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Trade Issues Facing U.S. Horticulture in the WTO Negotiations

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Abstract

New negotiations on trade in agriculture were recently initiated by the World Trade Organization (WTO). It is likely that these negotiations will focus on issues previously addressed by the Uruguay Round Agreement on Agriculture, which placed limits on the use of tariff and non-tariff barriers to trade, export subsidies, and the type and level of spending countries are permitted on domestic support programs. While these disciplines have restricted the ability of member countries to use trade-distorting policies, other factors may have contributed more heavily to increasing U.S. fruit and vegetable trade. For U.S. producers, the Agreement has not been accompanied by an increase in the value of exports as much as had been hoped by the U.S. produce industry. Consequently, U.S. objectives for the upcoming negotiations include further reducing tariffs and improving market access, eliminating and prohibiting the use of export subsidies, and placing further limitations on trade-distorting domestic support programs. Continued monitoring of changes in phytosanitary and food safety protocols is also in the interest of the U.S. produce industry.

Keywords: Fruits, vegetables, trade, policy, WTO, market access, tariffs, tariff-rate quota, export subsidy, domestic support, sanitary and phytosanitary measures, trade remedy laws.

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Introduction

The Agreement on Agriculture (AoA) etched out by governments during the Uruguay Round of GATT negotiations was a big step forward in liberalizing agricultural trade. At the heart of the AoA lay quantitative commitments to reduce support and protection of domestic agricultural industries and the creation of a new dispute settlement mechanism to prevent circumvention of stricter rules on import access. The signatories agreed to eliminate non-tariff barriers and cut average tariff levels on all agricultural products by set percentages, reduce the value and volume of subsidized exports, and lower aggregate spending on some domestic support programs. Additionally, a separate agreement, the Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures, established new disciplines for regulating trade flows across borders in order to protect human, plant, or animal life or health. Article 20 of the AoA called for member governments to continue that reform process in 2000 with the objective of “substantial progressive reductions in support and protection resulting in fundamental reform” (WTO, 2001a). To date, member governments, including the United States, have submitted 36 proposals, and several meetings have been held to discuss these proposals. As in the Uruguay Round, the negotiations are likely to be long and arduous since countries have expressed diverse points of view.

The U.S. horticultural sector shares a genuine interest in the outcome of the new round of agricultural trade negotiations, as fruit and vegetable trade patterns continue to be heavily influenced by a range of trade-distorting policies¹. Under the AoA, the maximum allowable (“bound”) tariff rates on various fruits and vegetables are often prohibitive among some major consum-

ing and importing countries. The horticultural sector faces a relatively large number of tariff-rate quotas (357), many of which are characterized by cumbersome administrative procedures and towering over-quota tariff rates. Moreover, domestic farm programs, export subsidies, and phytosanitary measures have affected trade by blocking certain imports or encouraging an “oversupply” of products onto world markets.

Our objective in this article is to identify and discuss issues affecting U.S. trade in produce that are likely to be considered during the negotiations. These include substantial reductions in tariffs, tariff-rate quotas, export subsidies, domestic support, and the use of trade remedy laws. While it is uncertain whether phytosanitary measures will be addressed in negotiations of the World Trade Organization (WTO), it is critical to the U.S. horticultural industry that bilateral or multilateral negotiations continue to resolve conflict and maintain or increase market access. Another potentially significant issue for the U.S. fruit and vegetable industry that will be discussed is China’s accession to the WTO. By way of providing context for our review, an overview of global trade patterns and the role of U.S. fruit and vegetable trade are examined in the subsequent sections.

¹ For the purpose of this article, the general terms, “fruit and vegetable” and “horticulture” refer to all vegetable, fruit, and nut products, both fresh and processed, included in Chapters 7, 8, and 20 of the Harmonized System (HS) Nomenclature. The terms “fresh vegetable” and “fresh fruit” include products found only in Chapters 7 and 8, respectively, while “processed fruits and vegetables” refers to products found only in Chapter 20.

Growth in U.S. and Global Horticultural Trade

Over the past decade, growth in global horticultural trade has been substantial. According to Food and Agricultural Organization (FAO) trade statistics, fruit and vegetable trade (as derived from available import data) rose from approximately \$50 billion (1989) to nearly \$79 billion (1999) and now comprises 26 percent of global food and animal product trade. The percent-increase is 58 compared with 33 percent for food and animal product trade. From a U.S. perspective, we see similar trends. Fruit and vegetable imports and exports reached \$8.7 billion and \$8.9 billion, respectively, or about 24 percent of U.S. food and agricultural imports and 18 percent of exports in calendar year 1999. Again, this represents a large increase from a decade earlier—a 109- and 107-percent increase in imports and exports, respectively.

There are at least four key long-term factors underlying the increase in fruit and vegetable trade patterns. First, over the last decade consumer demand has risen due to strong worldwide economic expansion and changes in consumer preferences. Particularly in industrialized countries, consumers have expressed strong interest in the benefits of healthy and nutritious fresh fruits and vegetables. Consumer purchases indicate preferences for product convenience, variety, and quality. Consumers are demanding year round availability of fresh produce that once was thought of as only seasonal. Second, technological innovations, most notably in communication, chemicals, and transportation, have continued to provide impetus to international trade. For example, atmosphere-controlled cargo and remote monitoring systems have helped maintain quality and extend shelf life of perishable products. Third, the consolidation of the grocery industry has encouraged increased coordination and integration of grower/shipper operations and improved supply chain management. A California grape or Florida citrus shipper, for example, may forge strategic alliances or partnerships with suppliers in Chile, South Africa or Spain in order to secure a contract with a grocery retailer interested in full product lines and 12-month supplies. Fourth, the AoA and regional preferential trading arrangements have reduced barriers to horticultural trade. The North American Free Trade Agreement (NAFTA) has helped provide a liberalized trading environment within North America and can partially explain the large increase in fruit and vegetable trade among the United States, Canada, and Mexico.

Fluctuations in exchange rates also impact individual country trade in horticultural products. The exchange rate—the price of a currency—is influenced by supply and demand factors. The overall appreciation of the dollar over the last several years reflects the increase in foreign investors' demand for U.S. financial assets, services, and goods. The higher priced dollar reduces U.S. food and agriculture's competitiveness in foreign markets and increases competition in the United States. To the extent that the appreciation of the dollar reflects an underlying long-run increase in U.S. productivity *relative* to its trading partners, U.S. agricultural products will be less competitive in world markets. However, there is much medium-run volatility in exchange rate movements. For example, the U.S. dollar depreciated over 35 percent vis-à-vis the Mexican peso from 1995 to 2001, whereas it appreciated over 50 percent from 1993 to 1995.

Global Trade in Fruits and Vegetables

A small group of countries dominates global trade in horticultural products. Table 1 shows the leading importers and exporters of fresh fruits and vegetables and processed horticultural products. Looking first at fresh vegetable exports, the top three exporters—Netherlands, Spain, and Mexico—account for nearly 40 percent of the total value traded. The Netherlands and Spain export mainly to fellow European Union (EU) member countries, although a large percentage of exports are destined for the United States, Eastern Europe, and several developing countries. Mexico ships nearly 90 percent of its fresh vegetables to the United States.

Developing countries play an important role in global trade in fresh fruit and tree nuts, with Turkey, Chile, Ecuador, and Costa Rica making up nearly 20 percent of total value exported². The global leader in fresh fruit and tree nut exports is Spain. Oranges and clementines account for roughly two-fifths of Spain's total fruit exports. Other important players include the United States (almonds, grapes, apples) and Italy (grapes, apples, peaches).

² For the list of countries considered "developing" in this article see (<http://apps.fao.org/lim500/showareas.pl?area=855&ItemType=Trade.CropsLivestockProducts&Language=>).

Table 1—Top 10 horticultural exporters and importers, by subsector, 1999

	Value of exports	Share in world		Value of imports	Share in world
	Million \$	Percent		Million \$	Percent
Fresh vegetables					
<i>Exporters</i>			<i>Importers</i>		
Netherlands	2,893.60	14.95	Germany	2,931.60	14.14
Spain	2,648.50	13.68	U.S.	2,850.60	13.75
Mexico	2,029.20	10.48	Japan	2,044.80	9.86
United States	1,699.20	8.78	U.K.	2,032.10	9.80
China	1,518.80	7.85	France	1,483.70	7.16
France	1,350.40	6.98	Netherlands	1,094.10	5.28
Belgium	1,223.60	6.32	Canada	975.10	4.70
Canada	981.90	5.07	Belgium	822.60	3.97
Italy	744.50	3.85	Italy	771.20	3.72
Thailand	444.90	2.30	Spain	633.50	3.06
Total	15,534.60	80.25	Total	15,639.30	75.43
Fresh fruits					
<i>Exporters</i>			<i>Importers</i>		
Spain	3,592.30	15.50	U.S.	4,751.80	15.14
United States	3,217.60	13.88	Germany	4,413.90	14.07
Italy	1,967.70	8.49	U.K.	2,804.30	8.94
Belgium	1,736.90	7.49	France	2,369.70	7.55
France	1,305.80	5.63	Japan	2,167.60	6.91
Turkey	1,247.40	5.38	Netherlands	1,744.80	5.56
Netherlands	1,231.30	5.31	Belgium	1,715.70	5.47
Chile	1,166.60	5.03	Canada	1,406.70	4.48
Ecuador	974.40	4.20	Italy	1,326.00	4.23
Costa Rica	860.20	3.71	Hong Kong	944.40	3.01
Total	17,300.20	74.65	Total	23,644.90	75.35
Processed products					
<i>Exporters</i>			<i>Importers</i>		
United States	2,132.10	10.88	U.S.	2,931.60	14.58
Netherlands	2,055.50	10.49	Germany	2,556.30	12.71
Italy	1,687.50	8.62	Japan	2,035.30	10.12
Belgium	1,369.10	6.99	France	1,825.90	9.08
Brazil	1,340.00	6.84	U.K.	1,703.80	8.47
Spain	1,298.20	6.63	Netherlands	1,323.60	6.58
China	1,126.00	5.75	Belgium	987.30	4.91
Germany	1,065.60	5.44	Canada	829.70	4.13
France	988.00	5.04	Italy	671.60	3.34
Thailand	766.80	3.91	Spain	496.20	2.47
Total	13,828.80	70.60	Total	15,361.30	76.40

Source: FAS' Global Agricultural Trade System using data from the United Nations Statistical Office, includes intra-EU trade.

The major exporters of processed horticultural products include the United States, several EU-member countries, Brazil (frozen orange juice), China (canned mushrooms), and Thailand (pineapple products). Both the United States and the Netherlands export a wide variety of processed products, with exports of frozen potatoes and orange juice being especially important for both countries.

