Chapter 2

An Overview of Global Trade Patterns in Fruits and Vegetables

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Global trade flow in fruits and vegetables is shaped by geographic proximity, trading arrangements (often related to proximity), historical and political elements, and climate, among other factors. This trade has grown rapidly since the 1980s. Its growth has been accompanied by changes in the commodity composition and spurred by interregional commerce—varieties and seasons for fruits and vegetables vary from country to country, stimulating trade.

Global Expansion and Changes in Commodities Traded

International trade in fruits and vegetables—in particular, many new and newly traded commodities—expanded rapidly over the past two decades, while also undergoing a marked change in the products demanded. According to Food and Agriculture Organization (FAO) data, the average value share of fruits and vegetables (including pulses and tree nuts) in global agricultural exports increased from 11.7 percent in the period 1977-81 to 15.1 percent in 1987-91 and reached an alltime high of 16.5 percent in 1997-2001. Meanwhile, fruit and vegetable juices more than doubled their share of total global export value for fruits and vegetables, from 3.6 percent in 1967-71 to 8.7 percent in 1997-2001. Similarly, the share of vegetables and their products increased from 26.0 to 32.7 percent, while that of fruits and their products (excluding juices) declined from 48.5 percent to 39.1 percent (table 2.1).

The aggregate growth in trade masks significant differences in trends among individual fruits and vegetables, particularly for many nontraditional products. Some commodities—mangos, frozen potatoes, single-strength orange and apple juices, fresh mushrooms, garlic, sweet corn (prepared or preserved), and avocado—achieved, or were close to, a double-digit growth rate in their exports during 1989-2001. In comparison, the export growth rate for many traditional products during the same period was relatively low. Typical examples were oranges (1.1-percent export growth rate), canned pineapples (0.4 percent), and canned mushrooms (0.6 percent). Even the popular concentrated orange juice (2.6 percent) and apple juice (4.5 percent) had growth rates lagging far behind their double-digit growth competitors, single-strength juices. These developments are related to factors such as increased global income, changing policies, and remarkable technological innovations in production, storage, and transportation.

Among more than 160 items listed in the FAO definition of the international fruit and vegetable trade, bananas are the most important commodity by

Table 2.1—Composition and growth of world fruit and vegetable exports[1]

	Growth rate	Composition of export value	
	1989-2001	1967-71	1997-2001
		Percent	
Fruits and derived products	4.2	48.5	39.1
Vegetables and derived products	5.2	26.0	32.7
Nuts and derived products[2]	4.5	10.5	9.0
Fruit and vegetable juices	7.1	3.6	8.7
Pulses and derived products	3.6	4.7	3.9
Roots, tubers, and derived products	2.6	5.0	6.0
Others	-1.4	1.7	0.6
Total fruit and vegetable exports	--	100	100

-- Not available.

[1] The product groups in the table are according to the classification of the Food and Agriculture Organization (FAO). FAO's definition of fruits and vegetables includes more than 160 items, representing a broad range of products.

[2] This category also includes four oil-bearing crops and their products—coconuts and dessicated coconuts, olives (fresh and preserved), and prepared peanuts.

Source: Calculated based on FAOSTAT database by the FAO of the United Nations.

value, followed by tomatoes, grapes, and apples. The top fruit and vegetable exports, with an individual average value share larger than or equal to 1 percent during 1999-2001, are listed in table 2.2, along with their individual growth rates during 1989-2001. The table also includes sweet corn (prepared and preserved) and mangos, although their value share was less than 1 percent, because of their high export growth rate during the period.

Trade Dominated by a Few Regions

Although the available data show that about 320 countries (roughly divided between importers and exporters) participate in global trade in fruits and vegetables, trade is not evenly distributed. A few regions—basically high-income regions—dominate world commerce in fruits and vegetables. The largest importers of fruits and vegetables are the EU, the United States, and Japan. High-income regions are also among the largest exporters, led by the EU and the United States. Some developing countries are large exporters, however, including Mexico and China. While the United States is the foremost exporter of fruits and vegetables in the world if intra-EU trade is excluded from the data, it is not the largest producer. That position belongs to China, although China plays a much smaller role in world trade than the United States because of internal consumption of its fruits and vegetables. Recently, however, China has become a more important trader.

