Source: U.S. Department of Agriculture. *Food Consumption, Prices, and Expenditures 1970-1999*. Economic Research Service, <http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>  
*Vegetables and Specialties Situation and Outlook Yearbook, July 2001*. Economic Research Service, <http://www.ers.usda.gov/publications>

## 2.3.1 Imports' Role on U.S. Consumption of Fresh Vegetables

Imports' share of fresh vegetable consumption in the United States increased from 5.4% in 1980 to 10.9% in 1999. As it can be seen in Figures 2.7a and 2.7b, tomato and asparagus have seen the greatest increase in imports' share of consumption

among fresh vegetables. Imports' share of consumption for tomatoes increased from 22.3% in 1980 to 33.7% in 1999 and that for asparagus increased from 10.8% to 57% during this period.

**Figure 2.7a Imports' Share of U.S. Consumption Selected Fresh Vegetables 1980-1999**

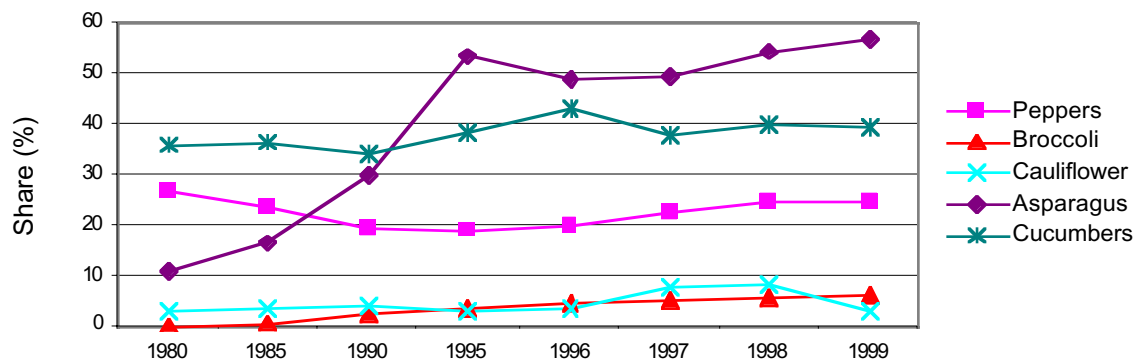


Source: U.S. Department of Agriculture. *Import Share of Food Disappearance for Selected Foods, Selected Years, 1970-1999*. Economic Research Service.  
<http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>

Additionally, imports' share of consumption for onions, broccoli, celery and cucumbers also increased significantly between 1980 and 1999 (Figures 2.7a and 2.7b). It is worth noting that, after

decreasing between 1980 and 1990, pepper imports' share of consumption increased, from 19.7% in 1990 to 24.7% in 1999 (Figure 2.7b).

**Figure 2.7b Imports' Share of U.S. Consumption Selected Fresh Vegetables 1980-1999**



Source: U.S. Department of Agriculture. *Import Share of Food Disappearance for Selected Foods, Selected Years, 1970-1999*. Economic Research Service.  
<http://www.ers.usda.gov/data/foodconsumption/spreadsheets.asp>

Imports of fresh vegetables from Mexico have for many years played an important role in the U.S. vegetable supply during the off-season. However, more recently, imports of greenhouse vegetables from Canada and Holland and the introduction of new varieties to the market have contributed significantly to boost vegetable consumption in the United States. This has been particularly true in the case of tomatoes, bell peppers and cucumbers.

Consumption of tomatoes has seen important increases with the introduction of many new varieties to the market as well as through the success of hothouse tomatoes, which are valued by consumers for their better taste, higher and consistent quality, improved food safety, and year-round availability. Therefore, diversification of the category, wider availability and better overall quality, where imports are playing a key role, are driving the trend of increasing tomato consumption in the United States.

The increase in consumption of peppers has been fueled by the introduction to the U.S. market of bell peppers in different colors and in mini-varieties in recent years, as well as by the popularity of a significant variety of hot peppers, mainly imported from Mexico. Imports of hothouse-grown bell peppers from Canada and Holland have played a significant role in the supply of these products in the U.S. market. So, once again, variety, quality and a year-round supply, aided by imports, have been the major driving forces in increasing per capita consumption of peppers in the U.S. market.

Likewise, consumption of cucumbers has been strongly influenced by the introduction of the

hothouse-grown seedless variety, which has a totally edible bitterless peel with no wax. As with tomatoes and peppers, better and consistent flavor and overall quality, along with wider availability, have contributed to the increasing demand for this product.

Imports' share of consumption for asparagus, which increased the most during the period under study, is the direct result of the increase in its consumption in the United States. Domestic production and exports of this product haven't changed much during the last decade, while per capita consumption increased from 0.6 lbs. in 1990 to 1.0 lbs. in 2000. The increasing demand, therefore, has been satisfied with increased imports.

In the case of broccoli, the increase of its imports' share of consumption from 0.2% in 1980 to 6.1% in 1999, has resulted from the impressive increase in overall consumption during the past decade as well as due to the rapidly increasing exports' business. Increase in per capita consumption in the United States is strongly related to the discovery of broccoli's cancer prevention properties. So, in spite of domestic production in 1999 having grown to twice that in 1990, imports increased almost as much during this period.

Sweet onions, for which consumers have developed a particular interest in the last years, have had a significant contribution to increasing consumption of overall onions in the United States. They are produced domestically and, in order to supply them on a year-round basis, they are imported from the Southern Hemisphere countries during the U.S. off-season.

# Section 3

## The Role of Imported Fruits and Vegetables at Retail

### 3.1 The Importance of the Produce Department

The importance of the produce department in today's supermarkets' operations has been documented by the 2001 *FreshTrack* research project<sup>5</sup>. According to the results of this study, on average, the produce department contributes 10.4% to total store sales and 15.9% to total store profits. These two indicators have increased since 1996 and are projected to increase even more in the future, to 11.4% and 18.7%, respectively, by 2006.

It is worth pointing that, produce's percentage contribution to both total store sales and to total store profits were higher in retail firms with annual sales up to \$1.5 billion than in larger firms, those with annual sales greater than \$1.5 billion (*FreshTrack*, 2001). Contribution to total store sales in 2001 was 12% and is expected by retail produce directors to go up to 13.3% by 2006; contribution to total store profits was 18.4% and expected to increase to 21.1% in the next 5 years. The produce department's relative contributions are apparently greater in these smaller companies due to the relatively less frequent presence of non-food departments (general merchandise, health and

beauty aids, etc.) that tend to be more frequent and larger in bigger retail companies.

Given the very impressive performance of the produce department, it is not surprising to see that both its size and the number of Stock Keeping Units (SKUs), have increased significantly over the last years. On average, the size of today's produce department is at 4,070 square feet, up from 3,686 square feet in 1996 and by 2006 it is expected to have gone up to 4,368 square feet. On the other hand, the number of SKUs has increased from 430 in 1996 to 574 in 2001 and is projected to be 664 by 2006.

The performance of the produce department at retail is linked to the many changes in the food consumption patterns in the United States, influenced by factors such as those mentioned in section 2.1.2. Additionally, increased imports of fresh fruits and vegetables have played an important role in the supply of these products in the U.S. market and therefore, in the performance of the retail produce department.

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<sup>5</sup>Perosio, Debra J., Edward McLaughlin, Sandra Cuellar and Kris Park (2001). *Freshtrack 2001: Supply Chain Management in the Produce Industry*. Produce Marketing Association, Newark, DE.