Turning briefly to imports, the United States, Japan, Canada, and EU-member countries are the largest importers of fruit and vegetable products. It is important to note, however, that import growth by developing countries has exceeded growth recorded by developed countries. Between 1989 and 1999, imports by developing countries rose by 65 percent compared with 54 percent for developed countries. The share of global horticultural imports captured by developing countries rose from roughly 14 percent to 16 percent during the same period.

There is a wide range of horticultural products that enter global trade. The 10 leading fresh fruits, fresh vegetables, and processed products account for only between 50 percent to 60 percent of the value of trade within each subsector (table 2). Bananas top the list of most important products entering global horticultural trade, with imports totaling over \$6 billion in 1999. Other major products traded include fresh tomatoes (\$2.8 billion), grapes (\$2.6 billion), apples (\$2.5 billion), and frozen orange juice (\$2.4 billion).

U.S. Horticultural Trade

The United States is one of the world's leading importers and exporters of horticultural products. The value of fruit and vegetable imports reached \$9 billion in 2000, nearly double the 1990 value. As a percentage of consumption, imports are very important for select fruit and vegetable categories (fig. 1). Some imported fruits and vegetables, such as bananas (100 percent), mangos (100 percent), limes (92 percent), and canned pineapple (89 percent), are tropical products that are in demand by U.S. consumers but cannot be produced in sufficient quantities domestically. Other products are purchased to complement the U.S. seasonal pattern of production, such as grapes (43 percent) and peaches (4 percent). Still other imports compete directly with U.S. production. This is often the case for tomatoes (36 percent), cucumbers (55 percent) and oranges (5 percent).

Table 2—Top 10 products in horticultural trade, by subsector, 1999

	6-digit HS code	Value Million \$	Share of total Percent
Fresh vegetables			
Tomatoes	070200	2,783.12	13.42
Peppers	070960	1,469.70	7.09
Potatoes	070190	1,306.16	6.30
Vegetables, frozen nes 1/	071080	1,210.03	5.84
Vegetables, nes	070990	1,020.69	4.92
Onions	070310	894.12	4.31
Mushrooms	070951	771.84	3.72
Cucumbers and gherkins	070700	755.31	3.64
Vegetables nes & mixtures	071290	634.81	3.06
Total		10,845.77	0.52
Fresh fruits			
Bananas, including plantains	080300	6,381.96	20.34
Grapes	080610	2,604.07	8.30
Apples	080810	2,483.20	7.91
Oranges	080510	2,010.40	6.41
Mandarin, clementine & citrus hybrids	080520	1,419.74	4.52
Fruits nes	081090	1,310.84	4.18
Melons (including watermelons)	080710	1,258.46	4.01
Pears	080820	1,055.98	3.37
Peaches, nectarines	080930	869.74	2.77
Strawberries	081010	836.47	2.67
Total		20,230.87	0.64
Processed products			
Orange juice, frozen	200911	2,352.35	11.7
Potatoes, frozen french fries	200410	1,896.78	9.4
Vegetables nes	200590	1,087.94	5.4
Apple juice	200970	1,030.20	5.1
Tomatoes nes	200290	956.56	4.8
Orange juice	200919	921.42	4.6
Potato chips	200520	858.07	4.3
Pineapples	200820	795.26	4.0
Fruit, edible plants nes	200899	781.5	3.9
Single fruit, vegetable juice nes	200980	714.59	3.6
Total		11,394.67	0.6

1/ "Not elsewhere stated."

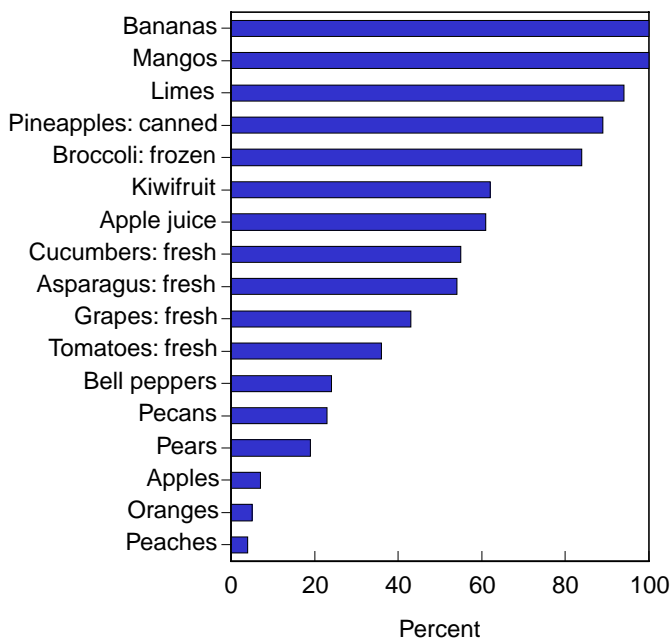
Source: FAS' Global Agricultural Trade System using data from the United Nations Statistical Office, includes intra-EU trade.

Faced with intensified foreign competition and expanding domestic production, the U.S. fruit and vegetable industry has grown increasingly reliant on exports. During the previous decade horticultural exports rose 65 percent in value. As a share of total agricultural exports, the total value of fruit and vegetable trade rose from 14 percent in 1990 to 18 percent in 2000. For several products, exports currently account for a significant percentage of the total volume of supply (fig. 2). For example, exports of almonds make up 58 percent of the volume of supply. Similarly, the United States exports about 37 percent of its prunes, 34 percent of its walnuts, 37 percent of its grapefruit, and 37 percent of its raisins. In the future, developing and expanding export markets, especially to a country as populous as China (see box), may provide relief from some of the industry's current problems, including overproduction and depressed demand.

Despite considerable growth in U.S. fruit and vegetable exports, the latter half of the 1990s saw a reduction in the U.S. trade surplus in horticultural products. In 1995, the value of U.S. exports exceeded imports by \$2.4 billion. By 2000, the surplus had shrunk to \$276 million. A strong dollar coupled with currency devaluations by

Figure 1

Imports as share of U.S. consumption for selected products

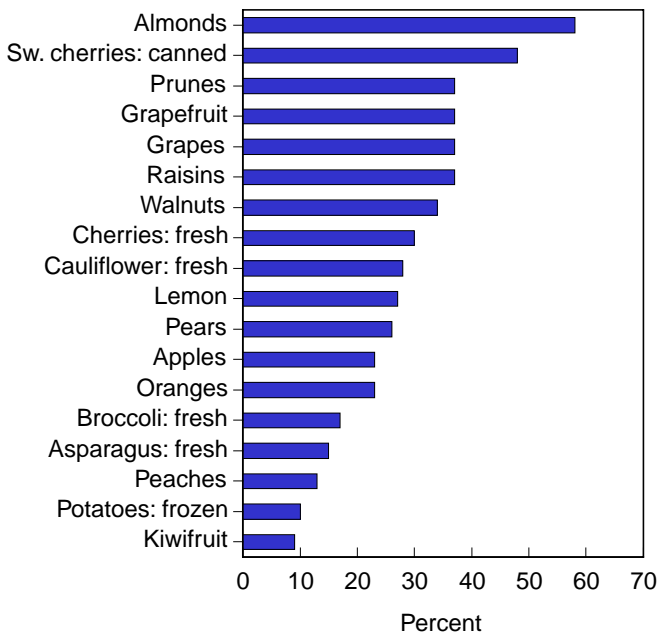


Note: Percentage imported is defined as total imports (volume) divided by total consumption (volume). Consumption and import estimates used represent the average of consumption and imports in marketing years 1997/98-1999/2000.

Source: Economic Research Service, USDA.

Figure 2

Exports as share of U.S. supply for selected products



Note: Percentage exported is defined as total exports (volume) divided by total supplies (volume), where supply equals production plus imports and stocks. Export and supply estimates used represent the average of production and exports in marketing years 1997/98-1999/2000.

Source: Economic Research Service, USDA.

major agricultural exporting countries such as Mexico and Brazil reduced the competitiveness of U.S. exports while spurring increases in foreign imports.

U.S. Vegetable Trade—U.S. exports of fresh and processed vegetable products registered a 101- percent increase between 1990 and 2000, reaching nearly \$4.5 billion by 2000 (table 3). During the same period, vegetable exports to Canada rose 87 percent in value, while sales to Japan and Mexico more than doubled in value. U.S. vegetable exports to the EU increased sales by 37 percent, a significant increase given the overall size of the EU market.

Fresh vegetables currently account for 57 percent of the value of total U.S. vegetable exports. The top five commodities include lettuce, tomatoes, potatoes, onions, and broccoli. Together they represent nearly half of the total value of fresh vegetable exports. For products such as lettuce and tomatoes, domestic demand is strong and has limited the percentage of total production that is exported. However, for other commodities, exports represent an especially important source of demand. Three fresh vegetable products—

Table 3—Trends in U.S. fresh and processed vegetable exports, 1990-2000

Calendar year	Canada	Japan	Mexico	EU	Other	World
--Million dollars--						
1990	843.3	328.9	185.4	262.7	605.2	2,225.5
1991	982.7	380.0	119.0	320.2	652.8	2,454.6
1992	1,068.5	381.9	158.0	348.8	717.0	2,674.2
1993	1,149.0	467.1	172.5	387.7	850.4	3,026.7
1994	1,265.0	655.7	249.9	402.2	1,030.4	3,603.2
1995	1,231.3	719.0	140.9	429.2	1,116.7	3,637.1
1996	1,236.6	694.1	249.4	414.4	1,227.4	3,821.9
1997	1,420.2	706.1	280.6	415.5	1,321.8	4,144.2
1998	1,485.5	733.8	432.4	418.5	1,151.4	4,221.6
1999	1,495.2	762.2	375.7	449.4	1,214.4	4,296.9
2000	1,578.5	750.4	463.5	360.5	1,314.1	4,467.1

Source: Economic Research Service, USDA, Foreign Agricultural Trade of the U.S. (FATUS).

asparagus, cauliflower, and broccoli—have high percentages of total production exported, ranging from 18 percent for broccoli to nearly 30 percent for cauliflower. Canada and Japan import more U.S. broccoli and cauliflower than any other country. Switzerland is the major importer of U.S. asparagus.

Strong foreign demand for processed vegetables contributed significantly to the expansion of vegetable exports. Frozen vegetable exports rose an impressive 114 percent over the previous decade, reaching a record \$546 million in 2000. Japan is the largest market for U.S. frozen vegetables, accounting for 47 percent of the total 2000 value, followed by Canada (11 percent), Mexico (6 percent), South Korea (5 percent), and Hong Kong (4 percent). The driving force behind this growth is the increased foreign demand for frozen potatoes, primarily for french fries. Frozen potato exports climbed 76 percent in value between 1995 and 2000, reaching \$378 million. They currently make up 69 percent of the total value of frozen vegetable exports. The other major frozen vegetable export is sweet corn, with exports totaling \$58 million in 2000.