This study uses data from the Global Agricultural Trade System (GATS), prepared by USDA's Foreign Agricultural Service to identify major players and trade flows for global trade in fruits and vegetables; GATS, in turn, uses data from the U.N. Trade Statistical Office (USDA, FAS GATS). It classifies commodities of the global fruit and vegetable trade into six categories. In terms of export value, the market share for each of the six during 1999-2001 was as follows: fresh fruit (30.6 percent), fresh vegetables (20.3 percent), processed fruit and vegetables (30.3 percent), fruit and vegetable juices (9.0 percent), tree nuts (6.1 percent), and pulses (3.6 percent). Because of the relatively minor role played by tree nuts and pulses, discussion will be

Table 2.2—Growth rate and market share for world fruit and vegetable exports

	Export value share	Export volume growth
	1999-2001	1989-2001
	Percent	
Bananas	6.3	4.5
Tomatoes	4.3	5.3
Grapes	3.5	5.2
Apples	3.5	3.6
Potatoes, frozen	2.8	11.2
Oranges	2.6	1.1
Chilis and peppers, green	2.3	7.1
Orange juice, single-strength	2.3	13.9
Potatoes	2.2	0.7
Tangerines, mandarins, clementines, and satsuma	2.0	5.4
Orange juice, concentrated	1.9	2.6
Beans, dry	1.7	4.1
Tomato paste	1.6	4.9
Pears	1.4	5.8
Lettuce	1.3	4.9
Peaches and nectarines	1.2	3.3
Cashew nuts, shelled	1.2	3.9
Cucumbers and gherkins	1.2	3.7
Almonds, shelled	1.1	4.7
Strawberries	1.1	5.7
Lemons and limes	1.0	4.2
Mushrooms, fresh	1.0	11.1
Onions, dry	1.0	4.4
Cantaloupes and other melons	1.0	7.8
Sweet corn, prepared or preserved	0.6	9.3
Mangoes	0.6	12.6
Others*	49.5	--
Total	100	--

-- Not available.

* Others include nearly 140 minor fruits and vegetables.

Source: Calculated based on FAOSTAT database by the Food and Agriculture Organization of the United Nations.

limited to the other four major categories. In addition, this chapter investigates the trade flows of only the top 30 exporters and importers for each category, on the basis of their average trade value during 1999-2001. During this period, the top 30 traders represented 92 to 95 percent of global trade for various categories of fruits and vegetables.

Three major trade regions—for both exporters and importers—are evident among these top traders: the EU, the NAFTA area, and Asia (East, Southeast, and South). In addition, two special regions—Southern Hemisphere countries and banana-exporting countries—are important in the global trade of fruits and vegetables. For this discussion, the Southern Hemisphere countries consist of Argentina, Australia, Brazil, Chile, New Zealand, Peru, and South Africa, while the banana-exporting countries include Colombia, Costa Rica, Côte d'Ivoire, Ecuador, Guatemala, Honduras, and Panama. Although the Philippines are also an important banana exporter, with neighboring

Asian countries as the dominant markets, the present discussion covers the Philippines in the Asian group.

As shown in table 2.3 and figures 2.1 (2.1a-2.1d) and 2.2 (2.2a-2.2d), the EU, NAFTA, and Asia are major destinations and sources of supply in the global trade of fruits and vegetables, while the banana-exporting countries and the Southern Hemisphere countries are important suppliers of fresh fruits. The group of Southern Hemisphere countries is also a major supplier for juices.

To establish general trade flows, the top traders in each commodity group are classified basically along the lines of these major trading regions. Only the top 30 traders for each commodity group are included, and each commodity group for exports and imports has a different set of top participants. Thus, the countries in each trade group are mostly different among commodity groups and between exporting and importing groups. For example, the Asia trade group for juice exports includes China, the Philip-

Table 2.3—Destination of exports and origin of imports by top 30 trading countries for fruits and vegetables, 1999-2001 average[1]