## 3.2 Retailers' Insights on Imported Fruits and Vegetables

In an attempt to explore retailers' insights on the role of imported fruits and vegetables at the retail level, a survey was sent out by e-mail to 34 of the supermarket companies that participated in the 2001 *FreshTrack* study. A total of 13 companies responded<sup>6</sup>, of which 62% have annual sales over \$1.5 billion while the rest (38%) have annual sales up to \$1.5 billion.

The survey explored several aspects of the role of imported produce in retail produce operations today and expected for the next 5 years. These included the share of imported produce bought by retail companies on an annual basis, the strategic reasons for retailers carrying imported produce, the major sources of these imports and the main issues associated with marketing them.

Since imported produce is a complex category including many types of diverse fruits and vegetables, each with its own marketing characteristics, for the purposes of this survey imports were grouped into four categories: (1) traditional, (2) bananas, (3) tropicals and (4) specialties. "Traditional" was defined as mainstream or common fruits and vegetables imported into the United States. "Bananas" was defined to include only common bananas, not specialty bananas or plantains. "Tropicals" was defined to include pineapple, mango, papaya, avocado, limes and other tropical products (other than exotics), and "Specialties" was defined to include exotic fruits, exotic vegetables, roots and tubers.

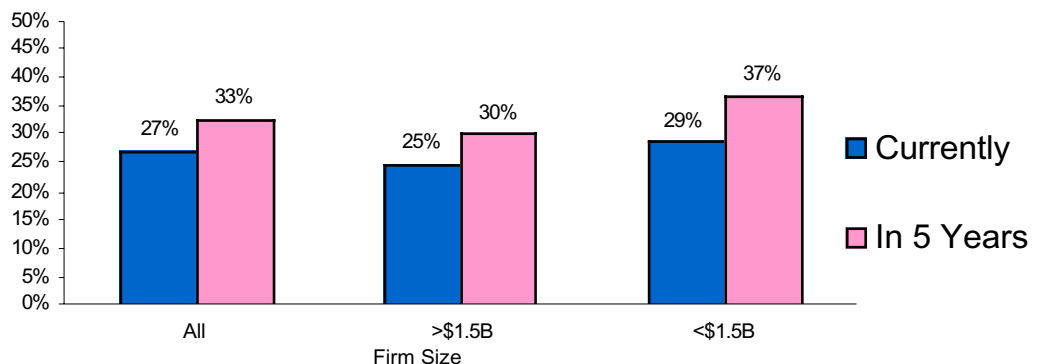
### 3.2.1 Imports' Share of the Produce Department Supply

The first survey question asked participants to identify the share of imported produce in their companies' operations, today and in 5 years. When all firms are considered together, results indicate that retailers rely on imports for 27% of their current produce offer and expect them to grow to a third (33%) of their total offer in 5 years. There is a significant difference between the participating firms in this respect, however. Firms with annual sales up to \$1.5 billion have a greater share of imported produce in their produce department than

larger firms. Currently, smaller firms report 29% of produce sales being accounted for by imports, while they project this figure to be 37% by 2006. Larger firms, however, report only 25% and 30% for the same measures, respectively (Figure 3.1). This reflects perhaps a greater emphasis placed on the produce department by smaller firms, as indicated by the 2001 *FreshTrack* study, and particularly, on items which are mostly imported, such as bananas, tropicals and specialties.

**Figure 3.1**

**Share of Imported Produce in Retail Stores  
% of Total Volume Purchased**



<sup>6</sup> Rate of response of 38%

Bananas currently account for one-half of all imported produce; however, this share is expected to go down to 45% in 5 years (Figure 3.2). When firm size is taken into consideration, a marked difference in the share of this category becomes evident, with a current 42% share in firms with sales above \$1.5 billion and of 60% in smaller firms. In 5 years this share is expected to go down to just a third of imported produce in firms with sales above \$1.5 billion but only slightly, to 58%, in smaller firms.

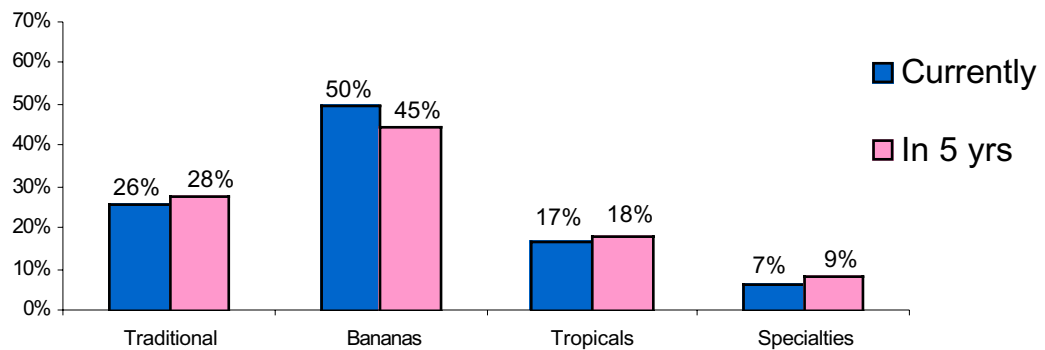
Traditional products is the next most important category among imported produce, with a 26% share currently and expected to grow slightly in 5 years, to 28% when all firms are considered together (Figure 3.2). These products take a bigger share of imported produce in firms with sales above \$1.5 billion, where they amount to one third of the

current offer; they are expected to grow slightly to 36% in 5 years. In smaller firms the share of traditional imported products is currently 17% and is expected to increase just to 18% in 5 years.

On the other hand, tropicals' current share of produce imports is 17%, regardless of firm size (Figure 3.2); in 5 years this share is expected to grow to 20% in firms with sales above \$1.5 billion while in smaller firms it is forecasted to go down slightly to 16%.

Specialties, with the lowest current share (7%) is expected to grow the most in 5 years to 9%, among all firms together (Figure 3.2). In firms with sales above \$1.5 billion they are expected to grow comparatively more, from 7% currently to 11% in 5 years, while in smaller firms they are projected to grow from 5% currently to 7% in 5 years.

**Figure 3.2** Share of Imported Produce by Category—All Firms  
% of Imported Produce Volume Purchased



### 3.2.2 Retailers' Strategies for Carrying Imported Products

A second topic addressed the strategic reasons for retail firms to carry each of the four categories of imported produce. Participants were presented with five strategic reasons for carrying each category: increase in sales, increase in profits, differentiation from competitors, diversification of the produce department and targeting ethnic consumers. Respondents were asked to mark as many options as appropriate for each category and to include any

additional strategic reasons whenever relevant.

As illustrated in Figure 3.3, the main strategic reason retailers have to carry traditional imported produce is to increase sales, while increasing profits and diversification of the department come next, followed by differentiation from competitors. When firm size is considered, all firms with annual sales above \$1.5 billion carry traditional imported

items to increase sales. For 88% of these firms, other reasons to carry traditional products are to differentiate from competitors and to diversify the produce department while 75% carry them to increase profits. For 80% of the smaller firms the main strategic reason to carry traditional imported products is to increase profits.