Revenues from exports of canned vegetables have risen steadily since 1990. They now account for roughly 7 percent of total value of vegetable-product exports. Sweet corn and processed tomato products are the two most important exports, making up 70 percent of the total value. Canada is the leading market for U.S. canned vegetable exports, followed by Japan, Taiwan, South Korea, Hong Kong, and Singapore.

Accompanying the rise in vegetable exports has been a dramatic increase in vegetable imports, from \$2.3 billion in 1990 to \$4.7 billion in 2000. Major U.S. vegetable imports, such as fresh tomatoes, peppers,

asparagus, and frozen potatoes, all more than doubled in value during this period. Fresh tomatoes dominated vegetable imports, totaling \$640 million in 2000, followed by peppers (\$456 million), potato products (\$435 million), fresh or frozen broccoli (\$162 million), and onions (\$137 million). Mexico continues to supply the majority of U.S. fresh vegetable imports, as it did before NAFTA. However, recent increases in imports of high-valued products, such as greenhouse tomatoes and peppers from Canada and the EU, have significantly reduced Mexico's market share. Mexico's share of U.S. fresh vegetable imports declined from 88 percent in 1990 to a current level of 71 percent. Other important suppliers of fresh vegetables include Peru, Guatemala, Argentina, and Chile.

U.S. Fruit Trade—U.S. exports of fresh and processed fruit and tree nut products posted a 37 percent increase in value between 1990 and 2000 (table 4). U.S. exporters made major inroads in the Mexican market, increasing exports by 450 percent. For example, U.S. fresh apple exports to Mexico increased from \$5 million in 1990 to \$122 million in 2000, and U.S. grape shipments to Mexico rose from \$1.6 million to nearly \$40 million during the same period. More modest gains were recorded in the Japanese (26 percent) and Canadian (13 percent) markets, while U.S. exports to the EU fell by 7 percent in value.

Fresh fruit exports totaled \$2.1 billion in 2000 and made up more than three-quarters of the total value of fruit exports (including fresh and processed fruits and tree nuts). The United States engages in the trade of a wide variety of fresh fruits. However, the leading five products account for a significant portion of this trade. In 2000, apples and grapes topped the list of fresh fruit exports, with global sales of \$367 million and \$318

China's entry into the WTO: High stakes for the U.S. horticultural industry

In 2000, China and the United States signed a bilateral agreement that permits the United States to endorse China's accession to the World Trade Organization (WTO). While several hurdles remain before China receives WTO membership, this agreement represents a crucial step in China's accession process. For U.S. producers, China's entry in the world trading system entails a fundamental departure from the current trade relationship. Under the terms of the bilateral agreement, which will be incorporated into the final WTO accession protocol, China commits to eliminate non-tariff barriers on agricultural imports upon its accession and to implement a series of tariff cuts between 2000 and 2004. China agrees to abide by the terms of the Agreement on the Application of Sanitary and Phytosanitary Measures, which requires that all animal, plant, and human health import requirements be based on sound science. In addition, exporters will be able to do business with private traders in China, without the interference of a state-trading entity. China will also comply with WTO rules regarding use of domestic support and export subsidies.

U.S. fruit and vegetable exports to China—China represents an increasingly important—albeit volatile—source of foreign demand for U.S. horticultural products. Its economy has grown an average 9 percent annually since 1980 and is expected to grow 7 percent annually until 2010. As per capita incomes have risen, so too has demand for high-quality horticultural products. During the 1990s, direct U.S. fruit and vegetable exports to China rose 77-fold in value, reaching \$90 million in 2000 (table A-1). These data, though, understate the actual growth in trade, as many U.S. cargoes enter China as transshipments via Hong Kong. Exports in 2000 account for much of the percent increase in trade, reflecting, at least in part, recent measures taken by China to liberalize the economy. Frozen potatoes led direct U.S. horticultural exports to China, with 18 percent of the total value, followed by grapes (12 percent), oranges (9 percent), almonds (6 percent), celery (3 percent) and apples (3 percent).

U.S. horticultural exporters stand to benefit most by supplying markets that are not adequately served by China's producers. China has yet to develop the

infrastructure and marketing capabilities to market large quantities and varieties of high-quality fresh and processed products throughout the country. High-quality U.S. products are increasingly in demand by China's burgeoning middle class and by the restaurant and hotel industries. These products include, among others, sweet corn, grapes, naval oranges, frozen potatoes, and broccoli.

Large reductions in tariffs will make U.S. products more competitive in China's markets. Table A-2 shows rate reductions for a number of important U.S. export products. The lower tariffs are scheduled to take effect by 2004. Percent reductions range from 23 percent for cauliflower, broccoli, and sweet corn products to 75 percent for raisins. Overall, tariff reductions are greater for fruits than for vegetables. Sales impacts will be greatest for products, such as almonds, pistachios and grapefruit, for which demand is high and China has no domestic production.

U.S. exporters will benefit from a liberalized distribution system that will allow companies to more freely market, distribute, and provide sales services. China's distribution commitment, to be phased in over 3 years, is comprehensive, covering commission agents services, wholesaling, retailing, franchising, sales away from a fixed location, as well as related subordinate activities such as inventory management. Currently, China limits import rights to a small number of companies that receive specific authorization or that import goods to be used in domestic processing.

Under the terms of the bilateral agreement, China agrees to base all sanitary and phytosanitary (SPS) regulations and bans on science. China recently lifted a longstanding phytosanitary ban on U.S. citrus imports, allowing direct shipments of citrus from select counties in California and Florida. Despite large domestic citrus production in China, potential exists for U.S. growers to export citrus during the winter harvest season and during the spring season, after China's harvest has peaked.

China's horticultural production—For most fruits and vegetables, China's production has kept pace with or exceeded the increase in demand brought on by rising incomes and changes in diet (Shields and

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Tuan, 2001). China leads the world in production of both fruits and vegetables. Production of fresh vegetables grew 59 percent in volume between 1995 and 2000, and production of fresh and dried fruits rose 19 percent during the same period. China's diverse climate allows for cultivation of both deciduous and tropical products. Important are apples (21 million tons), tomatoes (19 million), cabbages (19 million), cucumbers (16 million), citrus (11 million), pears (8 million), and bananas (4 million). Public investments in the industry have helped spur increased output. For example, improvements in transport systems have reduced marketing costs, and government financing has facilitated the construction of thousands of greenhouses around the country.

While China's production potential is impressive, the near-term prospects for large-scale growth in exports to the United States and other Western countries appears limited. First, China's producers are unable to offer high-quality fruits and vegetables in sufficient volume for export. In the case of fresh oranges, for example, low productivity and inadequate distribution channels prevent producers from delivering large quantities of high-quality product (LA Times, 2001). Domestic demand in high-income areas appears sufficient to absorb the bulk of China's high-quality fruit and vegetable production. Second, the horticultural industry has yet to adopt grade standards, such as uniform product size, or basic marketing practices such as modern packing and packaging techniques. According to Shields and Tuan (2001), bringing China's produce up to international standards would most likely significantly reduce the cost advantage at the farm level.

Despite these difficulties, China's horticultural exports rose 47 percent during the 1990s, reaching a hefty \$3.4 billion in 1999. China has increased exports, in part, because of a recent influx of public and foreign private investment. Producers export mainly to other Asian markets, such as South Korea, Japan, and Singapore. Low labor costs and geographical proximity make China especially competitive in Asia. For U.S. producers, the biggest threat from China's WTO accession will be increased competition in third markets. China already has made significant inroads in markets traditionally dominated by the United States. For example, in Hong Kong, Fuji apples from China have displaced U.S. Red Delicious apples, and in Japan, U.S. broccoli faces stiff competition from China.

Table A-2—China's proposed tariffs reductions for selected fruits and vegetables

	Current tariff	Tariff in 2004
	Percent	
Almonds	30	10
Apples	30	10
Broccoli: fresh	13	10
Cauliflower: fresh	13	10
Grapefruit	40	12
Grapes	40	13
Lemons	40	12
Oranges	40	12
Peaches: fresh	30	10
Pears	30	10
Raisins	40	10
Sweet corn: frozen	13	10
Sweet corn: canned	13	10
Walnuts	30	20

Source: USDA, (2000d).

Table A-1—U.S. horticultural exports to China, 1990-2000

Calendar year	Fruits	Fruit juices	Tree nuts	Vegetables
	Fresh and processed			Fresh and processed
--Thousand dollars--				
1990	264.52	65.50	163.65	672.78
1991	410.81	274.28	0.00	410.81
1992	77.16	193.59	5,042.12	1,479.34
1993	674.32	409.94	7,282.50	1,254.75
1994	802.01	238.42	4,092.26	2,893.77
1995	2,550.38	826.42	371.12	4,195.88
1996	1,022.13	514.10	2,314.42	12,469.11
1997	1,445.83	711.46	2,498.95	18,944.08
1998	12,094.73	1,489.53	2,412.76	21,513.96
1999	2,345.71	1,733.83	3,510.64	25,684.61
2000	25,313.62	1,206.68	9,270.33	53,968.31

Source: Economic Research Service, USDA, *Foreign Agricultural Trade of the U.S. (FATUS)*.

Table 4—Trends in U.S. fresh and processed fruit exports, 1990-2000

Calendar year	Canada	Japan	EU	Mexico	Other	World
--Million dollars--						
1990	701.8	429.9	354.0	45.1	478.2	2,009.0
1991	689.3	530.3	398.0	56.3	468.8	2,142.8
1992	707.8	526.8	395.2	76.9	605.0	2,311.8
1993	728.1	538.7	352.7	110.7	604.4	2,334.6
1994	686.5	623.2	352.7	184.5	751.3	2,598.1
1995	709.1	685.0	383.2	85.3	797.2	2,659.8
1996	714.3	590.8	391.1	95.0	865.3	2,656.6
1997	763.4	561.8	363.7	117.3	982.6	2,788.8
1998	751.5	488.2	371.8	128.1	803.8	2,543.4
1999	744.9	534.8	342.4	190.3	700.5	2,512.9
2000	794.2	541.8	328.8	247.0	832.0	2,743.8

Source: Economic Research Service, USDA, *Foreign Agricultural Trade of the U.S. (FATUS)*.

million, respectively, followed by oranges (\$318 million), grapefruit (\$209 million), and cherries (\$169 million). U.S. fresh fruit exports increased roughly 40 percent during the 1990s, reaching \$2.1 billion by decade's end. Sales to Canada currently account for one-third of all fresh fruit exports, although its share of U.S. exports has declined in recent years. Exports to Japan grew by 20 percent from 1990 to 2000, while exports to Mexico increased six-fold during the same period. The removal of import licenses and reduction in tariffs as a result of NAFTA partially explains the dramatic rise in U.S. exports to Mexico during the latter half of the 1990s.