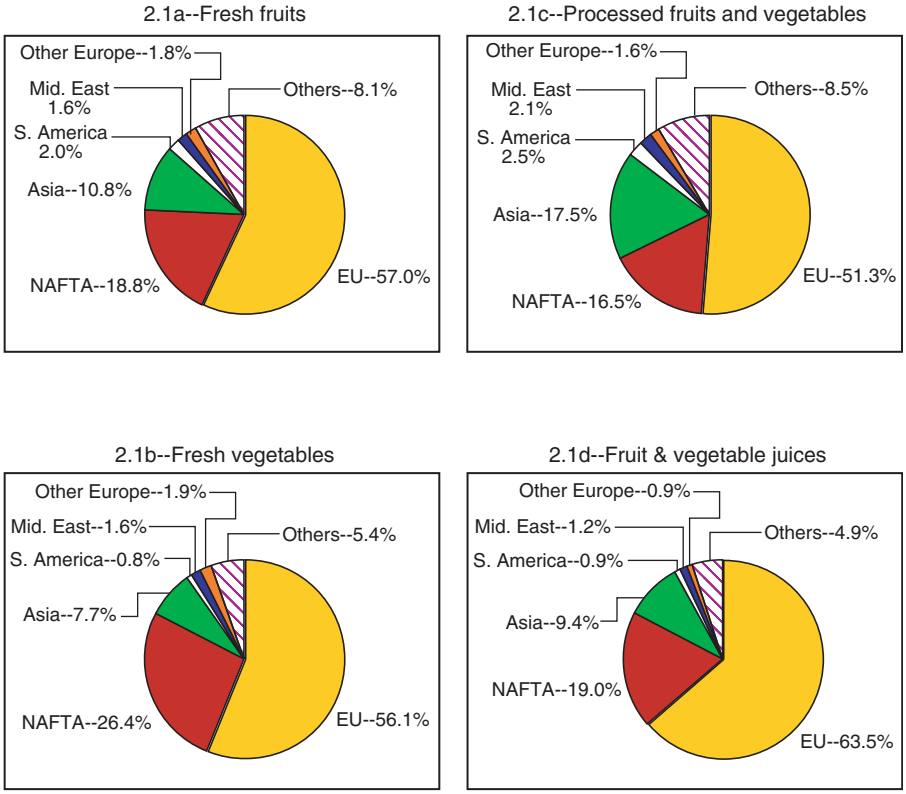
	Fresh fruits	Fresh vegetables	Processed fruits & veg.	Fruit and veg. juice
		$ million		
Export value[2]	19,469	13,165	19,017	5,697
		Percent		
Destination of exports				
EU	57.0	56.1	51.3	63.5
NAFTA	18.8	26.4	16.5	19.0
Asia	10.8	7.7	17.5	9.4
South America	2.0	0.8	2.5	0.9
Middle East	1.6	1.6	2.1	1.2
Non-EU Western Europe	1.8	1.9	1.6	0.9
Others	8.1	5.4	8.5	4.9
Total	100	100	100	100
		$ million		
Import value[2]	23,243	13,620	19,722	5,993
		Percent		
Origin of imports				
EU	31.4	55.2	40.9	35.1
NAFTA	13.1	23.4	17.0	14.1
Asia	6.1	7.4	22.5	6.1
Southern Hemisphere[3]	19.1	4.1	5.2	32.2
Middle East	3.2	2.6	5.2	3.2
Banana-exporting countries[4]	20.3	0.4	1.7	1.5
Others	6.8	7.0	7.5	7.7
Total	100	100	100	100

[1]Only the top 30 importers and exporters in the global fruit and vegetable trade are shown in tables 2.4 and 2.5; therefore, total export and import values do not match.
[2]Includes intraregional trade.
[3]Southern Hemisphere countries include Argentina, Australia, Brazil, Chile, New Zealand, South Africa, and Peru.
[4]Banana-exporting countries include Colombia, Costa Rica, Côte d'Ivoire, Ecuador, Guatemala, Honduras, and Panama.

Source: Calculated based on data from USDA, FAS Global Agricultural Trade System.

Figure 2.1

Destination of fruits and vegetables exported by the world's 30 top exporters, 1999-2001 average



Source: Table 2.3.

pines, and Thailand, but the Asia trade group for juice imports includes Hong Kong, Japan, South Korea, and Singapore (tables 2.4 and 2.5).