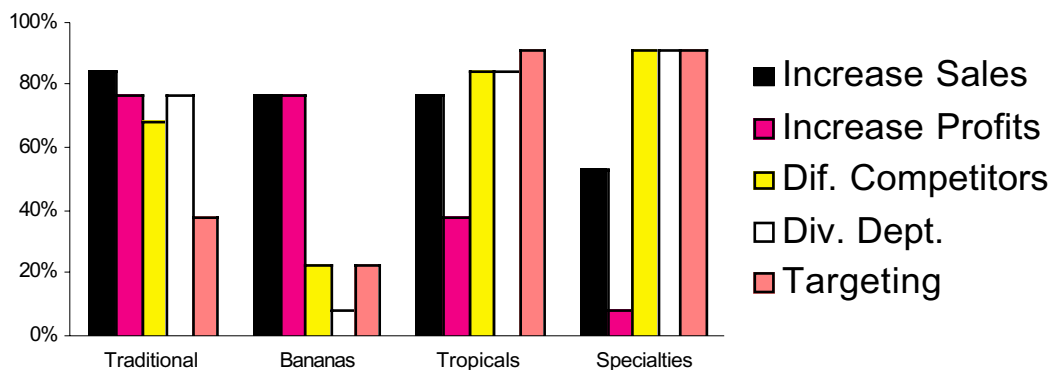
Bananas are carried by 77% of all firms to increase sales and to increase profits (Figure 3.3). However, when firm size is considered the main reason for firms with sales above \$1.5 billion (88%) to carry bananas is to increase sales; for smaller companies, the main reason is to increase profits (80%). This may explain the higher share of bananas among imported produce in smaller firms.

With respect to tropicals, 92% of all retailers carry them to target ethnic consumers while 88% carry them to differentiate themselves from competitors and to diversify the produce department (Figure 3.3). Among firms with sales above \$1.5 billion, 88% indicated targeting ethnic consumers along with increasing sales as their top strategic reasons for carrying tropicals, followed

by differentiation from competitors and diversification of the department. All of the smaller firms in this sample indicated targeting ethnic consumers, differentiation from competitors and diversification of the department, as the three main strategic reasons to carry tropicals.

In the case of specialties, differentiation from competitors, diversification of the department and targeting ethnic consumers were the main strategic reasons to carry this category, for 92% of all respondents. Although these three reasons are shared across firm size, targeting ethnic consumers is the main reason for all firms with sales above \$1.5 billion to carry specialties, while differentiation from competitors and diversification of the produce department are the two main reasons for all of the smaller firms. Only a few firms indicated that increasing sales was a strategic reason to carry specialties and even fewer indicated that increasing profits was a strategic reason to carry them. Of course, this may raise questions about the profitability of imported specialties.

**Figure 3.3 Strategic Reasons to Carry Imported Produce by Category—All Firms**





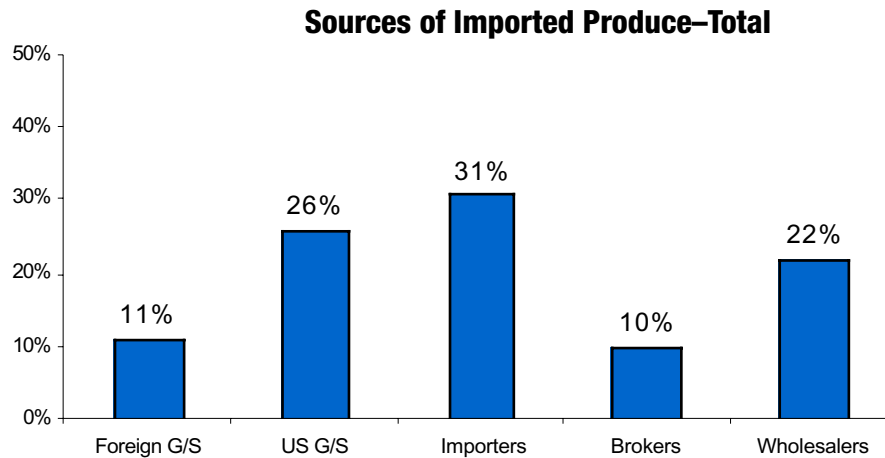
### 3.2.3 Sources of Imported Produce

In an effort to identify how retailers currently obtain their supplies, respondents were asked to indicate the approximate percentage of imported produce purchased from foreign grower/shippers, U.S. grower/shippers, importers, brokers and wholesalers. Additionally, they were asked to indicate any other relevant supplier types not listed.

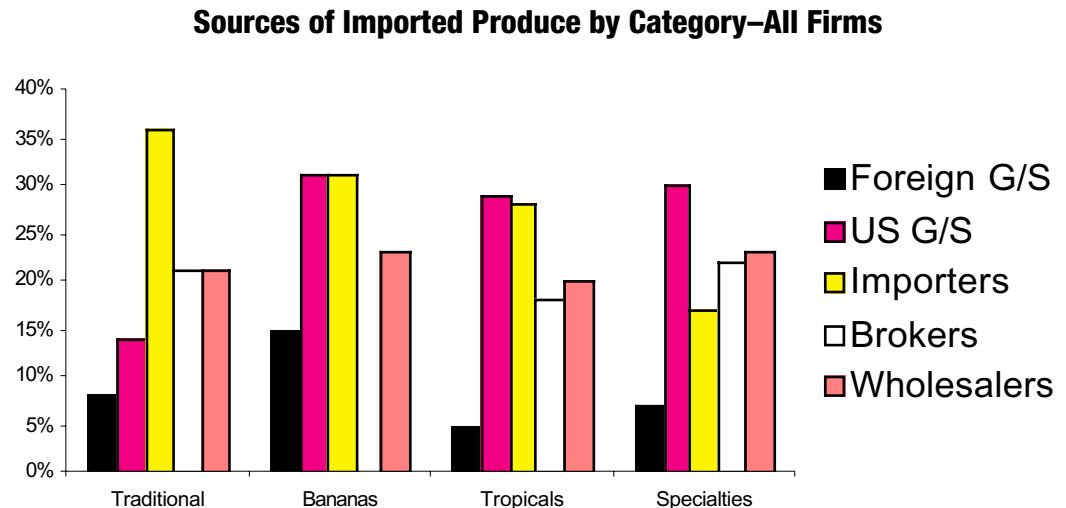
As illustrated in Figure 3.4, importers, with a

share of 31% of the total volume are the major source of supply of imported produce amongst participating retailers, followed by U.S. grower/shippers (26%), wholesalers (22%), foreign grower/shippers (11%) and by brokers (10%). However, the relative importance of these sources varies when each of the four categories of imported produce is considered separately.

**Figure 3.4**



**Figure 3.5**



Importers, with an average share of 36%, are the major suppliers of traditional imported products when all firms are considered together, followed by brokers and wholesalers each with a share of 21% (Figure 3.4). Nevertheless, when firm size is

considered, importers play a much more important role as suppliers of these products to firms with annual sales above \$1.5 billion, at 43%, while in smaller firms wholesalers are the main suppliers, providing 49% of their traditional imported

produce supplies. It is worth highlighting the fact that U.S. grower/shippers play an important role as suppliers of traditional imported produce in firms with annual sales above \$1.5 billion, at a share of 23%.

Sources for bananas for all firms are fairly equally distributed between importers (31%), U.S. grower/shippers (31%) and wholesalers (23%), while share of foreign grower/shippers is significantly lower (15%) and brokers are not at all involved as banana suppliers (Figure 3.4). Sourcing strategies for this product differ significantly between the two firm sizes considered, however. Companies with annual sales above \$1.5 billion get 50% of their bananas from U.S. grower/shippers, 25% from foreign grower/shippers and 25% from importers. Smaller companies get 60% of their bananas from wholesalers and 40% from importers. These results reflect both the specific characteristics of the banana market, where a significant part of the product is handled by multinational companies based in the United States<sup>7</sup>, as well as the negotiating power of bigger firms to purchase directly, while smaller firms go more commonly through intermediaries for their supplies.

The major suppliers of tropicals among all participating firms are U.S. grower/shippers (29%)

and importers (28%), followed by wholesalers (20%) and brokers (18%), with a share of only 5% for foreign grower/shippers (Figure 3.4). Here again, there exist marked differences between the two firm sizes considered. Firms with sales above \$1.5 billion source 45% of their tropicals from U.S. growers/shippers, 34% from importers and 12% from brokers, while smaller firms, again going through more intermediaries, source 50% of their tropicals from wholesalers, 27% from brokers and 19% from importers.