Processed fruits, dried fruits, and juices account for the remainder of fruit export revenues. Major processed fruit exports include frozen strawberries and canned cherries and peaches. Processed fruit exports increased 58 percent in value between 1990 and 2000. Major importers include Japan, Canada, and Mexico. Dried fruit exports changed relatively little over the same period. Since 1995, exports of raisins to Japan and the EU have made up, on average, 32 percent of dried fruit export sales. The remaining product grouping, fruit juices, increased nearly 100 percent in value between 1990 and 2000. During this period, juice sales to the EU tripled, while sales to Canada and Japan increased by 79 percent and 44 percent, respectively.

Tree nuts are 27 percent of the total value of fruit industry exports. The United States leads the world in production and export of tree nuts, producing more than one-third of the world's tree nuts. Among tree nuts, almonds are especially important to the United States. By value, almonds are the leading U.S. horticultural export commodity (\$663 million in 2000). Over the past 10 years, U.S. almond exports grew by

nearly 25 percent in value (avg. 1989/90-1999/2000), with the United States currently accounting for nearly 92 percent of world almond exports. Other important tree nut exports include walnuts and pistachios. They comprise 12.7 percent and 7.4 percent, respectively, of total value of tree nut exports. The EU imports 45 percent of U.S. tree nuts (value), followed by Canada (13 percent), Japan (9 percent), South Korea (1 percent), and Taiwan (1 percent).

Over the past decade, U.S. fruit imports (including both fresh and processed products and tree nuts) rose dramatically in value, from \$2.6 billion in 1990 to \$4.2 billion by 2000. This trend is due, in part, to the growing ethnic population and the increased interest among Americans in new products, such as tropical fruits. Grapes and melons are the top two most important imports, valued at \$552 million and \$261 million, respectively, followed by citrus (\$224 million), mangoes (\$145 million) and pineapples (\$134 million).

Fruit products from Mexico (tropical fruits and grapes) and Chile (grapes) dominate U.S. fruit imports in terms of value, reaching 21 and 16 percent, respectively, of the total value in 2000. However, Chile's market share has declined in recent years, from 42 percent in 1990 to 30 percent in 2000. Countries capturing a larger share of the U.S. market include Mexico and the EU. The EU, for example, supplied less than 1 percent of the U.S. import demand for fruit products in 1990. By the end of the decade, its fruit exports claimed 6 percent of the total U.S. import value. Growth has been especially large for EU citrus products. These products currently make up 90 percent of EU fresh fruit exports to the United States.

Continuing Issues for the New Agricultural Negotiations

Market Access: Tariffs and TRQs

Countries signing the AoA agreed to reduce “base” period tariffs (those in effect in 1986 or 1986-88) on agricultural products by an average of 36 percent for developed countries and 24 percent for developing nations, and to cap tariffs at a final “bound” level by the end of the implementation period (table 5). The minimum tariff cut on each product is 15 percent for developed countries and 10 percent for developing countries. The AoA also required signatories to convert all non-tariff agricultural trade barriers to tariffs, a process referred to as “tariffication.” Countries doing so established a two-tiered tariff system – called a tariff-rate quota (TRQ), which sets a lower tariff for a given quantitative limit and a higher, over-quota tariff for imports beyond that limit (USDA, 2001). With the supposed lower tariff rates for within-quota imports, TRQs were designed to ensure minimum trade access levels equal to or above a country’s recent import levels. TRQs also increase the transparency of protection in agriculture by converting quotas, or other non-tariff barriers, to more easily measurable and comparable units of protection, such as ad valorem (percentage rate) or specific (units of currency per unit of weight) tariffs.

Since the initial implementation of the AoA in 1995, the record with respect to market access for agricultural products has been mixed. The global, unweighted average bound rate for agricultural products remains high, at 62 percent, with an average bound rate for

industrial countries at 45 percent (Gibson et al., 2001). Tariff rates vary widely across commodity sectors, reflecting the ability of member countries to protect politically sensitive trade flows with very high tariffs. Commodity sectors most affected by tariffs include, among others, tobacco, dairy, rice, meats, sugar and sweeteners, and vegetable products. TRQs have replaced many non-trade barriers, but TRQs often have complicated import regimes and prohibitive over-quota tariffs. High bound tariffs persist, in part, because the base period (1986 or 1986-88) from which tariff reductions were made was one of very high protection, and tariffs on goods subject to tariffication were frequently exaggerated, a practice known as “dirty tariffication” (USDA, 1998). In many cases, developing countries were also permitted to designate base period tariffs at levels well above tariff levels that actually existed. One study estimated that tariffs affecting less than 15 percent of world agricultural trade will have become more liberal than base period levels by the end of the implementation period (Finger, et al., 1996; cited in USDA, 1998). Clearly, lowering tariff barriers and expanding access levels in countries with TRQs will be an important priority for the United States in any future negotiations.

Tariffs—By establishing maximum bound tariff rates and “tariffing” quantitative import limits (through the creation of TRQs), the AoA placed limits on potential tariff increases and established minimum access levels

Table 5—AoA targets for reducing subsidies and protection

Items	Developed countries	Developing countries 1/
	--Percent reduction--	
Tariffs		
Average cut for all agricultural products	36	24
Minimum cut per tariff	15	10
Base Period (1986 for existing tariffs)		
(1986-88 for non-tariff barriers)		
Export subsidies		
Reduction in volume	21	14
Reduction in budget expenditures	36	24
Base period (1986-90)		
Domestic support		
Reduction in total AMS	20	13
Base period (1986-88)		
Implementation period	6 years 1995-2000	10 years 1995-2004

1/ Least-developed countries must bind all tariffs but are not required to make commitments to reduce tariffs, export subsidies, or subsidies.

Source: WTO (<http://www.wto.org/wto/about/agmnts3.htm>).

for imports, but the agreement appears to have had only a limited impact on U.S. fruit and vegetable export prospects. The vegetable industry faces average tariff rates higher than the global mean, and both fruits and vegetables are subject to a large number of “megatariffs” (tariffs over 100 percent) and potentially trade-restricting TRQs. Border measures, such as tariffs and TRQs, reduce the demand for imports, thereby potentially depressing world prices. One study estimates that elimination of tariffs would raise world prices for vegetables and fruits 4.9 percent above trend levels (Burfisher, 2001).

The global, unweighted average bound tariff for the combined fruit and vegetable sector is 60 percent. With an average tariff rate of 69 percent, fresh vegetables

rank among the most heavily protected agricultural commodity sectors. The comparable average tariff rate for fruits is 55 percent. These average rates include the *ad valorem* tariff rates and *ad valorem* equivalents (AVE) of specific tariffs (unit of currency per unit of weight) from the schedules of 129 WTO members. In some cases AVEs, the values of which depend on current prices, were very high, reflecting a general lack of transparency associated with specific tariffs. The average rates include only the over-quota tariffs in TRQ regimes, since over-quota rates represent the marginal, binding constraint on additional trade.

Table 6 highlights the wide range of protection facing the top 30 U.S. fruit and vegetable exports. The selected vegetable products face average tariffs ranging from

Table 6—Minimum, maximum, and average tariffs faced by top 30 U.S. fruit and vegetable exports

Selected items 1/	Min. bound tariff 2/	Max. bound tariff	Avg. bound tariff	Median tariff
	--Percent--			
Almonds: shelled	0	200	55	34
Potatoes: frozen	0	544	64	41
Apples: fresh	0	553	67	45
Grapes: fresh	0	349	62	40
Oranges: fresh	0	318	49	28
Grapefruit: fresh	0	318	59	36
Raisins	0	340	52	35
Orange juice	0	225	58	36
Sweet corn: canned	0	343	62	45
Beverages nes 3/	0	617	62	34
Orange juice: frozen	0	200	53	35
Cherries: fresh	0	200	54	38
Prunes	0	200	56	35
Broccoli: fresh	0	756	83	48
Tomatoes: fresh	0	706	71	46
Nuts: prepared	0	386	48	35
Onions: fresh	0	1,473	90	50
Strawberries: fresh	0	207	58	45
Juice mixtures	0	382	56	32
Peaches: fresh	0	200	55	39
Head lettuce	0	691	105	50
Pears: fresh	0	438	61	40
Melons	0	147	34	35
Potatoes: fresh	0	378	74	51
Tomatoes: canned	0	247	70	50
Nuts nes	0	497	59	36
Lemons and limes	0	318	61	37
Vegetables nes: fresh	0	1,775	70	46
Other lettuce	0	1,082	86	50
Walnuts: shelled	0	200	57	38

1/ Commodities grouped according to 6-digit HS code and ranked by export value in 1999.

2/ Tariffs are bound MFN rates based on final Uruguay Round AoA implementation.

3/ “Not elsewhere stated.”

Source: Economic Research Service, USDA.

51 percent for mixed frozen vegetables to 105 percent for head lettuce. Many AVEs that emerged from the tariffication process are among the very high tariffs, discouraging even minimum quantities of imports. Maximum bound tariffs on fresh onions and lettuce, for example, exceed 1,000 percent. In addition, fresh broccoli and celery, two relatively export-oriented commodities for the U.S. vegetable industry, face high average tariff rates at 83 and 76 percent, respectively.

Overall, tariffs levied against fruits are lower than those applied to vegetables. Average tariffs on selected fruits range from 34 percent for melons to 67 percent for fresh apples. As might be expected, these means are inflated by a few very high tariff rates in some countries. Nearly one-third of the selected commodities are subject to at least one tariff greater than 500 percent. The median tariff rates for the commodities are considerably lower than the means, ranging from 28 percent for fresh oranges to 51 percent for fresh potatoes.

Turning now to a country focus, figure 3 shows the frequency distribution of tariffs levied on fruit and vegetable products for selected countries and country groupings. Overall, countries belonging to the Organization for Economic Cooperation and Development (OECD), which together import 81 percent of the value of the world's fruit and vegetable products, have tariff schedules characterized by a relatively large number of low tariffs and a small number

of very high tariffs. The United States differs from other industrial countries in that 59 percent of its tariffs are “extremely low,” at 5 percent or less. Canada was not included in figure 3 because it maintains tariff rates at extremely low levels similar to the United States. The majority of Japanese and EU tariff rates are “low”—in the 5 - 25 percent range. In contrast, over half of all bound tariffs for non-OECD member countries exceed 25 percent. This is not surprising as cash-poor nonindustrial countries often rely on border measures both as a means of protecting domestic producers and generating revenue.