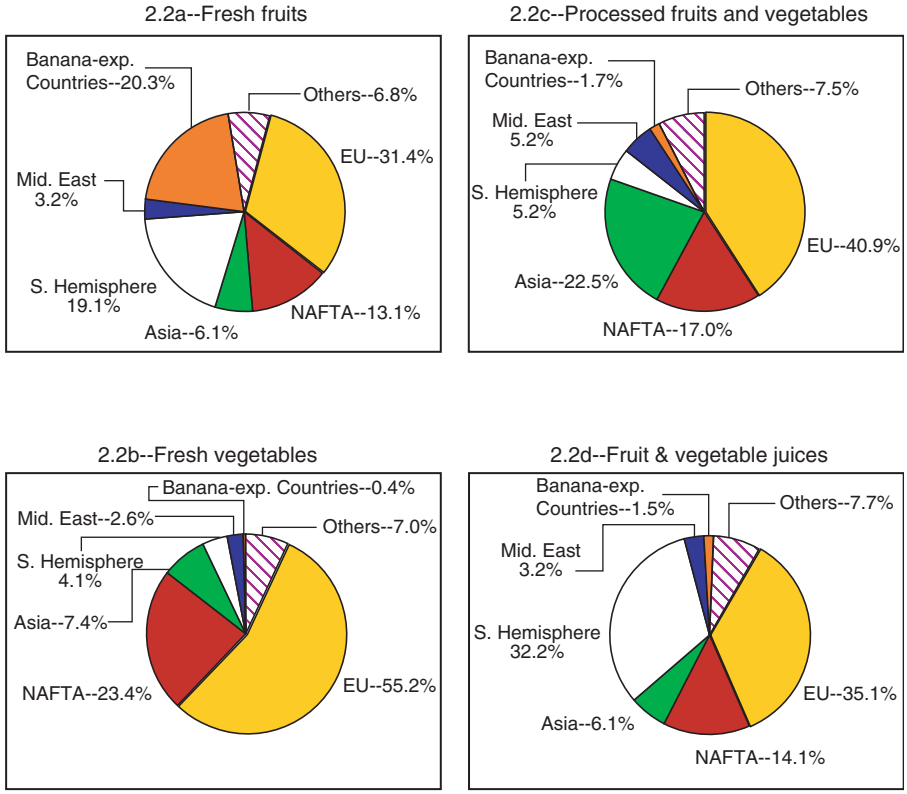
The trade flows for the banana-exporting countries are relatively straightforward. The world's top 30 fresh fruit importers purchased one-fifth of the value of their total fresh fruit imports during 1999-2001 from the group of the banana-exporting countries (table 2.3 and fig. 2.2-a). With 86 percent of their fresh fruit exports consisting of bananas, the banana-exporting countries accounted for nearly 60 percent of the market value in global banana exports. In contrast, the relatively recent emergence of the Southern Hemisphere countries in the global trade is dynamic and involves several products. Before discussing global trade flows in fruits and vegetables with regard to the three separate regions (the EU, NAFTA, and Asia), some background on the Southern Hemisphere countries is in order.

Southern Hemisphere Countries: Important Suppliers for Off-Season Fresh Fruits

With a crop production cycle opposite to that of the Northern Hemisphere, the Southern Hemisphere exporters, whose summers come during Northern Hemisphere winters, play a vital role in making the year-round supply of fresh fruits possible. These countries have taken advantage of the seasonal

Figure 2.2

Origin of fruits and vegetables imported by the world's 30 top importers, 1999-2001 average



Source: Table 2.3.

differences to expand their exports, particularly for many temperate-climate fruits. The market for off-season fruit imports in the Northern Hemisphere continued growing in the 1990s, after a fast expansion in the 1980s, as several Southern Hemisphere countries boosted their fruit production. During 1999-2001, Southern Hemisphere fresh fruit shipments accounted for 19 percent of the value purchased by the world's top 30 fresh fruit importers (table 2.3 and fig. 2.2a). Two major destinations for these fresh fruit exports were the EU (43 percent) and NAFTA (24 percent, mainly to the United States). Other important destinations included Asia (16 percent, mainly to East Asia) and South America (8 percent).

Thus far, no country in the region has succeeded in topping Chile as the region's leading exporter; Chile accounted for nearly 35 percent of the value of fresh fruits exported by the Southern Hemisphere countries in 1999-2001. Next to Chile is South Africa, chiefly targeting the EU and accounting for nearly one-fifth of the market share of the region's fresh fruit exports. Other important fresh fruit suppliers from the region included New Zealand and Argentina, together accounting for nearly another third of the market share.