Results indicate too that U.S. grower/shippers play a major role as suppliers of specialties among all the participating firms, with a share of 30%. They are followed by wholesalers (23%), brokers (22%) and importers (17%), while foreign grower/shippers supply only 7% of these firms' demand for specialties (Figure 3.4). The role of U.S. grower/shippers as suppliers of specialties is particularly important in firms with annual sales above \$1.5 billion, where their share is 48%, followed by brokers (21%) and wholesalers (19%). Additionally, these firms indicated they source up to 11% of their specialties needs directly from foreign grower/shippers. Smaller firms, on the other hand, source as much as 58% of their specialties from wholesalers, followed by brokers with a share of 28% and importers at 12%.

### **3.2.4 Current and Future Key Issues in Marketing Imported Produce in U.S. Supermarkets**

Finally, the survey explored retailer perceptions of current and future importance of selected issues associated with marketing of imported produce in the United States. The list of issues proposed to participants included ensuring year-round supply, improving eating quality, introducing new products, introducing new varieties, adding value to products, assuring food safety, reducing shrink,

improving packaging, reducing transportation costs, conducting more promotions and the application of irradiation. For each category of imported produce respondents were asked to indicate which of these issues were key for their firm currently and which are expected to become key in 5 years. Additionally, they were asked to add any other relevant key issues, not listed.

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<sup>7</sup> Considered U.S. grower/shippers

The issues listed in Table 3.1 correspond to those cited by a substantial majority (69% or more) of participating retailers as being key for their firms currently (2001) and to those cited by 38% or more of participants as issues anticipated to become key in the future (2006). In general, the most frequently mentioned issues are listed first.

The key issues indicated by participating retailers in marketing traditional imported products currently are reducing shrink, reducing transportation costs, improving eating quality, assuring food safety, ensuring year round supply, conducting more promotions, introducing new products and introducing new varieties (Table 3.1). The application of irradiation and adding value to products were the only issues anticipated to become key in marketing traditional products in the future.

For bananas, as illustrated in Table 3.1, the main current issues among participating firms are reducing transportation costs, assuring food safety, reducing shrink, improving eating quality and ensuring year-round supply. As with traditional products, the issues anticipated to become key in the future marketing of bananas are: the application of irradiation and adding value to products.

The most prominent current key issues in marketing tropicals among all firms are reducing shrink, reducing transportation costs, assuring food safety, improving eating quality, and ensuring year-round supply. The issues anticipated to become key in marketing these products in the future are the application of irradiation and introducing new varieties (Table 3.1).

**Table 3.1 Key Current (2001) and Future (2006) Issues in Marketing Imported Produce at the Retail Level**

2001			
Traditional	Bananas	Tropicals	Specialties
Reducing Shrink	Reducing transportation costs	Reducing shrink	Assuring Food Safety
Reducing transportation costs	Assuring Food Safety	Reducing transportation costs	Reducing transportation costs
Improving eating quality	Reducing shrink	Assuring Food Safety	Improving eating quality
Assuring Food Safety	Improving eating quality	Improving eating quality	Adding value to products
Ensuring year round supply	Ensuring year round supply	Ensuring year round supply	
Conducting more promotions		Introducing new products	
Introducing new products		Conducting more promotions	
Introducing new varieties			
2006			
Application of irradiation	Application of irradiation	Application of irradiation	Application of irradiation
Adding value to products	Adding value to products	Introducing new varieties	Introducing new varieties

Assuring food safety, reducing transportation costs, improving eating quality and adding value to products are the key current issues in marketing specialties (Table 3.1). In terms of the issues

anticipated to become key in the future, the application of irradiation and introducing new varieties were the most important, among participating firms.



# Section 4

## Suppliers of Imported Fresh Fruits and Vegetables to the U.S. Market

### 4.1 Introduction

With the purpose of characterizing the operations of suppliers of imported fruits and vegetables to the U.S. market, and also, to compare suppliers' perspectives with those of retailers (Section 3), regarding marketing of imported fruits and vegetables in the United States, information on these topics was collected from a select group of U.S. importers and foreign exporters, through a survey.

The survey, administered in person to a convenience sample during the PMA Exhibition held in Philadelphia October 28-30, 2001 focused on identifying suppliers' current business activities, the major types of products they import or export, the strategies they are using to source these products, their marketing channels and, importantly, the issues that they are currently facing in marketing their products, as well as the strategies they are using in addressing those issues.

### 4.2 Importers' Characteristics and Perspectives

A total of nine companies engaged in importing fresh fruits and vegetables to the United States participated in the survey. Eight of these companies

have fresh produce annual sales over \$50 million and one has annual sales in the range of \$20 million to \$50 million.

#### 4.2.1 Activities Conducted by Participating Importers

The first question in the survey focused on identifying the types of activities in which participating companies engage, and furthermore, on identifying whether importing fresh fruits and vegetables was their major business activity. Respondents were asked to mark as many options as relevant to their company and then, to indicate which, among those marked, was their main business activity. The options listed included grower/shipper, importer, exporter, broker, wholesaler, distributor and re-packer.

in at least two of the activities listed, 44% engaged in 3 activities and one of them even indicated engaging in five different activities. While all participating companies engage in importing activities, 89% of them are also grower/shippers and 44% are also exporters.

Among participating companies 44% engaged

With respect to their main business activity, however, over half of participating companies (55%) indicated being mainly grower/shippers while the rest (45%) indicated being mainly importers. Companies that are mainly U.S. grower/shippers import 25% of the produce they sell and

60% of them engage in exporting activities. On the other hand, companies that are mainly importers import 74% of the produce they sell, while at the same time, 75% of them engage in production activities.

These results confirm that U.S. grower/shippers are significantly engaged in importing, either to complement their own production, thereby becoming a year-round supplier, and/or in order to

widen their offer to their clients. These results correspond well with those from the retailers' survey, where U.S. grower/shippers are, in fact, the major suppliers of imported traditional products, bananas and tropicals for participating firms. Another relevant finding is that a high percentage of importers engage in production activities, possibly reflecting their reluctance to depend totally on foreign suppliers for their business.

## 4.2.2 Major Products Imported and Sources

Participating companies handle a wide range of imported produce. Among the four major products imported by them are clementines, navels, lemons, onions, avocados, berries (blueberries, raspberries and blackberries), grapes, kiwis, apples, papayas, mangos, coconuts, melons, hothouse-grown vegetables, latin vegetables, tropical items, jicama, jalapenos, pine nuts and ginger. Countries of origin of the products imported by participating companies are Chile, Mexico, Canada, Spain, South Africa, New Zealand, China, Fiji, Guatemala, Belize, Costa Rica, Brazil, Ecuador, Puerto Rico, the Dominican Republic and El Salvador.

In order to identify the trade channels and processes used by participating importing companies to obtain these products, they were asked to indicate the most important mechanism used in each case, from a list of options. The list included: purchasing from foreign grower/shippers, through contracts with foreign grower/shippers, from importing companies' own production overseas, through product marketing boards, through brokers and through importers. Additionally they were asked to add any other

relevant mechanisms not listed.

On average, 75% of these importing companies purchase their major products from foreign grower/shippers, 25% engage in contracts with foreign grower/shippers and 22% have their own production overseas. It is worth noting that, while purchasing from foreign grower/shippers is the most important mechanism among all importing companies, own production overseas is more important among those companies that are mainly U.S. grower/shippers (30%) while contracting with foreign shippers is more important among companies which are mainly importers, at 38%.

