



# Agricultural Economics Report

No. 626

May 2006

**U.S. FRESH PRODUCE WHOLESAL SECTOR TRADE  
PRACTICES:**

**INITIAL SURVEY RESULTS**

by

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# **U.S. Fresh Produce Wholesale Sector Trade Practices: Initial Survey Results**

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## **I. Background**

The wholesale sector is an intermediate stage in the supply chain of fresh produce. In general, business operations in this sector do not transform a specific product, but rather provide services related to the sale of the product. The term 'wholesaler' refers to all merchants that are part of this intermediate stage in the supply chain; namely, wholesale merchants, distributors, jobbers, shippers, import/export merchants, agents, brokers, commission merchants, and other types of intermediaries (US Census 2004). This definition of wholesalers, however, does not accurately depict all the activities and relationships participants in this supply chain sector develop. Hence, in order to be consistent with a correct terminology and to understand the results presented in this report, the use of 'intermediaries' throughout this paper refers to all participants including grower-shipper/distributors, brokers, custom service providers and wholesalers.

Changes in fresh produce distribution and management have created new forms of commercial relationships between suppliers and intermediaries. In some cases, these changes represent valuable opportunities for business, beyond the simple demand for additional marketing services. Presently, most intermediaries are providing services not only to their customers, but also assisting suppliers in order to comply with the latest industry norms. Practices such as short-term verbal agreements and sourcing from spot market are becoming less relevant to more commitment-based relationships among suppliers and wholesalers.

Over the years, several authors have documented major factors that have promoted changes in fresh produce markets and the wholesale and distribution system (Dimitri *et al*, Kaufman *et al*, Cook, Calvin *et al.*, Handy *et al.*). Some of these factors include, but are not limited to, consolidation at the retail level which prompted a rapid consolidation at the wholesale level, technological change in production and marketing, and growing consumer demand for quality and variety. All of these factors have altered the wholesale system and the role intermediaries play in the supply chain

Other studies of trade practices in fresh produce have primarily focused on trade relationships and practices between supermarkets and growers/shippers. For example, results from a survey of lettuce shippers in the west found concern about the growing consolidation of supermarkets which could create an incentive to charge shippers with slotting fees or some other form of marketing cost (Glaser *et al*; Park and McLaughlin). A different study of fresh produce distribution in the west found that trade practices between supermarkets and shippers were variable and depended on the kind of commodity traded (Richards and Patterson).

Although consolidation at the retail level poses significant challenges to intermediaries, it is also true that the at all levels of the marketing channel there is still a strong reliance on these traders (Hinson *et al.*). According to Perosio *et al*, one of the main characteristics of big supermarkets (i.e., total sales over 1.5 billion dollars) is the

use of produce buyers and category managers be employed by the supermarket, or who work through some formal agreement with the supermarket. Nevertheless, around 25 percent of the produce supply is purchased through brokers or some other intermediary (Perosio *et al.*) Small supermarkets (i.e, total sales less than 1.5 billion dollar) still rely on intermediaries when sourcing most of their fresh produce (Perosio *et al.*).

Based on the literature regarding wholesale trade and intermediation in the fresh produce supply chain, the objective of this research is to add to the information available focusing on the relationship between suppliers of fresh produce (growers) and intermediaries. This research explores the tools intermediaries utilize to adapt to changes in the industry and future practices that would likely dominate business relationships with suppliers and buyers of fresh produce.

This report documents responses to a survey of produce intermediaries. Section II provides a description of survey participants; Section III documents changes and expectations for trade practices between the wholesale sector and its suppliers. Section IV describes relationship with wholesale customers.

## **I.1 Methodology**

The data in this research was collected in 2005 during a survey of fresh fruit and vegetable wholesale firms across the U.S. A web-based survey was developed and administered to a sample of approximately 3,000 individuals and firms listed in a public industry directory of wholesalers, intermediaries, brokers, consultants and other businesses. Out of the total number of respondents, certain individuals reported they were no longer involved in fresh produce distribution or trade, thus, they were not included in the sample. A total of 99 responses were collected representing 3.2 percent response rate.

The survey instrument included questions regarding business operations, category of products handled, and expectations with respect to future product handling. Questions about trade practices focused on relationships with suppliers, but also included some questions about current and future relationships with customers.<sup>1</sup> Concerning relationships with suppliers, respondents were asked about requirements for services (e.g., third-party certification, use of quality standards), structure of transactions (e.g., terms of payments, use of verbal agreements) and services provided to suppliers (e.g., assistance on packaging and transportation).

The analysis of responses was conducted using the software SPSS and Excel. Frequencies of response were tested using T-test, and cross-tabulations were tested using a Chi-squared process.

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<sup>1</sup> The future in this research represented what respondents answered they expected five years from 2005. Similarly, the past represented what they experienced five years prior to 2005.

## 2. Survey Participants

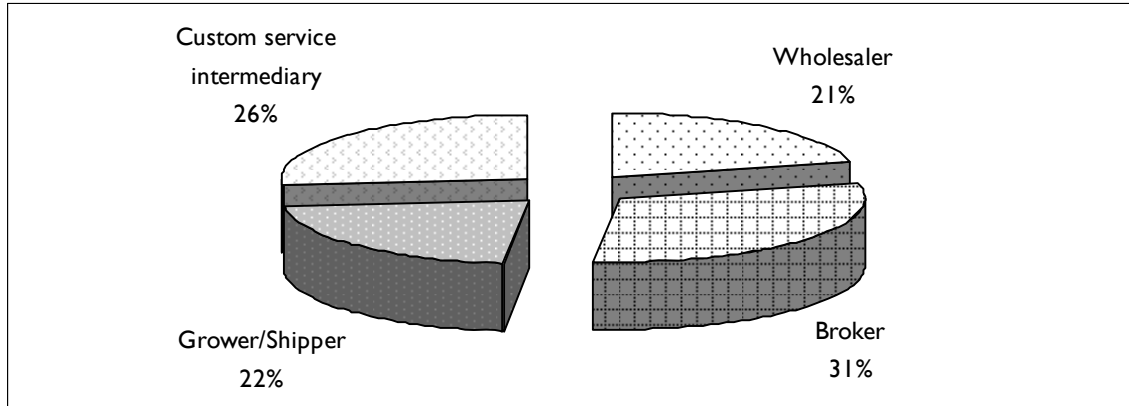
### 2.1. Business Description

The scope of activities performed makes the categorization of intermediaries extremely difficult. Some wholesalers perform different tasks simultaneously, without limiting their participation in the supply chain to a single category of business. Previous literatures has provided useful definitions based on services wholesalers provide to their clients, using their own definitions combined with the US census category of wholesaler (Appendix I). However, in previous interviews with wholesalers and merchants it was clear that any categorization would not include all participants or would not accurately specify what service they provide to their customers and suppliers (Arellano and Martinez). In the survey, participants were asked to select a business category that best described their operation considering the characteristics presented in Table 1.

**Table 1. Definition of Different Category of Business**

<b>Category of Business</b>	<b>Characteristics</b>
Wholesaler	Selling to other businesses and normally operating from a warehouse.
Grower-shipper-distributor	Growing and distributing own fruit and/or vegetable production. This category includes grower cooperatives, and growers that do their own marketing.
Broker	Arranging for the purchase or sale of goods by others. This category includes commission merchants, exporters, importers, buyers, consolidators, and consultants.
Custom service intermediary	Arranging specific services for customers. This category include processors, cold storage companies, non-profit organizations helping with marketing, marketing companies, wholesale markets, specialty food retailers, allied suppliers, distributors, forward integrated wholesalers, broad-line intermediaries reporting having handled fresh fruit or vegetables.