The United States and the EU are Chile's predominant destinations for its fresh fruit exports, accounting for 42 and 21 percent, respectively, of the country's fresh fruit exports during 1999-2001. Although nearly 60 percent of these exports to the United States were grapes, which constituted close to

Table 2.4—Top 30 world exporters of fruits and vegetables, 1999-2001

Exporting group	Fresh fruits	Fresh vegetables	Processed fruits & veg.	Fruit and veg. juices
EU	Belgium	Belgium	Belgium	Austria
	France	France	Denmark	Belgium
	Germany	Germany	France	Denmark
	Greece	Greece	Germany	France
	Italy	Ireland	Greece	Germany
	Netherlands	Italy	Italy	Ireland
	Spain	Netherlands	Netherlands	Italy
		Spain	Portugal	Netherlands
		United Kingdom	Spain	Spain
			United Kingdom	United Kingdom
NAFTA	Canada	Canada	Canada	Canada
	Mexico	Mexico	Mexico	Mexico
	United States	United States	United States	United States
Asia	China	China	China	China
	Philippines	India	India	Philippines
	Thailand	Korea, South	Indonesia	Thailand
		Malaysia	Philippines	
		Thailand	Thailand	
Southern Hemisphere	Argentina	Argentina	Argentina	Argentina
	Australia	Australia	Australia	Australia
	Brazil	New Zealand	Chile	Brazil
	Chile	Peru	New Zealand	Chile
	New Zealand		Peru	South Africa
	South Africa		South Africa	
Banana-exporting countries	Colombia	Guatemala	Costa Rica	Costa Rica
	Costa Rica			Ecuador
	Côte d'Ivoire			
	Ecuador			
	Guatemala			
	Honduras			
	Panama			
Others	Israel	Egypt	Hungary	Belize
	Morocco	Hungary	Morocco	Hungary
	Poland	Israel	Poland	Israel
	Turkey	Jordan	Turkey	Poland
		Kenya	Yugoslavia	Switzerland
		Morocco		Saudi Arabia
		Poland		Turkey
		Turkey		

Source: Calculated based on data from USDA, FAS Global Agricultural Trade System.

Table 2.5—Top 30 world importers of fruits and vegetables, 1999-2001

Exporting group	Fresh fruits	Fresh vegetables	Processed fruits & veg.	Fruit and veg. juices
EU	Austria	Austria	Austria	Austria
	Belgium	Belgium	Belgium	Belgium
	Denmark	Denmark	Denmark	Denmark
	Finland	Finland	Finland	Finland
	France	France	France	France
	Germany	Germany	Germany	Germany
	Ireland	Greece	Greece	Greece
	Italy	Ireland	Ireland	Ireland
	Netherlands	Italy	Italy	Italy
	Portugal	Netherlands	Netherlands	Netherlands
	Spain	Portugal	Portugal	Portugal
	Sweden	Spain	Spain	Spain
	United Kingdom	Sweden	Sweden	Sweden
		United Kingdom	United Kingdom	United Kingdom
NAFTA	Canada	Canada	Canada	Canada
	Mexico	Mexico	Mexico	Mexico
	United States	United States	United States	United States
Asia	China	Hong Kong	China	Hong Kong
	Hong Kong	Indonesia	Hong Kong	Japan
	Indonesia	Japan	Japan	Korea, South
	Japan	Malaysia	Korea, South	Singapore
	Korea, South	Singapore	Singapore	
	Singapore			
Others	Argentina	Algeria	Argentina	Australia
	Brazil	Brazil	Australia	Botswana
	Czech Republic	Czech Republic	Brazil	Czech Republic
	Norway	Norway	Norway	Israel
	Poland	Poland	Poland	Norway
	Russian Federation	Russian Federation	Russian Federation	Poland
	Saudi Arabia	Saudi Arabia	Saudi Arabia	Russian Federation
	Switzerland	Switzerland	Switzerland	Saudi Arabia
				Switzerland

Source: Calculated based on data from USDA, FAS Global Agricultural Trade System.

70 percent of U.S. imported grapes during 1999-2001, Chile also accounted for virtually all U.S. imports of fresh plums, peaches, and cherries. In comparison, three-fourths of Chile's fresh fruit exports to the EU were grapes, apples, and pears.

During 1999-2001, more than half of the fresh fruits exported by the Southern Hemisphere countries were temperate-climate fruits such as grapes, apples, and, to a much lesser degree, pears. About two-thirds of apples exported by the Southern Hemisphere countries came from Chile and New Zealand, while Chile and Argentina were the dominant suppliers for grapes and pears. Geographic proximity is particularly important for those Southern Hemisphere countries that export fresh fruits to Asia and South America. For example, the Asian market is important to exporters in Australia and New Zealand, who shipped almost no horticultural products to South America, while South America is a more important market than Asia for Argentina, Brazil, and Chile.