Among the products obtained from U.S. grower/shippers' own production sites, located overseas, are clementines in Spain and South Africa, navels in South Africa, avocados in Mexico, blueberries and raspberries in Chile, papayas in Belize and mangos in Guatemala. Products which are obtained through contracts with foreign grower/shippers include berries from Chile, mangos from Brazil, Ecuador, Puerto Rico, El Salvador and Guatemala, tropical items from Costa Rica, coconuts and melons from the Dominican Republic and asparagus from Peru.

## 4.2.3 Importers' Marketing Channels

In order to establish the marketing channels of participating importing companies in the United States, importers were asked to indicate the percentages of their fresh produce sold to each of

the following customers: wholesalers (terminal markets, produce wholesaler, etc.), major retail chains, full line general wholesalers (eg. Supervalu, Fleming, etc.), small independent grocers, food

service distributors (eg. Sysco, Alliant, etc.) and exporters. Additionally they were asked to add any other relevant customers not listed.

When all importers are considered together, the major customers are major retail chains to which, on average, they sell 55% of their fresh produce. Wholesalers with a share of 14% and full-line general wholesalers at 13%, are the next two most important customers. Food service accounts for 8% of their sales, small independents and brokers for 4% each, and exporters for only 1% (Table 4.1).

When the two types of importing companies, mainly U.S. grower/shippers and mainly importing companies, are considered separately, marketing channel distribution changes somewhat. While major retail chains continue to be the major customer for both, sales of companies which are mainly importers are more heavily focused on this channel (65%), than those of mainly grower/shippers (48%). On the other hand, the latter sell a higher share of their produce to wholesalers (17%) and to food service distributors (12%) than the former (Table 4.1).

**Table 4.1 Share of importers' sales by type of customer in the United States**

	All Importers	Mainly U.S. Grower/Shippers	Mainly Importers
Wholesalers	14%	17%	10%
Major retail chains	55%	48%	65%
Full line general wholesalers	13%	13%	13%
Small independent chains	5%	6%	5%
Foodservice distributors	8%	12%	3%
Exporters	1%	0%	1%
Other: brokers	4%	4%	3%

#### 4.2.4 Current Issues Faced by Importers and Strategies Used to Address them

To identify the key issues that importers currently face with the products they handle, as well as the strategies they are using to address them, and, in order to compare these results with those from the survey to retailers, respondents were presented with a list of key issues. Improving eating quality, introducing new products, introducing new varieties, adding value to products, assuring food safety, product traceability, cold chain maintenance, improving packaging, reducing transportation costs and conducting more promotions, were the issues included in this list. Additionally respondents were asked to indicate any other relevant issues not listed.

The list presented to importers was basically the same as that presented to retailers, except for the exclusion of some issues which are only relevant for retailers and the inclusion of two that are particularly related to importing activities.

Results indicate that while all of the issues listed (except for adding value to products) are currently being addressed by at least 50% of participating importing companies, improving eating quality, assuring food safety, improving packaging and product traceability are the most important issues for 67% or more of these companies (Table 4.2). Differences exist between those companies that are

mainly U.S. grower/shippers and those that are mainly importers, however. As illustrated in Table 4.2, among companies that are mainly U.S. grower/shippers improving eating quality and assuring

food safety are the two most important issues, while for companies that are mainly importers all the options listed constitute current key issues addressed by half or more of them.

**Table 4.2 Marketing Issues Currently Faced by Importers**

	All Importers	Mainly U.S. grower/shippers	Mainly Importers
Improving eating quality	89%	80%	100%
Introduction of new products	56%	40%	75%
Introduction of new varieties	56%	60%	50%
Adding value to products	44%	20%	75%
Assuring food safety	89%	80%	100%
Product traceability	67%	40%	100%
Cold chain maintenance	56%	40%	75%
Improving packaging	78%	60%	100%
Reducing transportation costs	56%	40%	75%
Conducting more promotions	56%	20%	100%

The strategies these companies indicated they employ to address the three main issues: improving eating quality, assuring food safety, improving

packaging and product traceability are listed in Table 4.3.

**Table 4.3 Strategies Applied by Importers in Addressing Key Marketing Issues**

<p><b>Improving eating quality</b></p> <ul style="list-style-type: none"> <li>Working closely with grower/shippers to enhance production practices</li> <li>Better communication with customers</li> <li>Importing at the proper times of the year</li> <li>Developing maturity standards</li> <li>Implementing harvest management techniques</li> <li>Always looking for better tasting crops/varieties</li> </ul>	<p><b>Assuring food safety</b></p> <ul style="list-style-type: none"> <li>Direct relationships with grower/shippers</li> <li>Requiring growers to have HACCP programs</li> <li>Growers' certification</li> <li>Conducting third party audits</li> </ul>
<p><b>Improving packaging</b></p> <ul style="list-style-type: none"> <li>Looking for better ways to present the product</li> <li>Responding quickly to customers' needs</li> <li>Returnable Plastic Containers (RPCs)</li> </ul>	<p><b>Product Traceability</b></p> <ul style="list-style-type: none"> <li>Growers' certification</li> <li>Requiring growers to have HACCP programs</li> <li>Pallet/box ID</li> </ul>



### **4.3 Exporters' Characteristics and Perspectives**

A total of nine foreign companies that export fresh fruits and vegetables to the United States participated in the survey. The countries of origin of these companies, and their corresponding share

in the sample, were Mexico (44%), Canada (22%), Holland (11%), Argentina (11%) and Morocco (11%).

#### **4.3.1 Activities Conducted by Participating Exporters**

The first question in the survey focused on the type of activities performed by participating exporting companies and on identifying the firm's main focus. The list of activities presented to respondents included: independent grower/shipper, grower/shipper cooperative, exporter, broker, marketing board and export promotion board. Additionally, they were asked to include any other activity not listed, relevant to their business.

All participating exporting companies, except for one, indicated being grower/shippers, the exception being a company that operates as a marketing organization for member growers. With respect to their main business activity, 44% indicated being mainly grower/shippers that export their products independently while the remaining 56% operate and export their products under a certain type of grower/shipper cooperative arrangement.

#### **4.3.2 Major Products Exported and Sources**

Participating companies export a wide range of fresh fruits and vegetables to the U.S. market. Among the major products exported by them are mini-vegetables, mushrooms, hothouse grown tomatoes, peppers, eggplants and seedless cucumbers, spinach, broccoli, radishes, green beans, nopales, grapes, apples, stone fruit, blueberries, clementines, navels, papaya and fresh herbs.

In order to identify the most important mechanisms through which these products are being obtained by participating exporters, respondents were asked to indicate the major mechanism used in each case. The mechanisms listed were: own production, production undertaken

through partnership with U.S. investors, production contracted by U.S. buyers, production from cooperative' members and production purchased from other growers. Additionally, they were asked to add any other relevant sources not listed.

The results indicate that, own production and production purchased from other growers, are the two most important mechanisms used by participating companies to get the major products they export. Only among companies operating under a cooperative arrangement (which are bigger in size than the others), do production under contract with U.S. buyers and production undertaken through partnerships with U.S. investors become of importance.

#### **4.3.3 Exporters' Marketing Channels**

To identify the marketing channels through which these companies sell their products in the United States, respondents were presented with a list of possible customers and asked to indicate the approximate volume of their exports sold to each.

The list included importers, brokers, wholesalers (terminal markets, produce wholesalers, etc.), full line general wholesalers (Supervalu, Fleming, etc.), foodservice distributors (Sysco, Alliant, etc.), major retail chains and small independent grocers.

Additionally they were asked to add any other relevant customers.