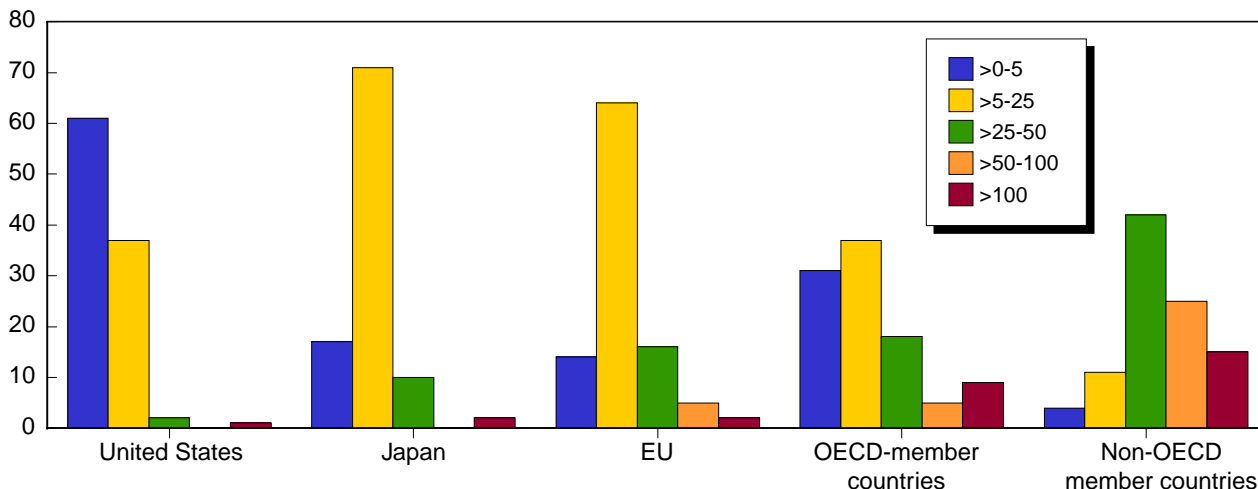
Non-OECD member countries tend to maintain high-bound tariffs in their WTO market access schedules, but in practice, apply tariffs at rates considerably lower than the bound rates.³ By maintaining a gap between bound and applied rates, countries can adjust tariffs without penalty in response to different political and economic objectives. For example, in April 2001 Argentina, as part of a new economic and fiscal policy to combat the ongoing recession, raised tariffs on the majority of its horticultural imports to the bound rates of 35 percent for processed products and 25 percent for fresh produce.

³ Available evidence suggests that, for industrial countries, the difference between bound and applied tariff rates on agricultural products is small or nonexistent.

Figure 3

Frequency distributions of fruit and vegetable product tariffs--selected countries

Percent



Tariff are bound MFN rates based on final Uruguay Round AoA implementation.

Source: Economic Research Service, USDA.

Figure 4 compares the average bound and applied tariffs levied on vegetable products by 14 selected developing countries. The average bound tariff for the 14 countries is 51 percent, while the average applied tariff in 1998 was 19 percent. With the exception of the Philippines and Ecuador, the applied tariffs of all the selected countries are less than half of the bound rate. The existence of tariff-rate gaps has already surfaced as a source of debate in the new negotiations. The United States has proposed that negotiations to reduce tariffs start with applied rates instead of bound rates—the traditional starting point for tariff reductions. On the other hand, developing countries have suggested that they should receive credit for unilaterally applying tariffs that are more liberal than the negotiated bound rates, instead of being forced to make even deeper cuts than countries that kept to their higher bound rates (WTO, 2001a).

Tables 7a and 7b focus on tariff rates for select commodity and country pairings. Judging from the selected OECD members, they generally maintain relatively low tariff rates, or have TRQs with low over-quota rates, and apply tariffs at or near the bound rate. One noteworthy exception is South Korea, a relatively large importer of U.S. horticultural products. South Korean applied rates are relatively high and exceed bound rates by at least 33 percent for several commodity types: frozen potatoes, canned sweet corn, almonds, lemons and limes, and raisins. South Korea currently

applies tariffs at rates higher than their WTO commitments, but because many of its bound tariff rates are not scheduled to become effective until 2004, it complies with the AoA.

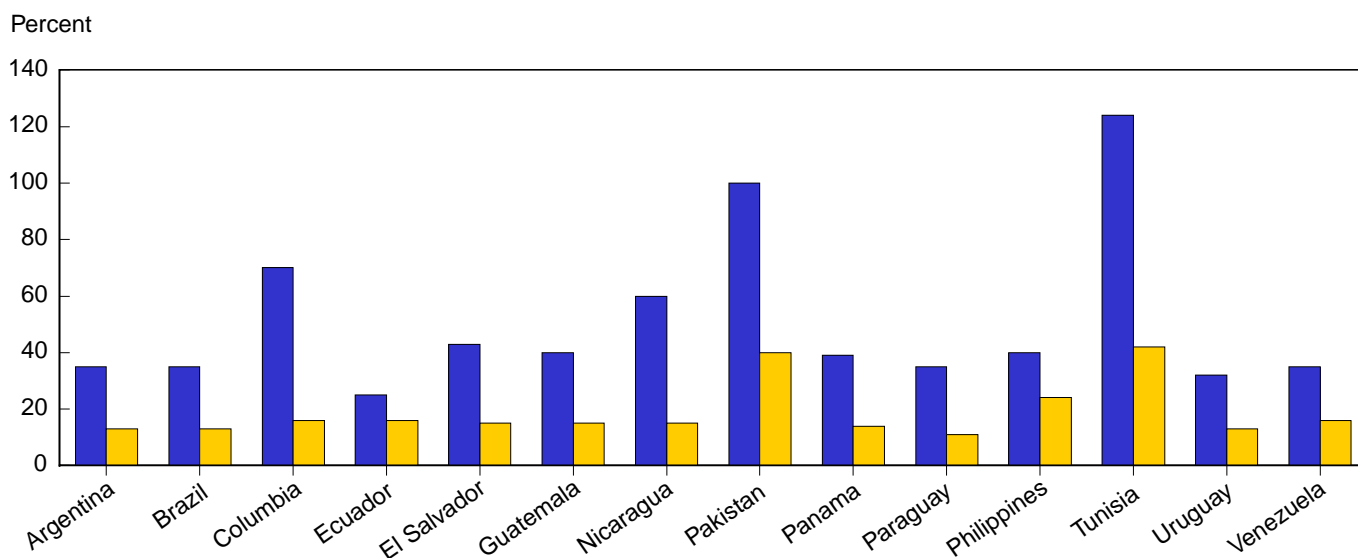
The data provide evidence that non-OECD member countries maintain high bound but lower applied rates for the selected products. For example, India, Pakistan, and Trinidad and Tobago all scheduled final bound tariffs for several products at 100 percent, while the applied tariffs were considerably lower, at between 10 and 65 percent.

Overall, rates tend to vary little across commodities in the selected countries. Dispersion is high in a limited number of cases. The EU protects domestic fresh tomato markets with especially high tariffs. India, Pakistan, and Costa Rica also apply high tariffs to certain products, such as frozen potatoes, canned sweet corn, and raisins, for example.

Many WTO member countries maintain sophisticated tariff schedules for fruits and vegetables, where tariffs for narrowly defined products depend on such factors as date of entry, entry price, and degree of processing. One example is the use of seasonal tariffs by the United States, Canada, and several European countries. These tariffs have potentially large impacts for trade in fresh produce, as they discriminate according

Figure 4

The difference between selected developing countries' bound and applied tariffs on vegetable products



Bound tariff are MFN rates based on final Uruguay Round AoA implementation, and applied tariffs represent annual average.

Source: Economic Research Service, USDA.

Table 7a—Average bound and applied tariffs for selected countries and vegetable products

	Potatoes: frozen		Sweet corn: canned		Tomatoes: fresh		Broccoli: fresh	
	Bound 1/	Applied 2/	Bound	Applied	Bound	Applied	Bound	Applied
--Percent--								
Industrial countries								
Canada	6	6	11	10	2	0	2	0
EU	13	17	17	n.a. 3/	57	n.a.	12	12
Japan	0	11	13	13	3	3	3	3
South Korea	18	30	15	20	45	48	27	29
Turkey	41	20	59	7	49	52	20	23
United States	7	8	6	7	4	n.a.	20	20
Non-industrial countries								
Brazil	35	17	22	17	35	13	35	13
Chile	25	10	25	10	25	10	25	10
China	n.a.	25	n.a.	25	n.a.	13	n.a.	13
Colombia	70	23	70	23	70	15	70	13
Costa Rica	40	40	40	16	45	14	45	14
Dominican Republic	40	35	40	35	40	25	40	25
Ecuador	30	23	30	23	25	17	25	17
El Salvador	40	20	40	20	35	15	50	15
Guatemala	40	17	40	17	40	15	40	15
Honduras	35	19	35	19	35	15	35	15
India	55	40	55	40	100	10	100	10
Indonesia	40	15	40	20	50	25	50	25
Malaysia	13	9	18	20	n.a.	0	29	9
Nicaragua	60	15	60	15	60	15	60	15
Pakistan	100	35	100	65	100	35	100	35
Panama	20	15	n.a.	15	n.a.	15	n.a.	15
Paraguay	35	14	35	14	35	19	35	13
Peru	30	20	30	20	30	12	30	12
Philippines	35	10	35	20	40	20	40	43
Thailand	30	45	30	45	40	60	40	60
Trinidad & Tobago	100	20	100	20	100	40	100	40

1/ Bound tariffs are MFN rates based on final URAA implementation.

2/ Applied tariff data are MFN applied rates for most current year available, 1995-1999.

3/ The tariff rate was not available from either the ERS or the UNCTAD data base.

Source: For bound tariffs: Economic Research Service (ERS), USDA and for applied tariffs: Economic Research Service, USDA and UNCTAD, Trade Analysis and Information System.

to when a product arrives, with larger tariffs corresponding to periods when domestic production is at its highest levels. A look at table 8 shows the gap between in-season and out-of-season rates for selected fresh fruits and vegetables. While the U.S. applies seasonal tariffs, its in-season tariffs are low and not likely to prohibit trade. However, in other cases, bound, in-season tariffs are likely to dissuade importation. The EU in-season rate for oranges, which runs from December 1 to March 31, exceeds the out-of-season rate by nearly 11 fold. Switzerland, the major importer of U.S. fresh asparagus, maintains bound tariffs on

imported asparagus that reach 171 percent *ad valorem*, depending on both the season and level of imports. The high Swiss in-season rate on fresh asparagus coincides with the height of California's and Washington State's seasons, from May 1 to June 15.