In addition to fresh fruits, the group of Southern Hemisphere countries is a major supplier for fruit juices, accounting for nearly one-third of the import value for juices purchased by the world's top 30 importers during 1999-2001 (table 2.3 and fig. 2.2-d). Orange juice (mainly frozen) accounted for more than 70 percent of the region's juice exports, with apple juice (11 percent) a distant second. Led by Brazil (exporting mainly frozen orange juice), the region shipped more than half of its juice exports to the EU. NAFTA (to which it shipped 28 percent, mainly to the United States) and Asia (to which it shipped 13 percent, mainly to Japan) were the second and third destinations. Brazil accounted for nearly three-fourths of the region's juice exports, while Argentina (shipping mainly apple and grape juices) was the second largest exporter in the region (11 percent of the exports). Other countries had a share of less than 6 percent each.

EU Trade: Dominated by Intraregional Trade Flows

The EU is the leading destination as well as source of supply in the global fruit and vegetable trade. During 1999-2001, the 15 member countries of the EU accounted for nearly half of the world's imports and over 40 percent of the exports. While nearly all its members are among the major importers of fruits and vegetables, not all are major suppliers. Major exporters include Spain, the Netherlands, Italy, Belgium, France, and Germany.

As shown in table 2.6, EU trade of fruits and vegetables consists mainly of intra-EU trade among its member countries, accounting for 78 to 88 percent of exports and 50 to 85 percent of imports, depending on product groups, during 1999-2001. The EU, however, also relied on extraregional suppliers for many horticultural products, particularly fresh fruits and juices. In addition, while varying considerably among products and partners, a substantial share of extra-EU fruit and vegetable imports is from countries benefiting from preferential treatment for some portion of that trade. Other trade flows with limited or no preferences, however, are also inevitable because adequate alternative supplies are not available.

For juice imports, slightly more than half were from extra-EU trade; in particular, the EU trade group depended for 28 percent of its juice imports on the Southern Hemisphere countries, mainly frozen orange juice from Brazil. EU juice imports from other regions were relatively insignificant—less than 6 percent from NAFTA and 3 percent from Asia (table 2.6).

For fresh fruits, the EU trade group purchased nearly half of its imports from its members, but also purchased nearly one-third of its fresh fruit imports from the banana-exporting and Southern Hemisphere countries, importing a nearly equal share from each region (table 2.6). Bananas accounted for more than 80 percent of the fresh fruits imported by the EU from the banana-exporting countries, with Costa Rica, Ecuador, Colombia, and Panama the major suppliers. Apples, grapes, and pears represented more than half of the fresh fruits imported by the EU from the Southern Hemisphere countries, with South Africa, Chile, New Zealand, and Argentina the major suppliers. Among them, South Africa was the leading supplier, accounting for a 35-percent share of the fresh fruits imported by the EU from the Southern Hemisphere coun-

Table 2.6—Major trade flows in the global trade of fruits and vegetables, 1999-2001 average

	EU trade group[1]												
	Destination of exports					Origin of imports							
	Percent												
	EU	NAFTA	Asia	Others	Total	EU	NAFTA	Asia	S. Hemis.[2]	Banana[3]	Mid. East	Others	Total
Fresh fruits	85.7	1.4	0.4	12.6	100	49.3	2.0	0.5	18.0	17.3	3.9	9.0	100
Fresh vegetables	87.3	2.4	0.7	9.6	100	85.2	0.4	0.7	1.7	0.1	2.5	9.4	100
Processed fruits & veg.	78.0	6.5	1.9	13.6	100	64.3	3.9	10.5	3.4	1.2	7.1	9.5	100
Fruit and veg. juices	87.5	3.8	2.5	6.2	100	49.3	5.7	3.3	28.1	1.2	3.2	9.2	100

	NAFTA trade group[1]												
	Destination of exports					Origin of imports							
	EU	NAFTA	Asia	Others	Total	EU	NAFTA	Asia	S. Hemis.[2]	Banana[3]	Mid. East	Others	Total
Fresh fruits	6.6	55.3	32.1	6.0	100	3.3	33.9	1.5	24.0	34.7	0.3	2.3	100
Fresh vegetables	0.9	90.5	6.3	2.3	100	6.8	86.1	0.6	3.7	1.2	1.1	0.5	100
Processed fruits & veg.	11.5	48.9	29.8	9.8	100	15.3	46.1	21.5	5.4	4.9	2.8	3.9	100
Fruit and veg. juices	18.2	46.9	22.7	12.1	100	8.1	29.9	11.3	41.4	3.7	0.9	4.7	100