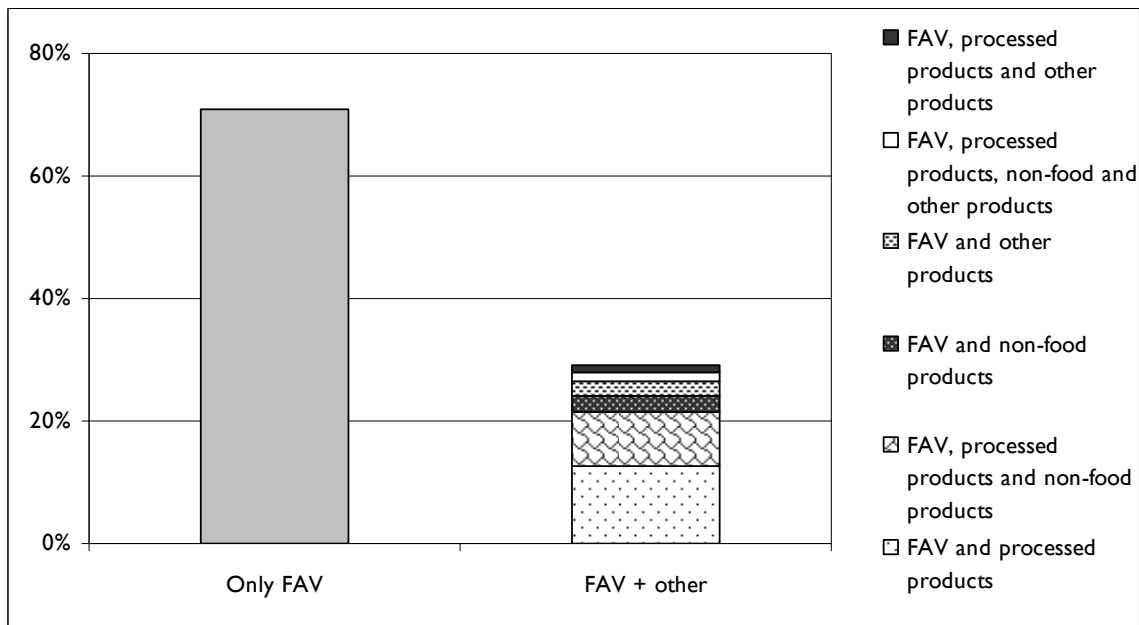
The highest percentage of participants categorized themselves as brokers (31 percent), followed by custom service intermediaries (26 percent), grower-shippers (22 percent), and finally wholesalers (21 percent) (Figure 1).



**Figure 1. Percentage of Participants by Business Category**

Among the 99 respondents, only 79 participants reported handling fresh produce. Responses from these 79 intermediaries were further analyzed since the purpose of this study was to understand the practices of wholesalers in the fresh produce industry.

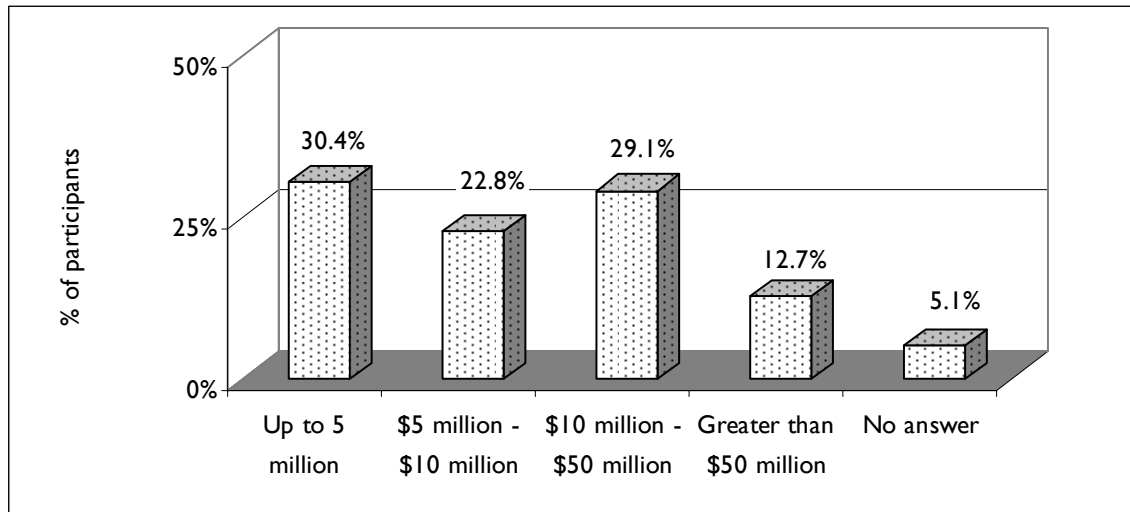
Out of the total number of valid participants, 70 percent of respondents handled only fresh fruit. The remaining participants (30 percent) handled other merchandise in addition to fresh food and vegetables. Among participants handling other merchandise, 13 percent handled processed food products, 9 percent handled processed food and non-food merchandise (e.g., floral), 2.5 percent handled other products (e.g., fresh herbs), 1.3 percent handled processed products and other products, and 1.3 percent handled all products including processed products, non-food products and other products (Figure 2)



**Figure 2. Percentage of Respondents by Merchandise Handled in 2004.**

FAV = Fresh fruit and vegetables

Based on the value of fresh produce sales, most respondents (30.4 percent) had sales of less than \$5 million annually, while med-size businesses (i.e., sales ranging from \$5 to 10 million and \$10 to 50 million dollars) represented 22.8 percent to 29.1 percent of respondents. Approximately 13 percent of respondents reported annual fresh produce sales of more than \$50 million dollars (Figure 3).



**Figure 3. Percentage of Participants by Value of Annual Fresh Produce Sales.**

Intermediaries provide a variety of services in the supply chain including those considered 'traditional' such as storage and re-sale, and more specialized services such as packing, re-packing, processing, fresh-cut processing, exports shipping and specialized distribution to retail stores. Table 2 presents a summary of different services provided by respondents and by business category.

**Table 2. Percentage of Respondents Providing Different Type(s) of Service(s), by Category of Business, 2004\***

Service	Number of respondents providing service	Business Category			
		Wholesaler	Broker	Grower/Shipper	Custom Service Intermediary
		-----%-----			
Shipping	51	22	31	37	10
Distribution	43	28	28	26	19
Warehousing	37	38	22	27	14
Wholesaling	35	46	26	17	11
Packing	35	17	26	51	6
Re-packing	26	42	27	15	15
Exports	23	22	39	26	13
Fresh-cut processing	13	23	15	31	31
Processing	8	25	13	38	25
Other	8	0	25	0	75

\*The number of respondents in this table is greater than the total number of participants because each respondent could have provided multiple.

When services offered by these intermediaries are considered, 51 respondents offered shipping or transportation of products, 43 offered distribution of products from the production point to final destination (e.g., retail or food service), 37 offered a warehouse to store products, and 35 offered the service of intermediation or wholesaling. Other activities that required some transformation of bulk products included packing (35 respondents), re-packing (26 respondents), fresh-cut processing (23 respondents) and processing (8 respondents). Export services were offered by only 23 intermediaries who answered the survey (Table 2).

Within the group of intermediaries offering shipping services (51 respondents), 37 percent were categorized as grower/shippers, 31 percent were brokers, 22 percent were wholesalers, and only 10 percent were custom service intermediaries. In the group of respondents who reported providing distribution services, 28 percent were wholesalers, 28 percent brokers, 26 percent grower/shippers, and 19 percent custom service intermediaries. Similarly, out of those respondents who offered warehousing of product, 38 percent were wholesalers, 27 percent grower/shipper, 22 percent brokers and 14 percent custom service intermediaries (Table 2). The variety of services provided by intermediaries confirmed what other authors have pointed out as main

changes in this sector. Intermediaries are required to perform more services in order to maintain their competitiveness (Cook; Calvin *et al*; McLaughlin *et al*; Hinson *et al*)

Intermediaries also perform services outside their traditional role. For example, out of the total number of respondents providing processing services<sup>2</sup>, 25 percent described themselves as wholesalers, 38 percent were grower-shippers, and 13 percent were brokers. Other non-traditional activities performed by intermediaries are packing, re-packing, exports, and other marketing activities. Out of 26 respondents offering re-packing services, 42 percent were wholesalers, followed by 27 percent brokers, and 15 percent each grower/shipper and custom service intermediaries. Out of 23 respondents providing export services, 39 percent classified themselves as brokers, 26 percent were grower/shipper, 22 percent wholesalers and 13 percent custom service intermediaries. Other more marketing related services were exclusively provided by custom service intermediaries and brokers (Table 2).

Results presented here indicate the variety of services intermediaries are currently offering, without limiting their business to traditional services. Intermediaries are expanding to offer other services such as fresh-cut processing, exports, distribution to retail outlets and others.

## **2.2 Fresh Product Categories**

In 2004, top product categories in terms of annual volume handled were evenly distributed between fruits and vegetables. Ten percent of all respondents indicated the main category of product in terms of volume handled was potatoes, followed by apples (7.6%), citrus (7.6%) and tropical fruits (7.6%). Four out of 79 participants answered their top products included solanaceae<sup>3</sup> and watermelons. Three out of 79 each indicated their top product was bananas, berries, green leafy, red peppers and spices and herbs. Other respondents (16.5%) did not select a top fresh product category. For 12 respondents (15.2%) their top product category was 'specialty fruit and vegetable' such as Chinese-oriental products, mushrooms, spices and herbs and tropical fruits (Table 3).

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<sup>2</sup> Processing is considered a non-traditional service provided by intermediaries

<sup>3</sup> The Solanaceae family has been highly cultivated over the years - it includes tomatoes, eggplant, sweet peppers, chili peppers (but not black pepper), and others. For the purpose of this study this group includes tomatoes and eggplants.