Some countries maintain minimum import price regimes to buffer domestic markets against large fluctuations in world prices. Basically, these regimes link the applied tariff rate to delivered price, where higher tariffs are levied on lower priced imports. In doing so, they restrict an importer's ability to increase market

Table 7b—Average bound and applied tariffs for selected countries and fruit products

	Almonds: shelled		Lemon/Lime		Grapes: fresh		Raisins	
	Bound 1/	Applied 2/	Bound	Applied	Bound	Applied	Bound	Applied
	--Percent--							
Industrial countries								
Canada	0	0	0	0	2	2	0	0
EU	2	2	32	7	18	14	2	3
Japan	1	1	0	0	12	13	1	1
South Korea	21	30	30	40	45	48	21	30
Mexico	27	23	36	23	45	45	27	23
Turkey	43	n.a.	54	50	55	55	55	55
United States	5	n.a.	3	n.a.	0	0	2	n.a.
Non-industrial countries								
Brazil	15	13	35	13	29	13	29	13
Chile	25	10	25	17	25	10	25	10
China	n.a.	30	n.a.	40	n.a.	40	n.a.	40
Colombia	70	15	70	15	70	15	70	15
Costa Rica	45	0	45	16	45	16	45	14
Dominican Republic	40	25	40	25	40	30	40	35
Ecuador	20	17	25	17	15	15	25	17
El Salvador	30	10	40	20	25	20	25	15
Guatemala	40	10	40	17	135	17	30	15
Honduras	35	10	35	19	35	19	35	15
India	55	40	100	40	30	30	100	125
Indonesia	40	5	40	10	40	20	40	20
Malaysia	10	0	n.a.	10	n.a.	10	n.a.	10
Nicaragua	60	10	60	15	60	15	60	15
Pakistan	100	35	100	35	100	35	100	35
Panama	n.a.	2	n.a.	13	n.a.	3	n.a.	2
Paraguay	35	13	35	13	35	13	35	13
Peru	30	20	30	20	30	20	30	20
Philippines	40	3	40	15	35	15	45	3
Thailand	40	60	40	60	30	60	30	60
Trinidad & Tobago	100	40	100	40	100	40	100	40

1/ Bound tariffs are MFN rates based on final URAA implementation.

2/ Applied tariff data are MFN applied rates for most current year available, 1995-1999.

3/ The tariff rate was not available from either the ERS or the UNCTAD data base.

Source: For bound tariffs: Economic Research Service (ERS), USDA and for applied tariffs: Economic Research Service, USDA and UNCTAD, Trade Analysis and Information System.

share based on lower prices and efficiency. The EU's "Entry Price System" for select fresh fruits (oranges, clementines, lemons, grapes, apples, pears, apricots, cherries, and peaches) and vegetables (fresh tomatoes, artichokes, and cucumbers) is one such regime. The EU levies different tariffs for each product depending on the product's import price and the season. If a shipment's price equals or exceeds the EU-established entry price, a relatively small ad valorem tariff is applied. If a shipment is priced lower than the entry price, but not more than 8 percent below the entry

price, an additional specific duty is assessed. If, however, the import price is more than 8 percent below the entry price, a large specific tariff (called the maximum tariff equivalent) is levied against the shipment and most likely prohibits importation. For example, fresh tomatoes (imported between June 1 and October 30) priced 8 percent below the reference price of 52.6 euro/100kg face tariffs amounting to 57 percent of its import price. Over the AoA implementation period (1995-2000), the entry price was reduced by 20 percent (USDA, 2000b).

Table 8—Seasonal tariffs for select fresh fruits and vegetables 1/

Item/country	Out-of-season	In-season
	tariff	tariff
	--Percent--	
Head lettuce		
Czech Republic	0	12
EU	10	12
Norway	89	293
Slovak Republic	0	12
Switzerland 2/	10	475
United States	1	6
Asparagus		
Canada	1	2
Norway	0	1
Switzerland	2	171
Tomatoes		
Czech Republic	0	13
EU	54	60
Norway	0	178
Romania	90	120
Slovak Republic	0	13
Switzerland	5	404
United States	3	5
Strawberries		
Czech Republic	1	207
EU	11	13
Norway	2	93
Slovak Republic	0	9
United States	0	1
Apples		
EU	49	56
Norway	1	188
Slovak Republic	3	15
Switzerland	6	180
Oranges		
EU	3	32
Japan	16	32

1/ Bound tariffs are MFN rates based on final Uruguay Round AoA implementation.

2/ Switzerland's tariff schedule maintains seasonal rates that vary according to volume imported. The in-quota, in-season is quite low while the over-quota, in-season rate is high. This table reports only the over-quota rate.

Source: Economic Research Service, USDA.

Developing countries have complained that they face difficulty if they try to increase their incomes by processing the agricultural raw material they produce (WTO, 2001a). This is because countries they see as potential import markets levy higher rates on processed products than on raw materials, a situation known as tariff escalation, in order to protect their own domestic processing industries. As table 9 shows, escalation appears to be a concern in horticultural trade.

Table 9—Bound tariffs on fruit and vegetable products by state of processing

Country	Tariff	
	Unprocessed	Processed
	--Percent--	
Australia	2	8
Brazil	33	36
Canada	4	7
Chile	25	25
Colombia	71	71
EU	7	16
Hong Kong, China	0	0
India	103	140
Indonesia	46	47
Japan	6	14
South Korea	126	56
Malaysia	13	14
Mexico	39	39
New Zealand	2	13
Philippines	39	40
Singapore	10	9
Sri Lanka	51	50
Thailand	42	36
United States	5	6
Venezuela	35	39

Note: Simple average of MFN rates based on final Uruguay Round AoA implementation.

Source: WTO, (2001b).

Major horticultural importers, such as Canada, Australia, Japan, and the EU, levy, on average, significantly higher tariffs against processed products than against fresh products. The tariff schedules of the United States and several non-OECD member countries, show little evidence of escalation. Interestingly, two countries, South Korea and Thailand, on average maintain higher tariffs for fresh produce than for processed products, a phenomenon known as “tariff de-escalation.”

Tariff-Rate Quotas—In the AoA, WTO members agreed to convert all non-tariff barriers, such as import quotas, to tariffs that afforded a level of protection roughly equal to the level that had existed previously under the non-tariff barrier. The basic elements of a TRQ—volume of the quota, and in and over-quota tariffs—were defined in members’ tariff schedules. In cases where there were no significant imports during the base period, members established minimum access opportunities where the size of the quotas increased to 5 percent of consumption by the end of the implementation period. In cases where imports already exceeded 5 percent of consumption, countries agreed to maintain existing access opportunities. During the new negotiations,

debate will likely focus on several issues related to TRQs, including: expanding quota levels, reducing high over-quota rates, and the expediting administrative methods countries use to decide how the quotas are allocated and who captures the resulting economic rents.

The fruit and vegetable sector alone accounts for about 26 percent of the total number of TRQs notified by WTO members (1371). The four countries reporting the highest number of fruit and vegetable TRQs are industrial European countries. Norway ranks first with 166 TRQs, followed by Poland with 37, Hungary 33, and the EU 25 (table 10). Countries in other regions, including some developing countries, have also created TRQs. South Korea and South Africa rank sixth and ninth, respectively, in number of TRQ lines.

In many cases, countries have chosen not to enforce the over-quota tariff, thus, allowing unlimited imports at the in-quota tariff. Looking only at TRQs where the over-quota rate was applied in 1999, three countries—Hungary, the EU, and South Korea—accounted for over one half. The decision not to enforce quota limits may reflect certain domestic policy objectives. For example, by not enforcing the over-quota rates, countries allow additional volumes of foreign goods to enter during periods when domestic stocks are low. In the case of some Eastern European countries, non-applied TRQs may facilitate EU accession by allowing them to adopt higher EU tariffs without the risk of compensation to WTO members for lost exports.

TRQs have the potential to improve market access conditions because, unlike quotas, there is no upper bound on the volume of imports. However, because the upper tier tariff is often so high, many TRQs operate

as a de-facto quota. The global average over-quota rate for fruits and vegetables is 125 percent, 12 percent higher than the average over-quota rate for all agricultural and food products. The evidence indicates that TRQs are an important tool of industrial countries for protecting sensitive horticultural sectors. The average over-quota rate for industrial countries (140 percent) is nearly double the average rate for nonindustrial countries (67 percent). Table 11 compares average over-quota rates to countries' average Most Favored Nation (MFN) bound-tariff rates for fruits and vegetables. Average over-quota rates for the EU, U.S., Japan, and South Korea are more than double their average MFN tariff rates. Most nonindustrial countries have average over-quota rates near, or in a few cases lower than, their average MFN tariff rates.

Many fruit and vegetable quotas remain under-filled so that actual imports are less than countries' minimum or current access commitments. The average fill rate for fruits and vegetables was only 66 percent in 1998. Figure 5 shows the distribution of fill rates for fruit and vegetable products. Nearly 60 percent of all quotas filled at the high level (greater than 80 percent fill). Less than one-fifth of quotas were medium-fill, that is, between 20 and 80 percent. And over 20 percent of the quotas were considered low-fill, reporting between 0 and 20 percent fill. Under-utilization of quotas may be a result of deficient import demand, but it may also point to problems with administrative rules that dissuade imports (WTO, 2001a).

The AoA gave countries considerable latitude in establishing administrative rules. Fortunately, the most common form of administration, the “applied-tariff method,” is also the most efficient. In this method, the

Table 10—Top 10 countries notifying and enforcing TRQs, fruit and vegetable sector, 1999

Country 1/	TRQs		Country 2/	TRQs enforced	Applied as tariffs
	notified	Enforced			
Norway	116	6	Hungary	33	0
Poland	37	8	EU-15	25	0
Hungary	33	33	South Korea	20	0
EU-15	25	25	Bulgaria	10	5
Barbados	20	0	Poland	8	29
South Korea	20	20	Switzerland	8	1
Iceland	17	0	South Africa	7	5
Bulgaria	15	10	Norway	6	110
South Africa	12	7	Thailand	5	0
Switzerland	9	8	United States	5	0

1/ Ranked according to number of notified TRQs.

2/ Ranked according to number of enforced TRQs.

Source: WTO (2000c).