	ASIA trade group[1]												
	Destination of exports					Origin of imports							
	EU	NAFTA	Asia	Others	Total	EU	NAFTA	Asia	S. Hemis.[2]	Banana[3]	Mid. East	Others	Total
Fresh fruits	1.6	2.9	85.7	9.8	100	0.9	33.9	39.7	17.8	5.8	1.2	0.7	100
Fresh vegetables	6.6	2.3	79.1	12.0	100	4.0	19.8	58.1	15.4	0.0	0.5	2.3	100
Processed fruits & veg.	23.8	14.4	53.3	8.5	100	4.8	27.3	61.2	4.2	0.2	1.2	0.9	100
Fruit and veg. juices	31.5	35.5	20.1	12.9	100	11.4	33.7	12.0	37.6	0.0	4.0	1.3	100

[1]The traders included in each trade group are not necessarily identical among commodity groups and between exporters and importers (see tables 2.4 and 2.5 for more details). Each commodity group for exports and imports includes only 30 top traders, but they are representative of global trade in fruits and vegetables.

[2] S. Hemis. = Southern Hemisphere countries (Argentina, Australia, Brazil, Chile, New Zealand, South Africa, and Peru).

[3] Banana = Banana-exporting countries (Colombia, Costa Rica, Côte d'Ivoire, Ecuador, Guatemala, Honduras, and Panama).

Source: Calculated based on data from USDA, FAS Global Agricultural Trade System.

tries during 1999-2001. Historical and political closeness as a member of the British Commonwealth led South Africa to target its fresh fruit exports to the EU, even during the decade of world sanctions against the country's apartheid policy. In contrast, the North American market only opened fully for South African business in the mid-1990s.

NAFTA Trade: Extraregional Trade Flows Important

NAFTA is also an important destination and source in the global trade of fruits and vegetables, accounting for 13 to 24 percent for varying groups of exports and 17 to 26 percent for imports during 1999-2001. Among the three NAFTA members, the United States is the leading importer, with Canada lagging far behind and Mexico relatively insignificant. The United States is also the leading supplier among the three for all commodity groups except fresh vegetables, for which Mexico is the leading exporter.

Intraregional trade in NAFTA is also important for the fruit and vegetable trade, particularly for fresh vegetables. As shown in table 2.6, more than 90 percent of NAFTA fresh vegetable exports and 86 percent of NAFTA fresh vegetable imports derived from intra-NAFTA trade during 1999-2001. For

other commodity groups, however, extraregional trade was, in general, more significant than intraregional trade for NAFTA.

Fresh Fruits

While intra-NAFTA trade accounted for slightly more than one-third of its fresh fruit imports, the NAFTA trade group depended more than any other trade group on Southern Hemisphere countries and banana-exporting countries as its major sources of supply. Together, these two regions supplied nearly 60 percent of fresh fruit imported by NAFTA during 1999-2001 (table 2.6). During this period, 80 percent of fresh fruit imports by NAFTA from the banana-exporting countries were bananas, while about 45 percent of fresh fruit imports from Southern Hemisphere countries were grapes.

In addition to shipping 55 percent of NAFTA exports within the region, NAFTA exporters shipped nearly one-third of their fresh fruit exports to Asia during 1999-2001, mainly to affluent markets in East Asia, particularly Japan. Oranges, apples, grapefruit, grapes, and cherries accounted for nearly 80 percent of these exports. In comparison, NAFTA shipped only 7 percent of its fresh fruit exports to the EU because of high seasonal tariffs and preferential agreements, with grapefruit accounting for nearly 30 percent of these exports.

Juices

NAFTA depended on the Southern Hemisphere countries for more than 40 percent of its juice imports during 1999-2001, while intra-NAFTA trade accounted for about 30 percent (table 2.6). Frozen orange juice, almost totally from Brazil, made up 43 percent of juice imports from the Southern Hemisphere countries, followed by apple juice (28 percent) and grape juice (12 percent). In addition to the Southern Hemisphere countries, the EU (mainly for apple juice, and, to a much lesser degree, grape juice) and Asia (mainly for pineapple juice and, to a much lesser degree, apple juice) had shares of 8 and 11 percent, respectively, in the NAFTA market.