**Table 3. Products Handled by Number of Respondents and Business Category, 2004**

Product	Number of respondents handling products		Percent handling product by business category***			
	As primary product*	Handling product**	Wholesaler	Broker	Grower / Shipper	Custom Service Intermediary
			----- (%) -----			
Apples	6	35	37	26	9	29
Bananas	3	16	44	6	0	50
Beans and Peas	2	30	40	13	17	30
Berries	3	28	32	18	11	39
Brassicas	1	26	46	8	15	31
Chinese Produce	2	19	42	16	11	32
Citrus	6	34	35	24	12	29
Cucurbits	1	23	48	13	9	30
Grapes	2	30	37	27	3	33
Greens	3	24	38	4	21	38
Melon	2	29	41	21	10	28
Mushroom	1	15	47	7	0	47
Onions	2	32	41	9	22	28
Peppers	3	34	38	21	9	32
Potatoes	8	32	44	13	16	28
Roots	2	19	42	11	16	32
Solanaceae	4	23	48	9	4	39
Spices and Herbs	3	15	53	0	0	47
Squash	1	27	44	19	11	26
Stone fruits	1	33	36	18	12	33
Tropical fruits	6	30	37	30	3	30
Watermelon	4	26	38	19	12	31
Zucchini	0	23	52	17	9	22
Other <sup>Δ</sup>	0	15	20	40	20	20

\*The number of people handling product as primary product is out of the total number of respondents (79). For example, out of 79 valid responses, 6 respondents handled apples as primary product. 13 people did not select a primary product.

\*\* The number of respondents in this column represents all the respondents who answered handling the product.

\*\*\* The percent in these columns is out of the total number of people who answered handling the product. For example, out of 35 respondents who handled apples, 37 percent were wholesalers, 26 percent were brokers, 9 percent were grower shippers, and 29 percent custom service intermediary.

<sup>Δ</sup> The Chi-squared test on the cross-tabulation (product by category of business) is not statistically significant, meaning there is not enough data to support a relationship between other product handled and category of business

Rarely if ever, do intermediaries handle items in only one product category. Approximately ten percent of respondents reported handling all the product categories presented in the survey. In 2004, more than 40 percent of participants reported they handled apples, citrus, peppers, stone fruits, onions and potatoes. Thirty to 38 percent of participants handled beans and peas, grapes, tropical fruits, melons, berries, squash.

Between 19 and 29 percent of participants handled spices and herbs, bananas, roots, Chinese products, zucchinis and solanaceae. For the most part, wholesalers and custom service intermediaries handled multiple fruits, vegetables and specialty products. Fewer brokers handled onions, brassicas, green leafs, solanaceae, bananas, mushrooms; grower-shippers handled fewer apple, peppers, grapes, tropical fruits, cucurbits, solanaceae, and zucchinis (Table 3).

In general, expectations for the future regarding fresh produce handling were similar among participants<sup>4</sup>. Respondents were optimistic, expecting the volume of specific fresh produce items they handle to increase or at least remain stable. Very few participants responded they would not handle a specific product anymore. Largest expected increases were reported for bananas (93%), berries (89%) and cucurbits (82%). Similarly, more than 70 percent of participants who answered they handled apple, citrus, onions, tropical fruits, brassicas, green leaf, and spices and herbs suggested they would increase volumes in the future. Among the products where at least some intermediaries expected to decrease volume handled were stone fruits, potatoes, melons, squash, Chinese-oriental, and apples (Table 4).

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<sup>4</sup> Refer to footnote number 1

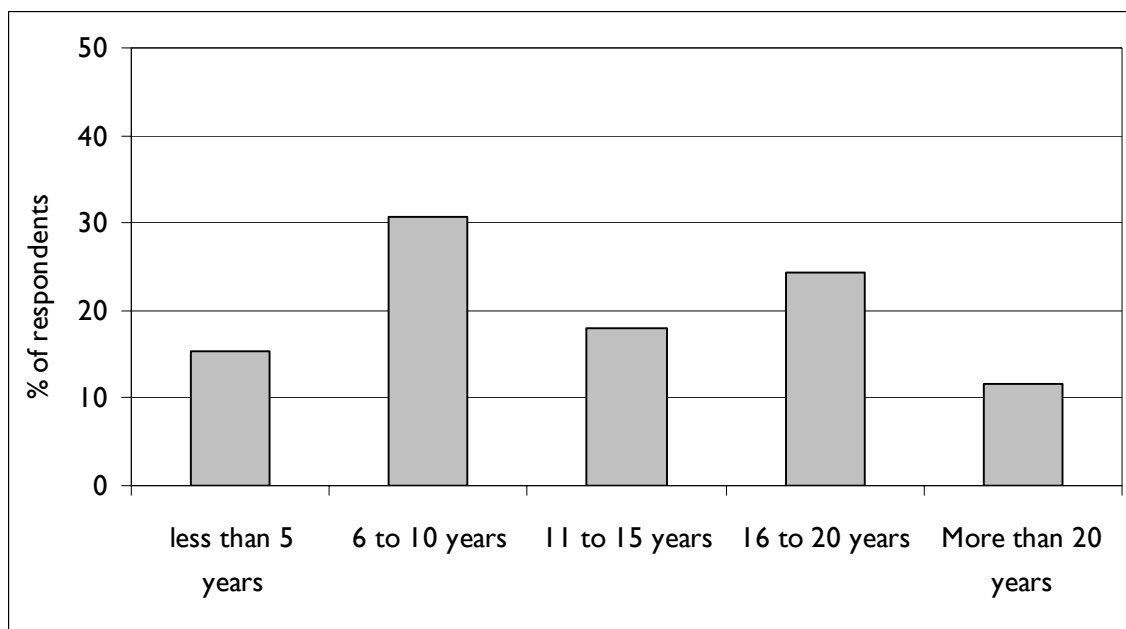
**Table 4. Expected Change in Future Fresh Produce Volume Handled**

Product	Expected increase in fresh produce volume				Total number of respondents
	increase	no variation	decrease	not handle it again	
	------(%)-----				
Apple	76	21	3	0	34
Citrus	71	29	0	0	34
Peppers	62	35	3	0	34
Stone fruits	59	28	13	0	32
Onions	75	22	3	0	32
Potatoes	59	34	6	0	32
Beans and Peas	69	31	0	0	29
Grapes	69	31	0	0	29
Tropical fruits	75	25	0	0	28
Melon	62	31	7	0	29
Berries	89	11	0	0	27
Squash	54	38	8	0	26
Brassicas	72	28	0	0	25
Watermelon	64	36	0	0	25
Greens	75	25	0	0	24
Cucurbits	82	18	0	0	22
Solanaceae	71	29	0	0	21
Zucchini	57	43	0	0	23
Chinese/Oriental Produce	67	22	6	6	18
Roots	47	41	6	6	17
Banana	93	7	0	0	15
Spices and Herbs	73	20	0	7	15
Mushrooms	67	33	0	0	15

### 3. Wholesalers and their Suppliers

#### 3.1 Relationship with Suppliers

Almost all respondents indicated they have had long-term relationships with their primary fresh produce suppliers. Thirty-one percent have maintained commercial relationships with their primary suppliers for at least 6 to 10 years. Around 18 percent of respondents have known their primary suppliers for over 10 years, and 24 percent have had more than 15 years of relationship. Twelve percent of respondents indicated they have worked with their primary supplier of fresh produce for more than 20 years (Figure 4).



**Figure 4. Average Length of Relationship with Primary Suppliers**

There were only small variations in the number of respondents expected the types of suppliers they would buy from in the future from five years ago (past) or currently (five years from the time of the survey). The number of respondents for each period slightly declined in the case of those buying from wholesalers and brokers. On the other hand, the number of respondents who answered buying from producer associations, packer-shippers and importers increased (Table 5).