Table 11—High over-quota tariff rates for fruits and vegetables 1/

	Average OQTR	Country average	Over-quota average/ country average
		--Percent--	
Industrial countries			
Czech Republic	92.5	5.7	16.2
EU	57.0	20.4	2.8
Hungary	34.4	34.2	1.0
Iceland	210.3	118.7	1.8
Japan	810.1	25.1	32.3
South Korea	350.5	94.0	3.7
Mexico	185.1	39.1	4.7
New Zealand	5.2	10.3	0.5
Norway	213.2	126.8	1.7
Poland	45.8	44.9	1.0
Switzerland	168.3	96.3	1.7
United States	131.8	8.4	15.7
Non-industrial countries			
Barbados	141.5	106.8	1.3
Brazil	28.8	35.1	0.8
Botswana	36.2	29.9	1.2
Colombia	164.3	71.1	2.3
Costa Rica	45.0	43.3	1.0
Guatemala	82.3	43.3	1.9
Israel	107.3	112.6	1.0
Malaysia	8.9	15.4	0.6
Nicaragua	60.0	60.0	1.0
Panama	81.0	35.2	2.3
Philippines	40.0	39.4	1.0
Slovak Republic	44.9	5.8	7.7
Slovenia	29.7	41.6	0.7
Thailand	81.2	40.0	2.0
Tunisia	75.0	134.4	0.6
South Africa	36.2	29.9	1.2

1/ Tariffs are bound MFN rates based on final Uruguay Round AoA implementation.

Source: Economic Research Service, USDA.

TRQ acts as a simple tariff, where the over-quota rate is not applied and there is no effective quantitative limitation on imports at the in-quota tariff. Compared with other administrative methods, the applied-tariff method is least distorting because it does not create the economic rents that allow high-cost exporters to enter the market. Nearly 60 percent of fruit and vegetable TRQs are administered in this way.

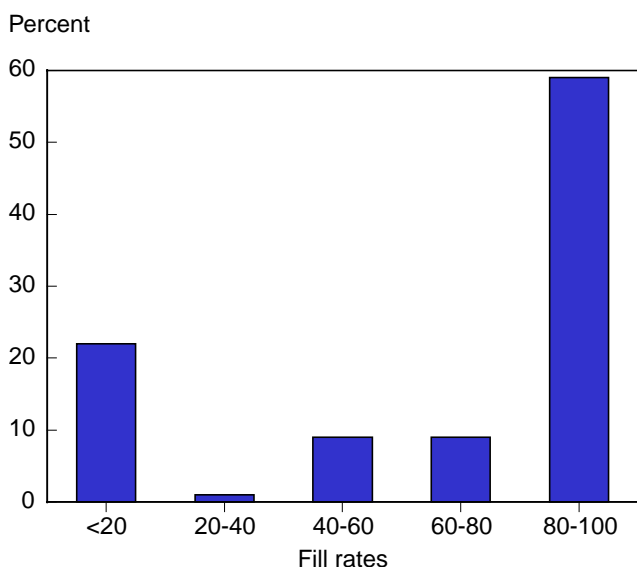
Among administered TRQs, the most common forms are “license-on-demand” and first-come, first-served. Combined, they make up 28 percent of TRQ administrative methods. The first-come, first-served method allows a certain volume of imports at the in-quota tariff; however, all subsequent imports are charged the over-quota rate. The license-on-demand method functions in a similar manner as the first-come, first-served, where potential traders apply for a license to

import in-quota. If demand for import licenses exceeds the quota, the amount allocated to each applicant is reduced proportionately so that imports equal the level of the quota.

Both the license-on-demand and first-come, first-served methods entail additional risks and transaction costs for potential traders that may lead to quota under-fill. By requiring proportional reductions in load size when quota demand is high, the license-on-demand method may substantially increase shipping costs. In addition, exporters complain that the licensing timetables put them at a disadvantage when production is seasonal and the products have to be transported over long distances. With first-come, first-served there is a risk that a load, or a portion of a load, may be assessed the higher tariff and the exporter may incur a loss as a result, or incur additional costs to

Figure 5

Distributions of TRQ fill rates for horticultural products



TRQ fill rates for horticultural products as reported to WTO from 1995 to 1999. Total number reported 1,101.

Source: WTO, (2000c).

break up the load and ship it elsewhere. In addition, this method can create a surge of imports when the quota period opens, potentially reducing the price for the product as exporters compete to get their product under the quota level.

Countries may allocate import rights for more politically-sensitive commodities based on the historical distribution of trade, which limits the opportunity of new entrants to increase market share. Economists view administration by state trading enterprises or producer associations as the most inefficient means of administering TRQs. These organizations may lack the incentive to increase market access, resulting in quota under-fill, or may bias the quota distribution to favored suppliers (Skully, 2001). Neither of these methods is especially common among fruit and vegetable TRQ administrative methods. Combined they account for only 8 percent.

Export Subsidies

Export subsidies rank among the most trade-distorting of government policies because they directly allow subsidizing countries to displace competitive producers in world markets. The subsidizing country increases its supplies of produce in global markets and, if it is a large player in regional or global markets, the larger supplies can place downward price pressure on all

exporters. The AoA began the process of reducing the use of export subsidies in agricultural trade by prohibiting their use on agricultural products unless the specific commodity is listed under the WTO member’s schedule of export subsidy reduction commitments. Of the 140 member countries, 25 countries that had export subsidies in the base period agreed to reduce the volume and value of subsidized exports on specific commodities by a set percentage over a period of time (table 5). The remaining countries and commodities were bound at zero export subsidies. While countries’ actual export subsidies generally remain well below their subsidized export limits, limitations on export subsidies are an important discipline on trade-distorting policies.

Typically, countries do not report their commitments and allocations by type of produce. Instead, they indicate a total value for fruits and vegetables, although in some cases countries do provide various commodity breakdowns. Table 12 indicates the value commitments and actual allocations from 1995 to 1998 for selected regions and countries. All have met their commitments according to the AoA schedules and have reduced spending. The EU, a major exporter of fresh and processed fruits and vegetables, is the largest subsidizer of global produce, accounting for 40 to 65 percent of all subsidized produce exports between 1995 and 1998 (the most recent year available). The EU’s export subsidies for fresh and processed produce totaled \$107 million for 1995, \$91 million for 1996, \$36 million for 1997, and \$40 million for 1998 (EU budgetary data indicate \$43 million for 1999 (USDA, 2001)). Between 1995 and 1998, over 85 percent of the EU subsidies are for fresh rather than processed produce. The fresh fruit and vegetable group consists of tomatoes, shelled almonds, hazelnuts, walnuts, oranges, mandarins, clementines, lemons, table grapes, apples, and peaches and nectarines. Other regions or countries with large export allocations include Switzerland, Turkey, and Colombia.

With only a few countries reporting significant expenditures, the use of export subsidies is not pervasive in horticultural production and trade. Table 13 provides a rough indication of the importance of export subsidies for countries reporting significant expenditures. The table compares countries’ expenditures relative to the total value of horticultural exports. In only one country—Switzerland—are export subsidy expenditures large relative to horticultural exports, with government outlays amounting to 21 percent of exports. Colombia

Table 12—Value of export subsidy commitments and export subsidies: Fresh and processed fruit and vegetables

	1995		1996		1997		1998	
	Commitments	Actual	Commitments	Actual	Commitments	Actual	Commitments	Actual
	--Millions dollars--							
Brazil	22.0	0.0	21.4	0.0	20.9	0.0	20.3	0.0
Canada	4.0	0.0	3.5	0.0	2.9	0.0	2.3	0.0
Colombia	84.8	7.7	84.8	10.6	82.4	15.5	80.1	12.7
Eastern Europe 1/	358.9	5.1	331.8	3.2	300.6	1.5	276.9	1.1
EU Total	117.5	106.9	106.5	91.3	88.9	36.0	81.3	40.4
Fresh	101.5	92.1	92.1	78.4	76.8	29.5	70.2	35.4
Processed	16.0	18.8	14.5	12.9	12.1	6.5	11.1	5.0
South Africa	90.2	12.8	71.8	21.9	52.3	7.3	40.4	0.0
Switzerland	23.7	14.4	21.2	0.0	26.5	4.4	16.3	14.1
Turkey	41.7	4.2	40.3	17.6	38.9	20.5	37.6	10.9
Venezuela	7.9	1.6	7.7	4.8	7.5	1.0	7.3	0.0

1/ Eastern Europe includes Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic.

Source: WTO, (2000b) and subsequent WTO notification updates.

Table 13—Export subsidy expenditures as a percentage of agricultural exports, 1998

WTO notifying countries	Export expenditures	Total horticultural exports	Actual expenditures/exports
	--Millions dollars--		
Colombia	12.7	521.0	0.024
Eastern Europe 1/	1.1	1,529.9	0.001
EU	40.4	5,301.2	0.008
Switzerland	14.1	68.6	0.206
Turkey	10.9	2,347.7	0.005

1/ Eastern Europe includes Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic.

Source: WTO, (2000b) and subsequent WTO notification updates. Trade data from FAO on-line statistical database.

and the EU as a whole had low percentages at 2 percent and 1 percent, respectively. An important caveat is that, while expenditures as a percentage of exports may be low, a country may allocate a significant portion of total expenditures to only a few commodities, potentially causing large distortions in those world markets.

Many countries, including the United States, have called for the complete elimination of export subsidies. Immediate elimination of these subsidies would probably have a positive impact on U.S. exports, since the United States and other countries could gain market share at the expense of certain EU-member countries. Such an agreement would also restrain other countries from future use of export subsidies.

A related issue that may surface in the upcoming negotiations is the United States' use of export credit guarantees. The U.S. program guarantees repayments of short-term credits extended by U.S. financial institutions to

eligible banks in countries that purchase U.S. farm products. The United States is the largest user of export credit guarantees, although the guarantees have been very limited for horticultural products. Mexico, Brazil, and South Korea are countries that have received benefits from U.S. export credit guarantee programs. WTO members agreed to use the in the Organization for Economic Cooperation and Development (OECD) as a forum for discussing government sponsored export credit programs. The United States has engaged in negotiations on credit disciplines within the OECD. A recent U.S. proposal sets limits on loan repayment periods for U.S. credit guarantees.

Domestic Support

Domestic policies that support prices or subsidize production may encourage excess production in some markets, thereby reducing the competitiveness of imports and encouraging the use of export subsidies. The AoA distinguished between policies that are considered production distorting (“amber box”) and non-distorting (“green box”), and required WTO member countries to annually report and reduce amber-box support provided to domestic agricultural producers. The total value of support related to policies in the amber box is referred to as the “aggregate measurement of support” (AMS). Countries agreed to keep their AMS from exceeding limits specified by the AoA for 1995-2000. These limits were to decrease from 97 percent of the 1986-88 base support level in 1995 to 80 percent of the base level in 2000 (87 percent of the base level for developing countries by 2004).

Amber box policies subject to reduction include price supports, marketing loans, direct payments based on

current production or price levels, input subsidies, and certain subsidized loan programs. If support for a specific crop is equal to or less than 5 percent of its production value (10 percent for developing countries), it is not counted towards the AMS limits. This “*de minimis*” exemption provides some flexibility to a country in the design of its domestic support policies for specific commodities. But much more flexibility for commodity support is provided by the use of the aggregate support measure concept, since the reduction commitments apply only to the total value of support for a country, not to specific commodities.