In addition to the juice exports going to intra-NAFTA countries—nearly half the juice exports—Asia (particularly Japan) and the EU were major destinations. About 60 percent of NAFTA's juice exports to the EU was orange juice (mainly frozen). Another 19 percent was grapefruit juice; for which the EU was the leading destination. In comparison, NAFTA's juice exports to Asia were relatively diversified, with frozen orange juice, grape juice, grapefruit juice, and apple juice accounting for nearly 60 percent of the exports.

Processed Fruits and Vegetables

Extraregional trade is also important for processed fruits and vegetables exported by NAFTA, accounting for slightly more than half its processed fruit and vegetable trade during 1999-2001. Asia, and to a much lesser degree the EU, were two major destinations for this extra-NAFTA trade (table 2.6). One-third of processed fruits and vegetables exported from NAFTA to the EU consisted of dried prunes and raisins. In comparison, nearly a third of processed fruits and vegetables exported to Asia were frozen potatoes, while other processed potatoes, sweet corn, raisins, and dried prunes accounted for another 30 percent. Japan was the leading desti-

nation, with a share of nearly one-fifth of the processed fruits and vegetables exported globally by NAFTA, while the United States supplied over 60 percent of these exports.

Of processed fruits and vegetables imported by NAFTA, Asia supplied 22 percent, the EU 15 percent, and intra-NAFTA trade about 46 percent. Olives (prepared or preserved) were the leading processed fruit and vegetable import from the EU, accounting for 35 percent. Prepared or preserved pineapples (almost all from tropical Southeast Asian countries) made up 30 percent of the imports from Asia, and mushrooms and truffles (dried, prepared, or preserved) another 14 percent. China supplied slightly more than one-fifth of NAFTA's mushroom imports.

Asia: Intraregional Trade Important for Fruit and Vegetable Exports

Except in the processed category, Asia accounted for 6 to 7 percent of global exports of fruits and vegetables and 8 to 11 percent of imports during 1999-2001. Asia is a relatively important trader in the processed category, accounting for 18 percent of imports and 23 percent of exports. Because Asia is a vast, diverse continent in land, labor, climate, and economic development, it tends to have a different set of participants as major importers or exporters. For example, China, and to a lesser degree tropical Southeast Asian countries such as Thailand and the Philippines, are its main exporters. In contrast, though China and Southeast Asian countries have shown market potential, affluent Asian markets that are land-scarce and have high labor costs, like Japan and South Korea, are the main Asian destinations for global exports of fruits and vegetables.

Intra-Asia trade played a substantial role for the Asia trade group, particularly for exports. A distinguishing characteristic of fruit and vegetable exports by this group is China's dominant role, particularly in the intraregional Asian market. China is a top exporter for all the commodity groups. Except for juices, most of its exports were shipped to neighboring Asian markets, ranging from nearly 70 percent for processed fruits and vegetables to nearly 80 percent for fresh vegetables during 1999-2001. At the same time, except for fresh fruits, Japan alone accounted for 60 to 80 percent of China's fruit and vegetable exports to Asia. As a result, China is a dominant competitor in the Asian fruit and vegetable markets, particularly for the United States in the Japanese market.

The Asia trade group, however, also depends strongly on extraregional sources for horticultural imports, particularly for juices and fresh fruits (table 2.6). For juice imports, intra-Asia trade accounted for only about 12 percent during 1999-2001. The Southern Hemisphere countries, NAFTA, and to a much lesser degree the EU, supplied most of the juices imported by the Asia trade group—a market share of 9 percent of global juice imports. For fresh fruit imports, extraregional trade accounted for slightly more than 60 percent, with NAFTA—and to a lesser degree the Southern Hemisphere countries—the dominant suppliers. However, unlike the EU and NAFTA countries that depend on the banana-exporting countries for

banana imports, the Asian banana imports come mainly from intraregional trade, principally with the Philippines.

For imports in other commodity groups, extraregional trade is still substantial, although intraregional trade is slightly more important. For example, extra-regional imports accounted for 42 percent of processed fruit and vegetable imports, with NAFTA the dominant supplier. Thirty-nine percent of the fresh vegetable imports were also from outside the Asian region, mainly from NAFTA and, to a lesser degree, the Southern Hemisphere countries (primarily Australia and New Zealand). A unique characteristic of the Asia trade group is its strong dependence on the NAFTA countries (mainly the United States) for imports, ranging from 20 percent of its fresh vegetables to 34 percent of its fresh fruits and juices during 1999-2001 (table 2.6).