**Table 5. Number of Respondents Purchasing Fresh Produce by Type of Supplier**

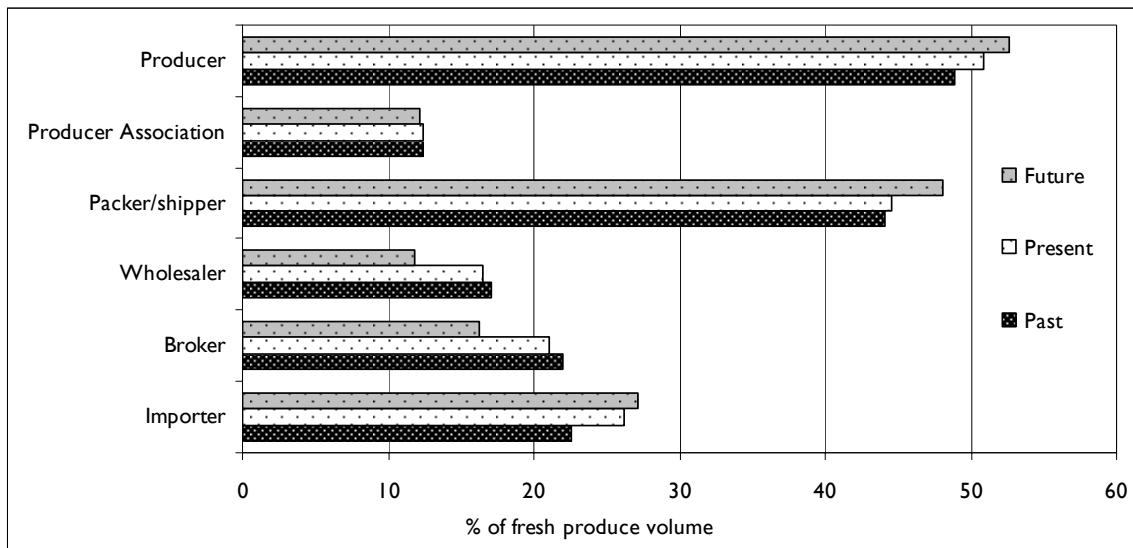
Type of Supplier	Respondents Purchasing Products		
	5 years ago	Currently	5 years ahead
Producer	49	49	49
Producer Association	16	15	17
Packer/shipper	47	49	49
Wholesaler	27	27	26
Broker	33	33	32
Importer	31	34	34
Other	20	20	18

\*The number of respondents in this table is greater than the total number of participants because each respondent could choose different type of suppliers.

Respondents indicated mixed expectations regarding trends in fresh produce purchases from domestic suppliers. Intermediaries sourcing directly from producers

bought on average 50 percent of their total fresh produce load directly from these suppliers. The same intermediaries expected to increase the volume purchased directly from producers in the future. Similarly, intermediaries buying from packer/shippers sourced on average 45 percent of fresh produce volume domestically and expected to increase future purchases to approximately 48 percent of their total volume. Respondents indicated an increase of only one percent in purchases from importers in the future compared to the present (Figure 5).

In the case of brokers and wholesalers, average volume of fresh produce sourced from these suppliers is expected to decrease in the future. In general, respondents suggested that on average volume of fresh produce purchased from brokers would represent about 15 percent of their total volume of fresh produce, and from wholesalers around 12 percent. Sourcing from producer associations would likely remain unchanged (Figure 5).



**Figure 5. Average Percentage of Fresh Produce Purchased by Type of U.S. Supplier**

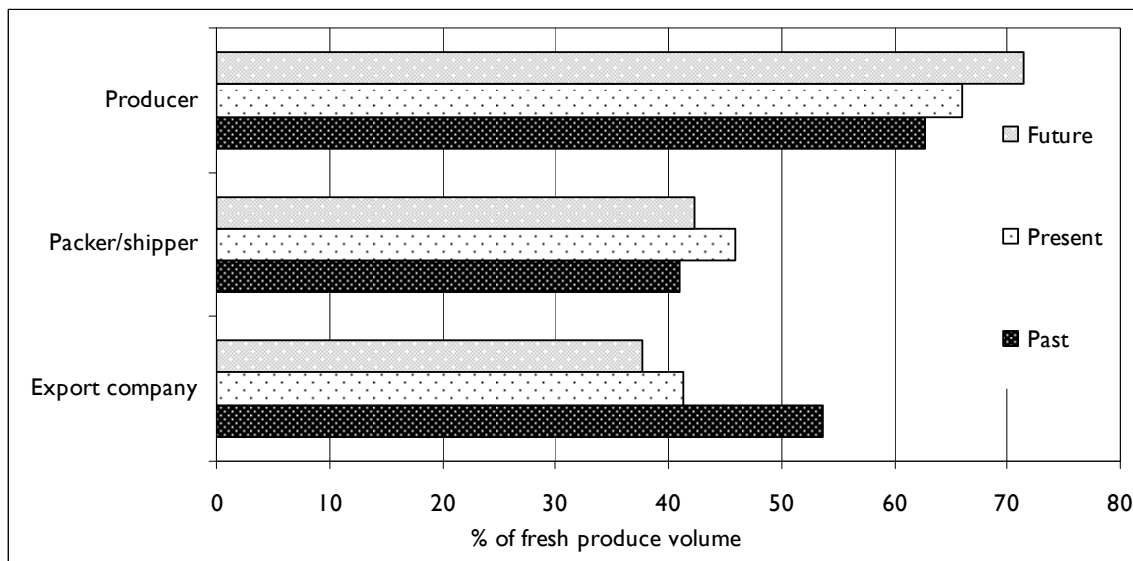
Direct purchases from international suppliers remain relatively low. Among those participants currently purchasing from abroad (27 respondents), 19 responded that the source of fresh produce was a foreign producer, 11 sourced from a foreign packer/shippers, 10 answered bought from export companies, and six participants sourced from foreign brokers and wholesalers (Table 6)

**Table 6. Number of Respondents Purchasing Fresh Produce from Different International Supplier**

Type of Supplier	Number of Respondents			
	Total	By period		
		Past	Present	Future
Producer	19	63	66	71
Packer/shipper	11	41	46	42
Wholesaler*	6	31	37	31
Broker*	6	26	21	22
Trade entity*	3	1	1	1
Export company	11	54	41	38
Other*	5	25	27	29

\*Chi-squared test showed no statistically significant relationship between type of supplier and period

In general, respondents who purchased fresh produce from abroad sourced around 65 percent of imports directly from foreign producers. These intermediaries expect to increase purchases of fresh produce from foreign producers by approximately five percent to reach 70 percent of volume sourced directly from foreign producers. On the other hand, for those respondents currently sourcing from foreign packer/shippers and export companies, they expect the average volume of fresh produce sourced from these types of companies to decrease (Figure 6).



**Figure 6. Average Percentage of Fresh Produce Volume Purchased from Different International Suppliers**

### 3.2 Trade Practices with Suppliers

For this report, trade practices are defined as services intermediaries use to carry out transactions with their suppliers of fresh produce. Trade practices include, but are not limited to, marketing assistance, quality procedures, legal relationships, terms of payment, financing, communication, and other types of trade relationships.

Respondents were asked to estimate how often they used these practices and how likely they are to use them in the future. In terms of marketing assistance, participants responded how often they assist or advise suppliers with PLU coding , UPC coding, product packaging to comply with retailer requirements, planning process and arranging for transportation.<sup>5</sup> More than 30 percent of intermediaries currently assist with PLU and UPC requirements; 57 percent indicated that they would assist with product and packaging specifications; 56 percent work together in a planning process with suppliers and 53 percent currently arrange transportation for suppliers. All these percentages are expected to increase in the future (Table 7). In general, these percentages confirm how coordinated these firms need to be in order to maintain competitiveness in the market channel for fresh products.

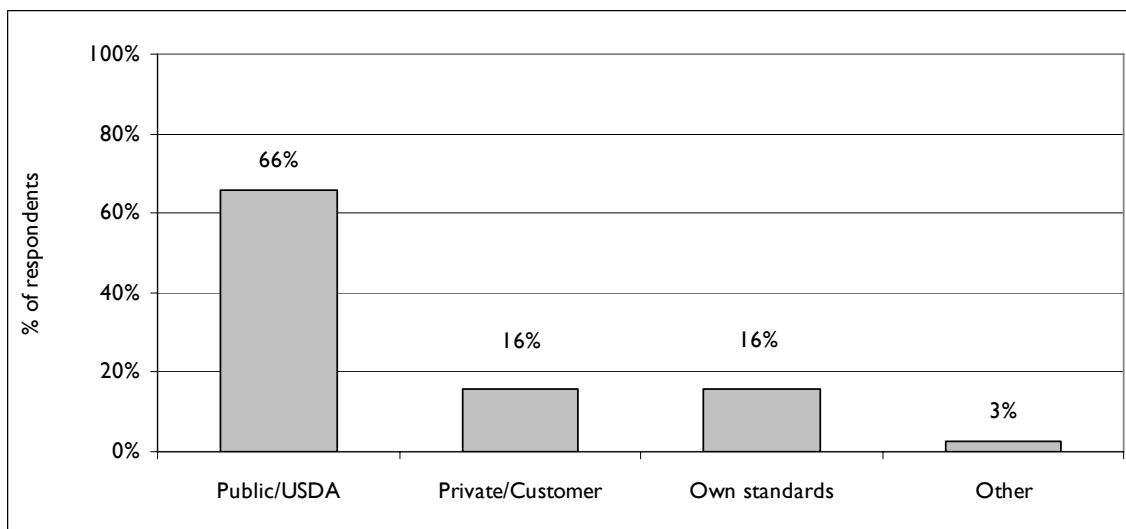
**Table 7. Trade Practices to assist or advise supplier of fresh produce to comply with certain marketing requirements**

Frequency of use	PLU		UPC		Product and packaging		Planning process		Arranging transport -ation	
	Pres	Fut	Pres	Fut	Pres	Fut	Pres	Fut	Pres	Fut
	------(%)-----									
Never or occasionally	58%	41%	57%	39%	29%	20%	30%	19%	28%	20%
Half the time	6%	10%	5%	8%	13%	8%	13%	13%	18%	14%
Frequently or standard	35%	39%	38%	43%	57%	59%	56%	58%	53%	56%
No answer	0%	10%	0%	10%	1%	13%	1%	10%	1%	10%

Pres=present; Fut=future

Over 60 percent of respondents report using public standards as their main quality guideline. Sixteen percent of use their own standards and another 16 percent use standards established by their customers (e.g., a supermarket). The remainder (3 percent) uses a combination of public, private or own standards (Figure 7).