Results, shown in Table 4.4, are based on information provided by eight of the participating companies. When all exporters are considered together, the major customer group is wholesalers with a share of 40%; exporting companies which are mainly grower/shippers depend on this customer for 55% of their sales while grower/shippers exporting under a cooperative arrangement sell only 31% of their exports to this customer. Importers, brokers and major retail chains are the other three major customers among

participating exporters, at almost the same share.

Major retail chains are a much more important customer for exporters operating under a cooperative type of arrangement than for grower/shippers exporting independently, probably as a result of cooperatives handling larger volumes of products. It is worth noting too, that the latter sell to all the types of customers listed, while grower/shippers exporting independently don't sell any of their exports to either full line general wholesalers, foodservice distributors or small independent grocers (Table 4.4).

**Table 4.4 Share of Exporters' Sales by Type of Customer in the United States**

	All exporters	Grower/shipper Exporters	G/S Coop.Exporters
Importers	19%	17%	20%
Brokers	18%	17%	18%
Wholesalers	40%	55%	31%
Full line general wholesalers	3%	0%	4%
Foodservice distributors	1%	0%	1%
Major retail chains	19%	12%	24%
Small independent grocers	1%	0%	2%

**4.3.4 Current Issues Faced by Exporters and Strategies Used to Address them**

To identify the key issues faced by participating exporters as well as the strategies they are using to address these issues and, in order to compare these results with those from the survey to retailers, exporters were presented with a list of key issues. This list included: improving eating quality, introducing new products, introducing new varieties, adding value to products, assuring food safety, product traceability, improving packaging,

reducing transportation costs and conducting more promotions. Additionally they were asked to indicate any other relevant issues not listed. As with importers, the list presented to exporters was basically the same as that presented to retailers, however, added were several issues particularly related to exporting activities and excluded were some not relevant to this activity.

**Table 4.5 Marketing Issues Currently Faced by Exporters**

	All Exporters	Grower/ShippersExporters	G/SCoop. Exporters
Improving eating quality	44%	33%	50%
Introducing new products	33%	33%	33%
Introducing new varieties	33%	33%	33%
Adding value to products	67%	33%	83%
Assuring food safety	67%	67%	67%
Product traceability	56%	33%	67%
Improving packaging	78%	100%	67%
Reducing transportation costs	44%	67%	33%
Conducting more promotions	33%	33%	33%

As shown in Table 4.5, the issues currently being addressed by 67% or more of all participating exporters are: improving packaging, adding value to products and assuring food safety. There are some differences between grower/shippers exporting independently and grower/shipper cooperatives. For the former, reducing transportation costs is more important than adding

value to products, while for the latter product traceability is an additional important current issue.

Table 4.6 below, includes the strategies being applied by exporters to address the issues of improving packaging, adding value to products, reducing transportation costs, assuring product safety and product traceability.

**Table 4.6 Strategies Applied by Exporters in Addressing Key Issues**

<b>Improving packaging</b>	<b>Assuring food safety</b>
Developing packaging for display purposes	Applying and/or promoting Good Agricultural Practices and HACCP
Adjusting packaging to customers' specific needs	Undergoing certification processes
Using design and/or materials that improve transportation performance and shelf-life	Developing traceability programs
Pre-packaging	
Adding convenience to products	
<b>Reducing transportation costs</b>	<b>Adding value to products</b>
Consolidating cargo with other growers	Putting PLU and UPC codes on products
Packaging improvements to accommodate more boxes per pallet	Improving packaging
Negotiating freights	Developing re-sealable packages
Exploring cheaper transportation alternatives	Improving quality control
Starting own transportation divisions	Developing advertising campaigns
<b>Product traceability</b>	
Tracing members	
Use coding for production lots	



# Section 5

## Summary, Implications and Outlook

### 5.1 The Market for Imported Fresh Fruits and Vegetables in the United States

- Imports of fresh fruits and vegetables in the United States increased significantly during the past decade, at an annual growth rate of 7.8% for fruits (excluding bananas and plantains) and of 8.1% for vegetables (excluding all potatoes). Melons, citrus fruits, mangos and pineapples, among fruits, and tomatoes, peppers, cucumbers, onions, squash, broccoli and cauliflower, among vegetables, are the major products driving this trend.
- Major countries of origin of imported fresh fruits are Mexico, Chile, Costa Rica, Guatemala and Canada. Other countries such as Peru, China, Spain Australia and Brazil, are much smaller suppliers but have been growing rapidly in the recent years. Mexico and Canada are the major foreign sources of fresh vegetables into the United States; Spain, Peru, the Netherlands and Israel are smaller providers of vegetables, but are growing rapidly in recent years.
- Imports of fruits and vegetables lead to both benefits as well as challenges for retailers, shippers and growers in the United States. Moreover, they represent attractive opportunities for an increasing number of foreign countries. The majority of the countries are developing innovative, technological, logistical and marketing strategies in order to compete in this market.

### 5.2 U.S. Fresh Fruits and Vegetables Consumption Trends and the Role of Imports

- Per capita consumption of fresh fruits and vegetables has been on the rise for the past 20 years. Simultaneously, the proportion of this increasing demand that is satisfied with imports has been growing. Major factors influencing consumption trends of fruits and vegetables include a greater awareness of U.S. consumers of the importance of including fresh produce in their diets, the rapidly growing Hispanic and Asian populations in the United States and an increasing interest in new and exotic products among mainstream consumers.
- Among fresh fruits, the highest consumption levels come from bananas, melons and apples; products with the most rapid growth in per capita consumption, between 1980 and 2000, were mangos, limes, papayas, strawberries, pineapples, grapes and melons.

- Year-round availability, improved quality and diversification have been key factors contributing to the observed increase in consumption of these products in recent years. In all cases, imports have been a key contributor to all of these factors.
- Within the vegetable category, head lettuce accounts for the highest level of consumption, but since 1995 consumption has flattened, due to the growing popularity of other lettuce varieties and their incorporation into bagged salads. Tomatoes and onions are the second and third most consumed vegetables in the United States.

Between 1990 and 2000, the vegetables with the highest growth in per capita consumption have been, broccoli, bell peppers, asparagus and carrots.

- As with fruits, wider availability of better quality products, the diversification of certain product categories, and discoveries of the health benefits resulting from the consumption of certain vegetables, all have contributed significantly to boost fresh vegetable consumption in the United States. Again, imports have played a major role in contributing to all of these factors.

### 5.3 The Role of Imported Fruits and Vegetables at Retail

- Imported produce accounts for approximately 27% of the fresh produce sold in supermarkets; it is anticipated to go up to a third of the produce offer in 5 years, according to this study's sample. This share is higher in firms with sales up to \$1.5 billion, confirming their greater emphasis on the produce department and reflecting a greater role for imports, as compared to larger supermarket firms.
- Bananas have the greatest share among imported produce at retail across all firms, at 50% or more currently, but their share is expected to decrease in the next five years. Traditional products are the next most important category at 26% of all imported produce currently and expected to grow slightly to 28% in the next five years. These products play a more important role in firms with sales above \$1.5 billion than in smaller firms, where they have the same share as tropicals. Current share of tropicals is 17% across all firms and this share is expected to grow in the next 5 years only in firms with sales above \$1.5 billion. Specialties have the lowest current share (7%) but are anticipated to grow the most (to 9%) in the next 5 years. Growth of this category is expected to be greater in firms with sales above \$1.5 billion than in smaller firms.
- Strategic reasons to carry each of the four categories of imported produce vary significantly

between firms with annual sales above \$1.5 billion and smaller firms. Among those with sales above \$1.5 billion, traditional products, bananas and tropicals are carried to increase sales; tropicals and traditional products also help them to differentiate from the competitors and to diversify the department while tropicals and specialties are used to target ethnic consumers. Traditional products are the only category carried to increase profits among these firms. On the other hand, in firms with annual sales up to \$1.5 billion, traditional products and bananas are carried to increase profits, while tropicals and specialties allow them to differentiate themselves from competitors and to diversify the department. Among these firms tropicals are also carried as a strategy to target ethnic consumers.