<sup>5</sup> PLU stands for Product Look-Up and UPC for Universal Product Code. Product and packaging requirements referred to any special packaging needed for the product, product requirement regarded size, color and/or other requirements. Planning process referred to any marketing plan that suppliers and intermediaries develop together to source and distribute products, usually during a calendar year.



**Figure 7. Use of Different Quality Standards with Suppliers of Fresh Products**

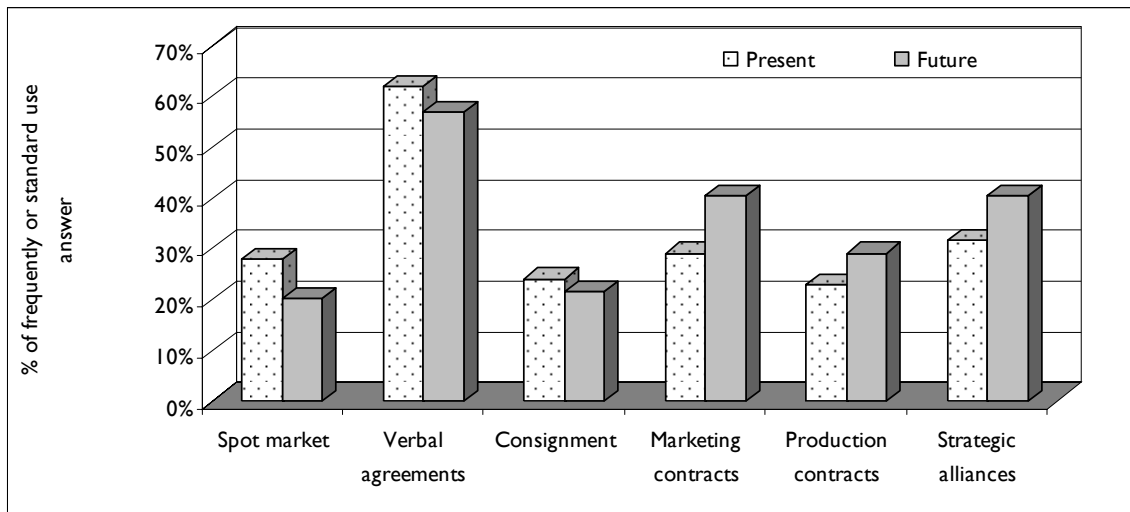
Sixty-two percent of respondents currently monitor quality of products with digital photography technology. In the future, this technology is expected to become a standard procedure for more than 70 percent of respondents. Visiting domestic growing areas is a frequent or standard practice for around 54 percent of respondents, whereas visiting international growing areas is a frequent practice used by 30 percent of respondents. Neither of these practices is reported as likely to significantly increase in the future (Table 8).

**Table 8. Selected Practices to Monitor Fresh Product Quality from their Suppliers**

Frequency of Use	Internet and digital photography		Visit domestic growing areas		Visit international growing areas	
	Pres	Fut	Pres	Fut	Pres	Fut
------(%)-----						
Occasionally or never	25	14	32	23	63	46
Used half the time	11	4	11	11	5	10
Frequently or standard	62	71	54	56	30	34
No answer	1	11	3	10	1	10

Pres=present; Fut=future

Verbal agreements remain the most important way of sealing a deal between intermediaries and their suppliers<sup>6</sup>. Around 60 percent of participants indicated verbal agreements were a frequent or standard procedure when sourcing fresh produce. Although most participants expect this practice to become less common in the future, intermediaries still rely on verbal agreements to maintain business relationships with their suppliers. Sourcing from spot markets and buying on consignment were reported as less frequently used practices that were also expected to decline. The use of marketing contracts, production contracts and strategic alliances with suppliers were expected to become more frequent in the future, (Figure 8).



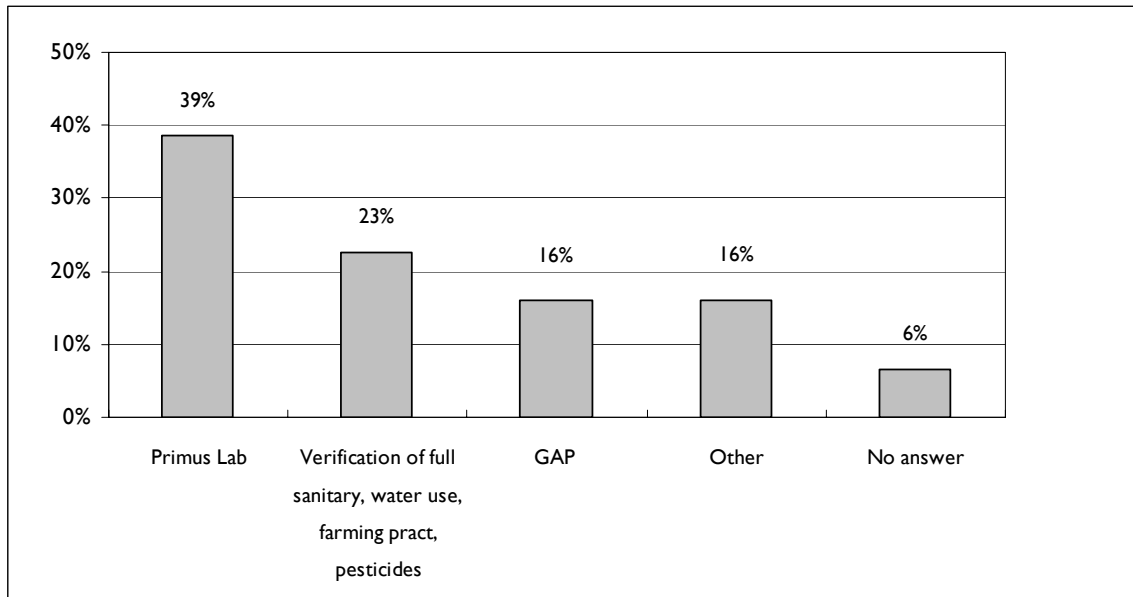
**Figure 8. Use of Different Commercial Relationships with Suppliers**

Consistent with previous research in this area, one of the practices increasingly utilized by intermediaries is the request for third-party certifications from suppliers<sup>7</sup>. During this research, 40 percent of respondents indicated they were currently requesting third-party certifications from their suppliers. Among those participants requesting certification (31 intermediaries), 39 percent require Primus Lab certification, 23 percent request verification of sanitation, water use, farming practice and other agricultural practices, 16 percent request a certification of Good Agricultural Practices (GAP). Other certification programs mentioned were Euro-Retailer Produce Working

<sup>6</sup> Appendix 2 presents an explanation of the rationale used for the different categories of trade relationships between intermediaries and their suppliers.

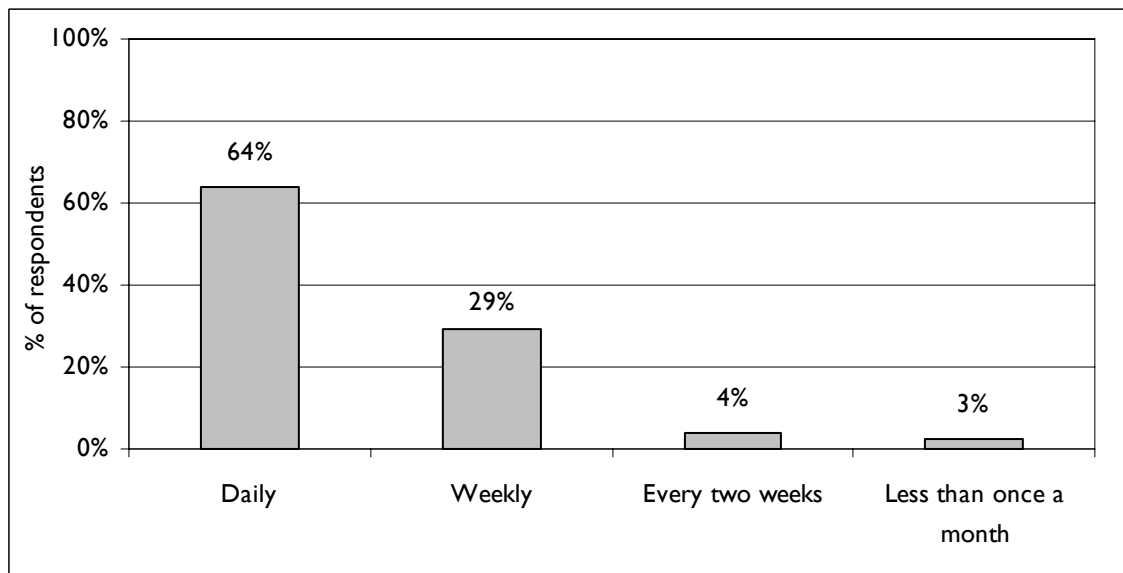
<sup>7</sup> Third-party certifiers are firms that “certify that food safety control processes meet acceptable standards” (Calvin et al, 2001 p.34). Certifiers control for food safety protocols, examining “compliance with both microbial quality control processes and pesticide application and residue regulations” (Calvin et al, 2001 p.34). The most famous certifier is Primus Lab, which also has its own certification requirements including the acceptable standards mentioned above. On the other hand, “GAP address on-farm food safety issues through a set of practices developed by USDA” (Woods and Thornsbury 2005 p. 3) Eurep-GAP is a set of rules and requirements developed by European supermarkets in the Euro-Retailer Produce Working Group (EUREP), HCCP certification is commonly used to certify processing facilities (Maze).

Group – Good Agricultural Practices (Eurep-GAP), the American Institute of Baking certification (AIB) and Hazard Analysis and Critical Control Point (HACCP) (Figure 9)



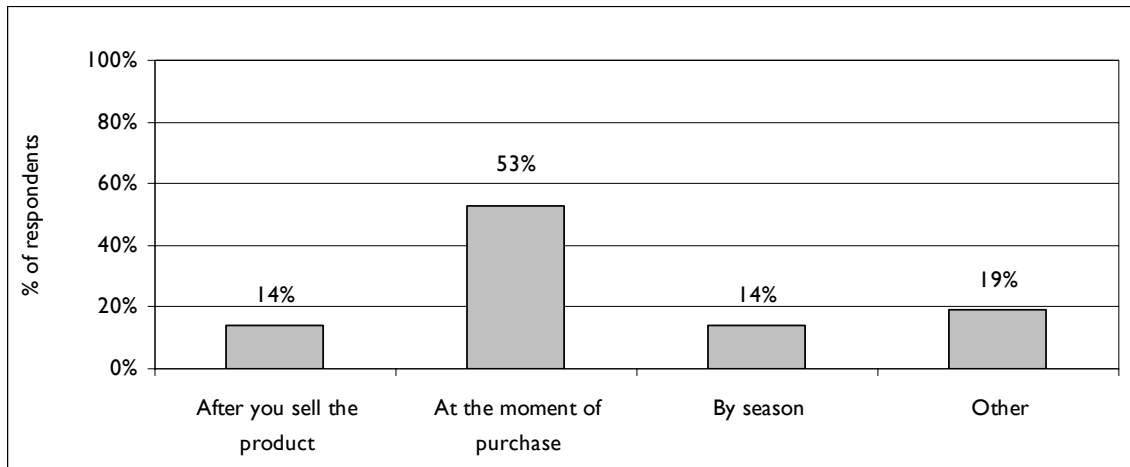
**Figure 9. Common Third-party Certification Required by Intermediaries**

In general, communication with produce suppliers is very frequent. Sixty-four percent of respondents maintained daily communication with main suppliers of fresh produce and 29 percent communicated at least once a week with their suppliers. Communicating every two weeks and less than once a week were common practices for only four and three percent of respondents respectively (Figure 10).



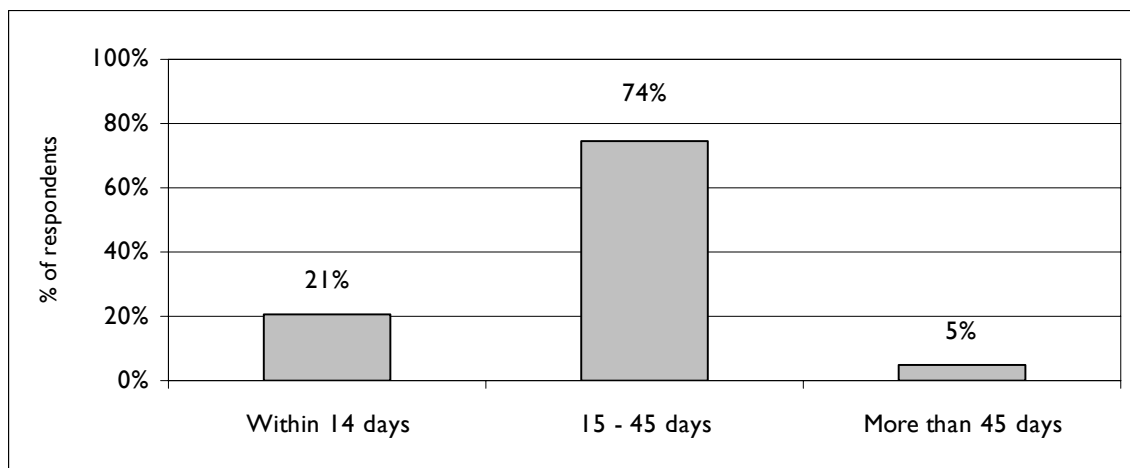
**Figure 10. Frequency of Communication with Suppliers**

Typically, intermediaries and suppliers establish product price at the moment of purchase. Over 50 percent of respondents indicated this was their practice whereas only 14 percent of respondents agree on price for a season or after they sell products. Around 19 percent of respondents were using other mechanisms to establish price such as supplier's, spot market, four-weeks in advance, weekly, or a combination of spot market and contract price. Other forms of price determination were the use of price band, year-round price, or price peg (Figure 11).



**Figure 11. Most Common Mechanism Used to Establish Purchase Price with Suppliers**

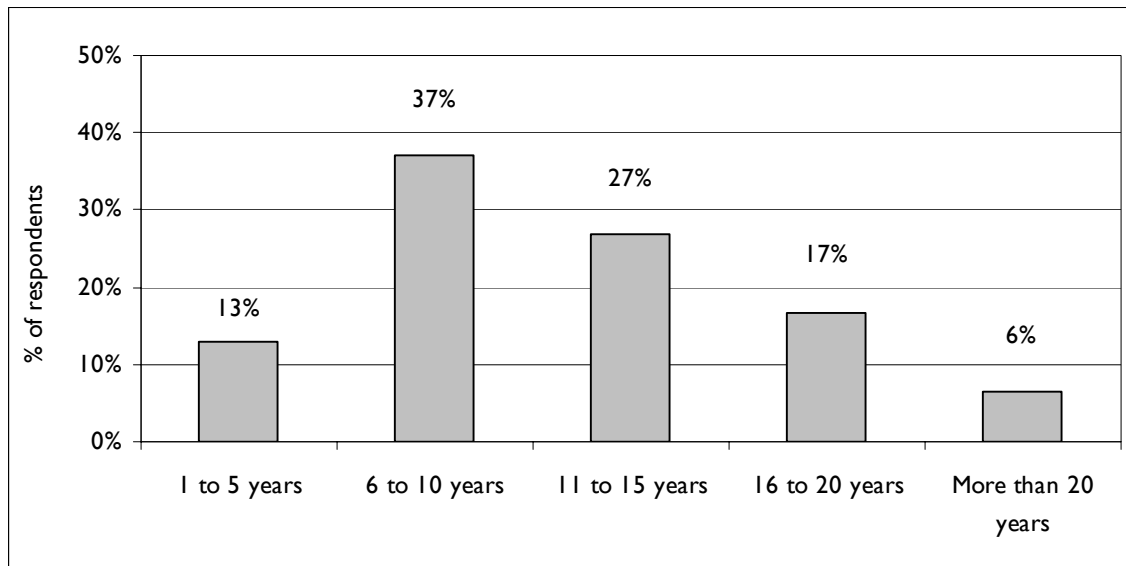
Regarding terms of payments, 74 percent of respondents indicated they pay suppliers within 15 to 45 days after receiving product. For 21 percent of respondents, terms of payment was within 14 days and only five percent of respondents would extend the payment period to more than 45 days (Figure 12)



**Figure 12. Term of Payments with Suppliers**

#### 4. Intermediaries and their Customers

Similar to the case with suppliers, long-term relationships with customers are predominant in produce trade relationships. Around 37 percent of respondents indicated having worked with the same customers for more than 6 years, 27 percent have worked for over 10 years, and 17 percent have worked for over 15 years. Only 13 percent reported working with the same customers for less than five years (Figure 13).