- Regarding the sources of imported products among participating firms, again, there is a significant difference between the two firm sizes. This is probably due to the greater buying power of firms with sales above \$1.5 billion, which buy mostly from U.S. grower/shippers and importers and, even directly from foreign grower/shippers, in the case of bananas and specialties. Smaller firms, on the other hand, obtain their imports mainly through wholesalers and brokers, and to a lesser degree, from importers.

- The key current issues faced by retailers in marketing imported produce for 69%, or more, of participating firms are: reducing transportation costs, assuring food safety and improving eating quality for all four categories of imported produce. Reducing shrink, ensuring year round supply in traditional products, bananas and tropicals; conducting more promotions and the introduction on new products in traditional products and tropicals and, additionally, the introduction of new varieties in traditional products and adding value to products in specialties.
- The major issue that all participating firms anticipate to become key in the future, across all categories of imported products, is the application of irradiation. This is followed by adding value to traditional products and bananas and by the introducing new varieties in tropicals and specialties.

## 5.4 Suppliers of Imported Fresh Fruits and Vegetables to the U.S. Market

### Importers' Characteristics and Perspectives

- All of the importing companies which participated in the survey engage in two or more activities and, while 45% consider themselves mainly importers, 55% indicated they are mainly U.S. grower/shippers. Interestingly, those companies that are mainly importers show a high degree of involvement in production activities, probably as a strategy to reduce their dependence on suppliers. On the other hand, the involvement of U.S. grower/shippers, in importing activities confirms a common trend observed in the industry: U.S. grower/shippers importing produce to either complement their own production for a year-long supply, or, in order to diversify their offerings.
- For 75% of both types of importing companies participating in the survey, mainly importers and mainly U.S. grower/shippers, the main mechanism by which they get the products they import is from foreign grower/shippers. However, while mainly U.S. grower/shippers also engage in own production overseas as another source of supply, importers engage in contracts with foreign suppliers. Products that are obtained by mainly U.S. grower/shippers from own production overseas, tend to be citrus, avocados, berries, papayas and mangos. Products sourced through contracts by importers are berries, mangos, tropical items, melons and asparagus.
- By far the principal customers across all participating importing firms are major retail chains. Companies that are mainly importers sell a higher share of their imports to these customers than do mainly U.S. grower/shippers. Wholesalers and full line general wholesalers are the second most important customers for all of the participating importing companies, altogether, accounting for a quarter or more of their total sales.
- According to this study's sample, the main issues currently facing importers are improving eating quality, assuring food safety, improving packaging and product traceability. Beyond these four issues, there is a significant difference in the importance assigned to key issues by the two types of importing companies. While improving eating quality and assuring food safety are the two major current issues for mainly U.S. grower/shippers, for those which are mainly importers all of the issues listed are faced by half or more of the companies. Thus, it appears that mainly grower/shippers may be less customer-oriented and more concerned with production related issues.
- These results indicate that importing companies, in general, assign similar priorities to improving eating quality and assuring food safety as retailers do, but not to reducing transportation costs.

- Additionally, they indicate that half or more of the companies which are mainly importers currently address all of the issues cited by retailers as key to their operations and, even more.
- The strategies being developed to address the issue of improving eating quality include better communications with suppliers and customers, innovation and the application of technology as well as improving planning. With respect to assuring food safety, strategies include direct relationships with suppliers, the implementation of Good Agricultural Practices (GAPS) and even HACCP systems, growers' certification and 3rd party audits. These strategies are very similar to those being developed for product traceability, incorporating package identification techniques. Finally, strategies mentioned in improving packaging address the need to respond to customers, merchandising and logistic needs.

### **Exporters' Characteristics and Perspectives**

- All exporters participating in the survey, except for one, are directly involved in field production activities. The exception is a company that markets cooperative member growers' production internationally. Among the total number of companies, 44% are mainly grower/shippers exporting independently and 56% operate under some type of cooperative agreement.
- The main source for the products that these companies are exporting are: own production and buying from other growers. Only companies operating as cooperatives (thereby bigger in size) engage in contracts with U.S. buyers and in partnerships with U.S. investors. Most of the grower/shippers exporting independently reported buying products from other growers, which constitutes a competitive strategy to increase the volume of their exports.
- The type of customers to which participating exporters sell their products varies depending upon their type of operation. While for all companies, considered together, the major customers are wholesalers, it is a much more important client for grower/shippers exporting independently, at 55%. The other two major customers for the latter are importers and brokers, followed by major retail chains. Grower/shipper cooperatives sell to more customers; major retail chains are their second most important customer, followed by importers and brokers. Possibly the larger volumes or wider assortment carried by grower/shipper cooperatives allows them to sell directly, more easily to the major retail chains.
- Among the issues that exporting companies are currently addressing, the most important are improving packaging, adding value to products and assuring food safety. Additionally, reducing transportation costs is an issue being addressed by grower/shippers exporting independently while product traceability is being addressed by grower/shipper cooperatives. These results may imply a greater need among the smaller exporting companies to reduce their costs in order to increase their competitiveness and reflect that grower/shipper cooperatives are focusing the market more closely and concerned about their liabilities.
- These results indicate that exporters are currently assigning the same priority as retailers to assuring food safety and reducing transportation costs, but not to improving eating quality. Adding value to products, a pursuit of most grower/shipper cooperatives, will become important in the next 5 years in traditional imported products and bananas, according to retailers' responses.
- Strategies applied by exporting companies in addressing improving packaging relate to improving their response to customers, merchandising and logistics needs, which corresponds well with the way that importers are addressing this issue. Likewise, the strategies to assure food safety rely on the implementation of Good Agricultural Practices (and even HACCP systems) and on growers' certification. To reduce transportation costs, exporting companies are



working at ways to reduce freight costs and to identify low-cost transportation alternatives. The means by which these companies are trying to add value to products include improving quality,

package development, PLU and UPC coding and even advertising. Product traceability involves tracing members and products.

## 5.5 Implications and Outlook

- As U.S. consumers' awareness of the benefits of consuming fresh fruits and vegetables and their interest in new and exotic produce increases, and as Hispanic and Asian populations contribute to an increasing demand, retailers' business in produce is likely to continue to grow.
- While the produce department continues to be one of the most profitable in today's supermarkets, and as consumers' choice of supermarket becomes increasingly linked to its produce department, retailers will continue benefiting from the increasing variety and availability of imported fresh fruits and vegetables.
- It is in retailers' best interest, therefore, to better coordinate efforts with their suppliers in addressing both current and future issues related to marketing of imported fruits and vegetables.
- Consumer and retailer interest in fresh fruits and vegetables and the increasing trend in consumption in the United States represent key business opportunities for current suppliers of imported products. At the same time, these opportunities attract potential new suppliers, bringing about keen competition. It is in current suppliers' interest to better focus on their target market needs and to coordinate with their customers' efforts needed in addressing their key current and future issues in marketing imported produce.
- As U.S. grower/shippers increasingly engage in imports and in their own production of fresh fruits and vegetables overseas, exporters should be working at strengthening their competitive position in the market both through their customers or through alliances with other exporters, importers or even with U.S. grower/shippers.
- On the other hand, U.S. growers, who are not currently engaged in imports and do not plan to do so in the future, would do well to strengthen their competitive position within the U.S. market, making the best use of their knowledge of and close proximity to the market. They should look to imports not only as a source of competition, but as a factor positively impacting both overall consumption trends and consumers' and retailers' interest in fresh produce.
- In order to derive recommendations that will help retailers and importers in the United States, as well as exporters in foreign countries, to achieve greater success in marketing of imported produce, further research and experimentation into the topics examined through this exploratory study should be initiated.