**Figure 13. Average Length of Relationship Working with Primary Customers**

Retailers, distributors and food service buyers are major customers of intermediaries. Sixty-three intermediaries sold fresh produce to retailers, 61 sold to other intermediaries, and 56 sold to food service. Other important outlets for fresh products were exports and mass merchandising targeted by 27 and 22, respondents respectively (Table 9).

The percentage of total sales going to food retail outlets was relatively evenly distributed among those intermediaries selling through this outlet. A notable difference is that six percent had sold over 80 percent of fresh produce only to food retailers. These percentages confirm that the main market for intermediaries remain the food retail. In the case of sales to other intermediaries, 30 percent of those selling in this type of outlet had had sales of less than 20 percent, 22 percent had sales between 20 and 40 percent, 14 percent had sales between 40 and 60 percent, and 5 and 6 percent of intermediaries had sales over 60 and 80 percent respectively (Table 9).

Historically, the food service sector has been considered an alternative market for intermediaries. Forty-four percent of intermediaries indicated having sales of less than 20 percent going to the food service sector, while 13 percent indicated selling between 20 to 40 percent in this outlet. Other important alternative channels for intermediaries represented exports and mass merchandising (Table 9)

**Table 9. Number and Percentage of Respondents by Sales to Different Category of Outlets**

Percentage of sales	Type of outlet											
	Food Retail		Other Intermediaries		Food Service		Exports		Mass Merchandiser		Others	
	No	(%)	No	(%)	No	(%)	No	(%)	No	(%)	No	(%)
Less than 20	14	18	24	30	35	44	18	23	14	18	6	8
20.01 to 40	15	19	17	22	10	13	4	5	7	9	1	1
40.01 to 60	14	18	11	14	7	9	3	4	0	0	--	--
60.01 to 80	15	19	5	6	1	1	--		1	1	--	--
80.01 to 100	5	6	4	5	3	4	2	3	--	--	3	4
<i>Total</i>	63		61		56		27		22		10	

\*The number of respondents in this table is greater than the total number of participants because each respondent could choose different type of suppliers.

#### 4.1 Trade Practices with customers

The survey asked participants to choose from a list of trade practices and indicate what percentage of their customers would require complying with that specific practice today, five years ago and five years from now. Intermediaries anticipated relatively small changes in trade practices with customers. Fifty-two participants responded conducting business with customers based on verbal agreement compared to 46 respondents who thought they would use this practice in the future. Only 35 participants indicated using contracts in the past, compared to 40 who expect they will use contracts with at least one customer in the future (Table 10).

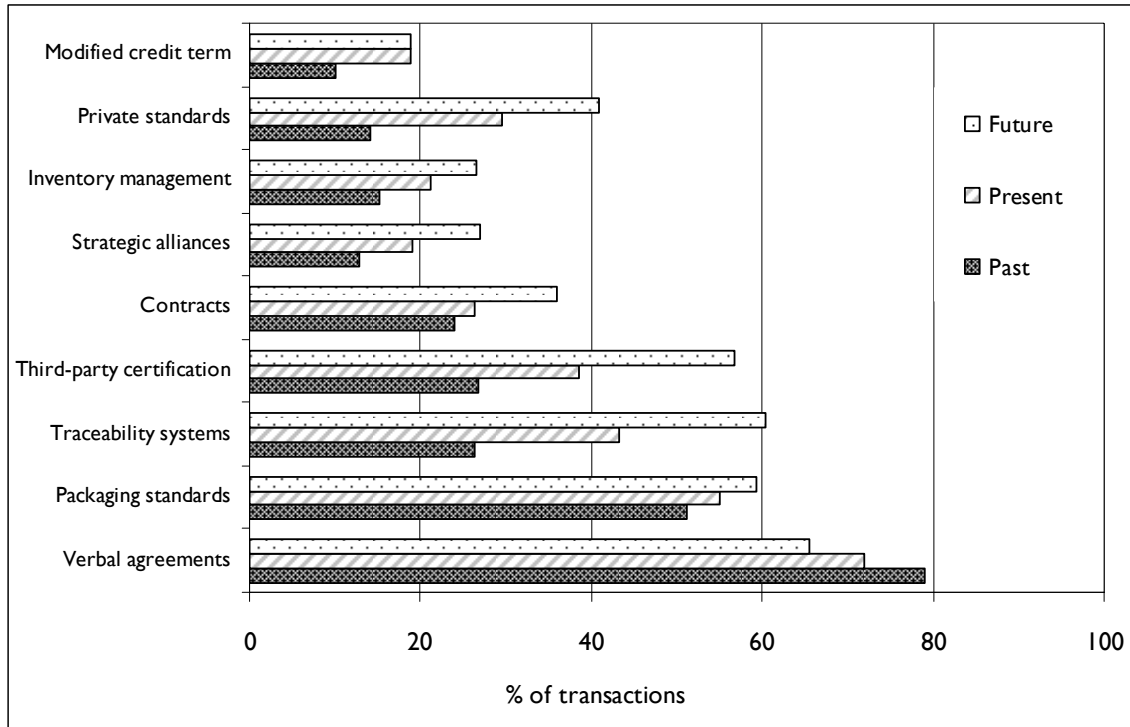
Increasing requests for third-party certification, traceability systems, packaging standards and private standards are more likely to dominate future relationships with customers. For example, only twenty-eight out of 79 participants said customers requested third-party certification in the past, but 34 believed customers will require this practice in the future. Similarly, 30 respondents answered customers requested packaging standards in the past; however, 37 believed they will likely require this standard in the future (Table 10)

**Table 10. Trade Practices Requested by Customer**

Trade practice	No of respondents		
	Past	Present	Future
Verbal agreements	52	52	46
Packaging standards	30	36	37
Traceability systems	28	35	37
Third-party certification	28	35	34
Contracts	35	38	40
Strategic alliances	25	29	31
Inventory management	24	24	24
Private standards	25	28	27
Modified credit term	23	25	24
Other	12	12	12

\*The number of respondents in this table is greater than the total number of participants because each respondent could choose different type of suppliers.

A separate question was the percent of transactions with customers that would involve the specific trade practice. In the past, almost 80 percent of transactions with customers were conducted solely using verbal agreements. Although it was anticipated this practice would continue in the future, the transactions are expected to decrease to be around 65 percent of transactions. Respondents suggested that, in the future, contracts will be used approximately 35 percent of the time, and strategic alliances 25 percent of the time when trying to establish a trade relationship with customers. On the other hand, special requirements from retailers such as inventory management, third-party certification, and traceability system are among practices that intermediaries see growing faster and are expected to become standard requirements in the future (Figure 14)



**Figure 14. Average Percentage of Transactions Customer Require Intermediaries the Following Practices**

## 5. Summary

The intermediate stage in the fresh produce supply chain is comprised of business operations which in general do not transform a specific fresh product, but rather provide services related to the sale of this product. This paper presents preliminary results from a survey of wholesalers, intermediaries, brokers, consultants and other businesses. Changes in fresh produce distribution and management have created new forms of commercial relationships between intermediaries and their suppliers. In some cases these changes represent valuable opportunities for business, beyond the demand for additional marketing services from suppliers. Understanding changing trade practices in this important supply chain sector is fundamental for suppliers who want to gain or maintain access to fresh produce markets and for firms seeking to re-position themselves within the sector.

Currently, intermediaries provide a variety of services including those considered 'traditional' and more specialized. Traditional intermediaries focus more on warehousing and shipping, whereas, firms characterized as brokers and consultants provide more marketing-related services. Traditional intermediaries represent important distributors of fruits such as apples, citrus, and stone fruits; however, they handle fewer specialty products which require more marketing and value-added process. Most respondents expect their fresh produce volume handled to increase or remain stable in the coming years.

Trends in fresh produce purchases from suppliers show an important increase in direct supply from domestic growers, and a decrease in purchases from wholesalers and brokers. Direct purchase from international suppliers remains relatively low. Among those who are importing, they expect to increase direct sourcing from global producers and decrease purchases from packer-shippers, wholesalers and brokers.

Trade practices such as providing suppliers with final quality grade received, widespread use of internet and digital photography, advising suppliers on planning process, and visiting international growing areas are not common in current use, but most respondents answered they expect these practices to become standard procedure in the future. Other practices such as buying from spot markets and consignment are expected to decrease considerably.

Increasingly, requests for third-party certification from suppliers are becoming standard procedure. Among the most requested certifications are good agricultural practices (GAP), private labs, USDA and EUREPGAP. In terms of trade practices governing intermediaries' relationships with customers, more requests for contracts, strategic alliances, inventory management, third-party certifications, traceability systems, packaging standards and private standards are expected to be prominent in the future.

## Appendix I. Wholesale Trade and Participants in the Supply Chain of Fresh Produce

Wholesale trade refers to the selling of products to “retailers, merchants, contractors, and/or industrial, institutional, and commercial users but do not sell in significant amounts to ultimate household consumers” (Fein). Basically, the wholesale sector is an ‘intermediate step’ in the distribution of products from the production point (US Census 2005) to the end-consumers. Since the beginning of the 1990’s, the wholesale sector has adapted and adopted different practices and definitions facing new challenges particularly from consolidation of retailers (Cook)

However the constant changes in the definition of wholesale trade, several authors distinguish the following key aspect of wholesale trade:

- *Wholesale trade is service oriented.* Wholesale trade does not include the transformation of products, rather provides services to customers (US Census 2005); all the services wholesalers provide such as packing, re-packing, category management and other services increases this sector’s competitiveness amid current rate of consolidation of the retail sector which threatens to decrease the use of wholesalers ( Cook; McLaughlin *et al.*)
- *Participants in the wholesale trade.* ‘Middlemen’ or ‘Intermediaries’ carry out the movement of products in the supply chain (Calvin *et al.*; Dimitri *et al.* 2003). These middlemen may or may not take title of products (US Census 2005), but in many cases they physically handle shipments of products (McLaughlin *et al.*). In other cases, middlemen coordinate the movement of products from farm to consumers (McLaughlin *et al.*).
- *Wholesale trade is commodity specific.* Each commodity in the supply chain follows an ‘individualized path’ from farms to consumers (Dimitri *et al.* 2003; Calvin *et al.*; Cook). The nature of certain commodities makes it difficult to trade the product without the use of middlemen and wholesale trade.

### Participants in the supply chain

The US census of wholesale and distribution distinguish between two types of wholesale merchants: those who take title of the products and those who do not take the title (US Census 2005). However, it is very difficult to obtain this information from traders, or even try to determine whether a merchant takes or not the title of products. Based on anecdotal experience many intermediaries would simultaneously take or not the title of products.

Other authors classify different participants according to the services they provide and the customers they serve (Calvin *et al.*; Cook; Blue Book). For example, a merchant wholesaler is someone who buys and sells fresh produce, whereas a wholesale grocer is someone who also deals with ‘dry items’ that customer retailers request.

There is also some differentiation regarding the market size, the location from and to which intermediaries deliver goods, and the physical handling of products (Cook; McLaughlin *et al.*; Blue Book; Dimitri *et al.* 2000). For example, a jobber deals with small loads, whereas a distributor would deliver truckloads of products. A jobber can separate big

loads into smaller loads, while a distributor usually buys and sells products without any physical handling of products. On the other hand, a broker only arranges the trade and usually does not handle the products.

## Appendix 2. Intermediaries and Suppliers Trade Relationships

Wysocki, Peterson, and Harsh (2001) suggest that the coordination of relationships among supply chain participants encompasses five different strategies (Table A). These relationships are based on “the intensity of control that the alternative strategies employ to assure that proper coordination occurs (i.e., coordination with minimum potential for error) (Wysocki *et al.*)

**Table A Strategy Categories along the Vertical Coordination Continuum**

<b>Strategy</b>	<b>Definition</b>	<b>Example</b>
<b>Spot Market</b>	Coordination intensity is low. Parties engage in price discovery and make either a yes or no decision to enter the transaction. It is easy to walk away from the transaction.	A Midwest corn farmer who calls up local grain elevators to find out the current cash price for corn. The corn farmer decides to sell his corn to the highest bidder.
<b>Specification Contract</b>	Coordination intensity is moderately low. Contracts are based on the legally enforceable establishment of specific and detailed conditions of exchange.	A potato farmer that signs a production contract with a potato processor for a specific quality and quantity of potatoes at a specified delivery time.
<b>Relation-Based Alliance</b>	Coordination intensity is moderate. Relationship based on shared risk and benefits emanating from mutually identified objectives.	Wal-Mart and Procter & Gamble, where Wal-Mart agrees to share propriety sales and inventory information and P&G physically locate their employees at Wal-Mart’s headquarters.
<b>Equity-Based Alliance</b>	Coordination intensity is moderately high.	Agricultural cooperative, private firms who form a joint venture.
<b>Vertical Integration</b>	Coordination intensity is high.	Tyson coordinates the entire poultry process from genetics to the retail shelf.

Source: (Wysocki *et al.* 2003)

Following Wysocki, Peterson and Harsh (2001), the different categories of strategic relationship presented in this research were spot market, verbal agreements and consignment to represent the low coordination intensity; marketing and production contracts represent relationship based alliances; finally, strategic alliances represent equity-based alliance.

## Reference

Arellano F. and L. Martinez (2004). *Meeting the Challenge of Exporting to the U.S.: Trade Practices that Benefit Growers and Exporters* Partnership for Food Industry Development – Fruit and Vegetables (PFID-F&V) Michigan State University Available at: <http://www.globalhort.msu.edu>

Blue Book (2006).

Calvin, L., R. Cook, M. Denbaly, C. Dimitri, L. Glaser, C. Handy, M. Jekanowski, P. Kaufman, B. Krissoff, G. Thompson, and S. Thornsbury (2001). *U.S. Fresh Fruit and Vegetable Marketing: Emerging Trade Practices, Trends, and Issues*. (AER795). United States Department of Agriculture Economic Research Service.

Cook R. *The U.S. Fresh Produce Industry: An Industry in Transition*. UC Davis Available at: <http://www.agecon.ucdavis.edu/aredepart/facultydocs/Cook/mofp/ch-02.pdf>

Dimitri C., A. Tegene and P.R. Kaufman (2003). *Fresh Produce Markets Marketing Channels, Trade Practices, and Retail Pricing Behavior*. (AER 825). US Department of Agriculture. Available at: <http://www.ers.usda.gov/publications/aer825/aer825.pdf>

Dimitri, C., and N. J. Richman (2000). *Organic Food Markets in Transition*. Henry A. Wallace Center for Agricultural & Environmental Policy Winrock International.

Fein, A. J. (2000). *Wholesale Distribution*. In *The U.S. Industry and Trade Outlook*, The International Trade Administration of the U.S. Department of Commerce. The McGraw-Hill Companies, Inc.

Glaser L.K, G.D. Thompson, and C.R. Handy (2001). *Recent Changes in Marketing and Trade Practices in the U.S. Lettuce and Fresh-Cut Vegetable Industries* (AIB767) United States Department of Agriculture.

Handy C.R., P.R. Kaufman, K. Park and G.M. Green *Evolving Marketing Channels Reveal Dynamic U.S. Produce Industry*. Food Review Volume 23, Issue 2.

Hinson, R., R. Sinoha, and D. Reaves. (2006). *Industry Concentration Impacts on Business Strategies Used by Small Produce Wholesalers*. Paper presented at Annual Meeting of the Southern Agricultural Economics Association, at Orlando, Florida.

Kaufman P.R, C.R. Handy, E.W. McLaughlin, K. Park, G.M. Green (2000). *Understanding the Dynamics of Produce Markets: Consumption and Consolidation Grow*. (AIB 758) United States Department of Agriculture.

Mazé, Armelle (2005). *Integrated Agriculture Labeling and Consumer information: Retailer's strategies and regulatory issues in European context*. Selected paper. American Agricultural Economics Association, Annual Meeting, Providence, Rhode Island, July 24-27.

McLaughlin, E., K. Park, and D. Perosio (1997). *Marketing and Performance Benchmarks for the Fresh Produce Industry*. Food Industry Management Cornell University Produce Marketing Association.

Park J.L. and E.W. McLaughlin (1998). *New Developments in Grocery Manufacturer and Distributor Marketing Programs: A Survey of U.S. Wholesalers and Retailers* Journal of Food Distribution Research July pp. 15-23.

Perosio D. J., E.W. McLaughlin, S. Cuellar and K. Park (2001). *Fresh Track 2001 Supply Chain Management in the Produce Industry* Department of Agricultural, Resource, and Managerial Economics R.B. 2001-05 Cornell University, Ithaca, NY 14853.

Richards T. J. and P.M. Patterson (2003). *Competition in Fresh Produce Markets: An Empirical Analysis of Marketing Channel Performance* United States Department of Agriculture Economic Research Service Contractors and Cooperators Report No. 1

U.S. Census Bureau (2004). *Groceries and Related Products: 2002 Economic Census Wholesale Trade Industry Series*.

U.S. Census Bureau (2005). *2002 Economic Census Wholesale Trade Establishment and Firm Size: 2002 (Including Legal Form of Organization)*, edited by U. S. D. o. Commerce.

Woods, M. and S Thornsby (2005). *Costs of Adopting Good Agricultural Practices (GAPs) to Ensure Food Safety in Fresh Strawberries* Agricultural Economics Report No 624 Department of Agricultural Economics Michigan State University, East Lansing MI 48823.

Wysocki, A. F., H. C. Peterson, and S. B. Harsh. (2003). *Quantifying Strategic Choice Along the Vertical Coordination Continuum*. International Food and Agribusiness Management Review 6 (3).