**APPENDIX**

**TABLE A1**

**UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREIGN AGRICULTURAL SERVICE  
HS 6-DIGIT IMPORTS**

AREA/COUNTRIES OF ORIGIN AND COMMODITIES IMPORTED GENERAL IMPORTS		Quantity in Metric Tons - Values in 1000 dollars			
		1999		2000	
		Quantity	Value	Quantity	Value
WORLD TOTAL	BANANAS	4,508,582.70	1,174,916	4,246,306.80	1,102,869
	MELONS, FRESH	702,687.50	232,612	690,763.90	208,364
	GRAPES, FRESH	383,528.00	538,860	469,686.00	552,437
	PINEAPPLES	283,097.00	120,606	318,836.90	129,907
	GUAVAS, MANGOES	220,046.40	146,959	239,051.30	146,142
	LEMONS AND LIMES	179,207.20	64,119	208,241.30	71,760
	WATERMELONS, FRESH	218,477.30	56,321	202,283.10	50,751
	APPLES, FRESH	164,167.30	112,032	163,894.20	92,310
	MANDARIN, CLEMENTINE	90,392.40	102,535	96,296.10	108,934
	PEARS, FRESH	89,825.40	78,270	93,671.80	80,666
	AVOCADOS	55,275.10	72,647	78,532.80	107,694
	PAPAWS (PAPAYAS)	66,479.20	44,463	69,886.50	46,614
	FRUITS AND NUTS FRZ	55,730.50	70,262	54,278.00	74,090
	KIWIFRUIT, FRESH	44,740.30	39,396	51,831.60	36,134
	FRUITS, FRESH NES	39,960.10	33,895	49,028.10	44,726
	ORANGES	103,923.90	81,854	46,696.50	41,366
	PEACHES, NECTARINES,	48,533.90	43,089	44,359.20	40,047
	CRANBERRIES	43,527.10	47,051	43,231.30	53,290
	STRAWBERRIES, FRZ	45,899.60	41,967	37,735.20	32,268
	STRAWBERRIES, FRESH	42,997.30	63,315	34,580.40	53,451
	PLUMS, SLOES, FRESH	26,704.90	26,098	23,683.10	23,827
	GRAPES, DRIED	24,737.50	29,229	14,271.60	17,899
	RASPBERRIES, FRZ	12,464.80	18,072	12,130.10	17,013
	GRAPEFRUIT	8,737.70	992	10,040.40	964
	RASPBERRY, BLACKBERR	7,567.10	18,985	9,086.60	26,676
	DATES	5,019.00	4,652	4,667.50	4,102
	FIGS	3,781.50	5,799	4,243.90	6,335
	CHERRIES, FRESH	2,611.70	6,815	2,785.90	7,105
	APRICOTS, FRESH	1,029.10	2,057	1,610.00	3,566
	CITRUS FRUITS, FRESH	229.2	480	855.5	1,278
	CURRENTS, BLK, RED, WHT	222	1,242	7.7	33
TOTAL		7,480,182.50	3,279,589	7,322,573.30	3,182,617

Data Source: Department of Commerce, U.S. Census Bureau, Foreign Trade Statistics

\*\*\*\* WARNING \*\*\*\*

Users should use cautious interpretation on QUANTITY reports using mixed units of measure. Commodity groups on a value report will reflect a total of all statistics for each commodity in the group in DOLLARS, whereas a QUANTITY line item will show statist

TABLE A2

**UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREIGN AGRICULTURAL SERVICE  
HS 6-DIGIT IMPORTS**

AREA/COUNTRIES OF ORIGIN AND COMMODITIES IMPORTED GENERAL IMPORTS		Quantity in Metric Tons - Values in 1000 dollars			
		1999		2000	
		Quantity	Value	Quantity	Value
WORLD TOTAL	TOMATOES, FRESH	740,741.60	689,392	730,005.90	640,240
	PEPPERS, FRESH	342,106.90	328,390	346,657.70	455,697
	CUCUMBERS, GHERKINS	340,029.90	141,880	346,255.30	177,296
	VEGETABLES, FRESH	284,350.50	167,233	297,273.70	197,399
	VEGETABLES, FROZEN	297,040.10	216,340	273,196.30	199,284
	ONIONS AND SHALLOTS	261,641.90	142,574	216,200.50	136,661
	EDIBLE BRASSICAS NES	100,575.40	38,010	112,135.70	45,646
	CARROTS AND TURNIPS	84,052.20	25,027	76,232.30	20,238
	ASPARAGUS, FRESH	64,539.40	110,385	72,293.10	114,826
	AUBERGINES, FRESH	32,426.80	21,983	38,917.50	24,084
	FROZEN VEGETABLE MIX	30,457.30	26,258	31,536.00	28,555
	CELERY, FRESH	38,318.80	9,348	29,195.80	10,466
	GARLIC, FRESH	43,369.30	45,818	28,709.40	27,445
	BEANS, FRESH	24,031.20	30,293	26,968.10	29,380
	BEETROOT,SALSIFY	19,079.50	14,658	21,994.90	18,010
	PEAS, FROZEN	20,111.30	18,424	19,250.40	16,385
	MUSHROOMS, FRESH	10,907.50	28,473	16,639.10	37,343
	PEAS, FRESH	14,125.60	17,590	15,499.90	14,200
	BEANS, FROZEN	12,564.50	12,169	15,129.30	15,364
	LETTUCE, FRESH	12,886.30	7,898	14,861.50	12,762
	CABBAGE LETTUCE	13,118.00	6,209	14,453.80	7,511
	SWEET CORN, FROZEN	10,955.70	9,306	9,378.40	8,492
	CAULIFLOWERS FRESH	7,938.10	3,527	7,934.20	3,698
	BRUSSELS SPROUTS, FR	6,543.10	5,476	6,923.40	5,174
	LEGUMES, FRESH	4,148.40	3,895	4,172.00	3,435
	CHICORY, FRESH	3,227.40	4,996	3,359.10	4,359
	SPINACH, FROZEN	3,148.50	2,004	3,285.30	2,231
	SPINACH FRESH	1,636.10	1,080	3,280.80	3,186
	LEGUMES, FROZEN	3,950.50	6,408	3,217.80	4,321
	LEEKs, FRESH	3,151.60	3,034	2,808.50	3,380
	WITLOOF CHICORY, FR	2,316.70	5,678	2,499.80	4,146
	GLOBE ARTICHOKEs, FR	1,548.80	1,447	1,631.70	872
	POTATOES, FROZEN	1,448.80	1,274	1,234.80	1,138
	TRUFFLES, FRESH	8.6	3,634	7.4	2,563
TOTAL		2,836,496.30	2,150,112	2,793,139.60	2,275,787

Data Source: Department of Commerce, U.S. Census Bureau, Foreign Trade Statistics

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2001-06	Dairy Farm Management: Business Summary, New York State, 2000	(\$12.00)	Knoblauch, W. A., L. D. Putnam, and J. Karszes
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2000-04	The Decision to Enter Consumer Direct Initiatives by Supermarket Companies	(\$25 ea.)	Park, K. and J.L. Park
2000-03	Business Summary New York State 1999	(\$12 ea.)	Knoblauch,W.A., L.D. Putnam and J. Karszes
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