Direct producer payments under certain production-limiting programs (referred to as “blue box” policies) are exempt from reduction (not included in the current AMS) as long as they satisfy specific criteria. Specifically, the program must be production limiting, with payments based on fixed area and yield, or on 85 percent or less of the base level of production or fixed number of livestock.

Support from policies with “minimal” impacts on trade or production (green box policies) is also excluded from the AMS. Examples of these policies include public stockholding, natural disaster relief, marketing and promotion, inspection, extension services, pest and disease control, and research. Green box policies also include producer payments that are minimally distorting to production, such as certain forms of de-coupled income support not tied to production like the United States’ production flexibility contract payments or the EU’s assistance to help producers make structural adjustments, and direct payments under environmental and regional assistance programs.

Currently, 31 WTO member countries have AMS reduction commitments (WTO, 2000b). Many member countries, though, report green box policies and a limited number of countries indicate blue box policies. Members do not have commitments to reduce green or blue box support. Of the major industrialized regions, only the EU reports an AMS related to several specific fruits and vegetables. Japan and Canada indicate modest levels of AMS support for a few commodities.

The cornerstone of the European fruit and vegetable sector policy is the producer organizations that are able to market produce and withhold product when supply is ample so that high internal market prices can be sustained. In order for the withheld product not to affect market prices, it must be destroyed, donated to charity, or used as animal feed. The producer organiza-

tions, which are marketing produce, can decide when to withdraw product and must compensate growers within specified guidelines. The European Union provides withdrawal compensation and operational funds to the producer organizations in order to finance the payments to growers. In 2002/03, the maximum level of withdrawals for each product declines to 10 percent (8.5 percent for apples and pears, 5 percent for citrus) of the producer organizations marketed quantity (OECD, 1998; USDA, 2000a). This is a substantial decline from 1997/98 where maximum levels of withdrawals were 50 percent for most products and 35 percent for citrus, although actual withdrawals have been much more limited for most products. EU maximum compensation for a withdrawn product has also gradually declined over the implementation period. For example, EU withdrawal compensation for tomatoes fell from 1997/98 6.44 euro/100 kg to 2000/01 5.47 euro/100kg.

The AMS for the EU horticultural sector equaled \$10.6 billion in the marketing year 1998/99, the most recent data available, or approximately 21 percent of the EU’s total aggregate measure of support (table 14).⁴ This compares with \$17.1 billion in 1995, the first year of notifications to the WTO, nearly a 40-percent decrease in support. Tomatoes, apples, and wine receive the largest amount of support, approximately 60 percent of total support. It’s important to point out that these amounts generally do not reflect EU budgetary exposure. Instead, they reflect an estimate of the value of support to the fruit and vegetable sector from consumer transfers and government coffers. Consumers provide transfers to fruit and vegetable growers and processors, in effect, by paying higher market prices than they otherwise would have if there were no withdrawals of product by the producer organizations.

The reported support levels do not reflect the current protection the EU affords the horticultural sector. Conceptually, the AMS calculation is determined by the difference between the EU internal and external prices times the amount of production marketed. In practice, the AMS for most EU horticultural products is an “equivalent measure of support” - an internal price that is a fixed applied administered price (based on the highest entry price) that does not necessarily reflect current domestic price levels. The external price

⁴ A U.S. dollar/euro exchange rate of 1.071 was used to convert euro to U.S. dollars for 1998/99.

Table 14—Domestic support by the European Union

	1995/96	1996/97	1997/98	1998/99
--Millions dollars--				
Fresh products				
Apples	3,151.7	2,373.0	2,190.0	2,042.8
Apricots	144.0	159.2	114.8	108.2
Artichokes	290.3	239.4	251.3	238.7
Bananas	254.0	233.3	233.1	189.2
Cauliflower, eggplant	0.0	0.0	18.3	11.0
Cherries	249.5	157.9	108.9	102.2
Clementines	206.7	183.7	202.0	195.1
Cucumbers	821.6	491.7	685.4	627.3
Lemons	283.7	434.2	456.3	309.7
Mandarins	58.8	74.7	70.0	35.6
Oranges	412.0	512.9	473.8	295.4
Pears	929.5	672.5	686.0	586.9
Peaches/nectarines	562.4	529.7	256.0	426.3
Plums	161.3	77.7	72.9	62.5
Satsumas	29.2	45.0	40.1	23.3
Table grapes	469.9	250.0	259.7	237.4
Tomatoes	5,872.0	5,286.3	5,080.3	2,242.2
Zucchini	0.0	282.2	184.2	185.0
Processed products				
Chick peas, lentils, and vetches	86.1	80.0	78.9	75.1
Citrus	227.4	178.5	165.7	115.1
Figs	0.0	7.1	7.1	6.4
Grapes	163.1	136.7	128.4	0.0
Lemons	43.8	46.4	46.3	38.1
Peaches	91.4	82.1	49.1	70.3
Pears	35.9	44.4	38.6	44.3
Pineapples	2.8	2.5	2.7	6.7
Plums	59.6	46.9	24.0	35.5
Tomatoes	429.2	361.7	376.3	427.9
Wine	2,135.5	2,188.0	2,171.8	1,947.6
Total	17,171.6	15,177.4	14,472.1	10,685.8

Note: AMS is for price support, minimum price, or production aid.

Source: WTO, (2001d); WTO, (2001e); WTO, (2000d).

is also a fixed price agreed upon during the AoA negotiations. The administered and external price used in the AMS calculation may overstate actual domestic and world reference prices, and in particular, the internal price is likely to exceed the actual domestic price. Hence, the support levels may be overstated.⁵

The EU budgetary expenditures for fruits and vegetables summed to \$1.6 billion in 1999 (USDA, 2001).

⁵ For more detail, see Harald Grethe and Stephan Tangermann's explanation of "water" in the entry price system, "The EU Import Regime for Fresh Fruit and Vegetables after Implementation of the Results of the Uruguay Round," Diskussionsbeitrag 9901 January 1999.

Table 15 provides a breakdown of funding for export refunds, compensation for withdrawals, operational funding for producer organizations, and other intervention expenditures for 1999 and appropriations for 2000 and 2001. In addition, the EU provided \$689 million in direct payments under production-limiting programs (blue box) based on fixed area and yield to producers of peas, beans, field beans, and sweet lupines (WTO, 2000b).

Japan and Canada reported modest levels of horticultural-specific assistance in their aggregate measures of support. Japan reported price support for starches (\$179 million for potatoes and sweet potatoes in 1998) and direct payments to the vegetable and fruit sectors,

Table 15—EU budget for fruit and vegetables, 1999

Expenditures	
Million \$ 1/	
Operational fund for producer organizations	273.6
Export refunds	43.2
Withdrawals	96.7
Production aid	
Bananas	189.5
Processed tomato products	343.5
Fruit based products 2/	100.7
Dried grapes	136.4
Citrus fruit	216.3
Other	151.6
Total	1,551.5

1/ A U.S. dollar/euro exchange rate of 1.067 was used to convert euro to U.S. dollars for CY 1999.

2/ Includes expenditure on aid for processing peaches, pears, prunes and figs.

Source: USDA, (2001).

but the aggregate measure of support was below the *de minimis* level. Similarly, Canada reported advance payments and/or provincial programs for apples, potatoes, and dry beans of \$518 million in 1997, but only dry beans is not below *de minimis* levels. Fruit and vegetable growers in the United States, Japan, and Canada, among other countries, also might benefit from research, marketing and promotion, and emergency assistance, but such support is considered non-trade distorting and is notified as green box.

Some countries have begun to shift away from amber-box policies and toward more green-box policies, which may reduce production and trade distortions and their AMS. The current U.S. objective on agricultural domestic support is to substantially reduce trade-distorting domestic support in a manner that corrects the disproportionate levels of support used by some WTO members. Specifically, the United States proposes that each country with current AMS commitments further reduce their AMS from final-bound levels to a new level equal to a fixed percentage of the members' value of total agricultural production in a fixed base period, and that the fixed percentage be the same for all members. The U.S. proposal also suggests simplifying the domestic support disciplines into two categories; exempt support, with minimal trade distorting effects on production, and non-exempt support subject to a reduction commitment (WTO, 2000b).

Sanitary and Phytosanitary Measures

Countries have legitimate concerns about protecting food safety and plant health. As a consequence, countries devise measures to provide safeguards from chemical (pesticides, additives, etc.), biological (microbial contaminants such as *Cyclospora*), and phytosanitary hazards that might be associated with horticultural consumption and production. Potential trade complications may occur when measures are adopted as a means of protecting domestic producers from import competition rather than from protecting the food supply and plant health. To address this issue in the Uruguay Round, the Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures established rules and procedures for regulating trade flows across borders in order to protect human, plant, or animal life or health from pests, diseases, and other contaminants and, at the same time, facilitate international trade.

The SPS Agreement went into effect January 1, 1995, with the establishment of the WTO. The measures that WTO members can adopt must be based on scientific principles, and members could choose to comply with measures of international bodies such as CODEX Alimentarius and the International Plant Protection Convention (IPPC). The WTO does not develop its own standards, but instead relies on CODEX for food safety standards and regulations and on IPPC for plant health standards, regulations, and quarantine procedures. According to the SPS Agreement, if a member country wants to choose a stricter standard, the measures must be based on a risk assessment. Moreover, countries can choose an alternative measure (complete ban, partial ban, treatment, or increased inspection) as long as it is no more trade-restrictive than required to reach its health or safety protection objectives. Countries must allow imports from other countries if the trading partner can establish measures that are equivalent to their own.

In order to facilitate the smooth flow of produce across borders and forestall inter-government conflicts, the SPS Agreement includes transparency provisions that require countries to notify trading partners of any new or changed SPS measures. Early notification of regulatory changes allows growers, shippers, and processors to make adjustments to production or processing methods to comply with regulatory changes. Each country establishes a point of inquiry to provide information on new or changed requirements, and upon request, provides a risk assessment if its measures are more

Table 16—Regulatory objective of measures notified to WTO, by product category

	Fresh			Processed			Fresh and processed			Total
	Fruit	Vegetables	Both	Fruit	Vegetables	Both	Fruit	Vegetables	Both	
--Number of notifications--										
Food safety	37	40	60	10	5	4	2	1	4	163
Plant health	61	38	26	--	--	--	2	--	1	128
Total	98	78	86	10	5	4	4	1	5	291

Sources: WTO SPS notifications, G/SPS/N series, and Economic Research Service, USDA.

strict than international rules. Over 1,400 notifications were received in the 1995-99 period. There were 291 notifications signaling new or changed regulations affecting trade in horticultural products (table 16). Nearly 30 percent concern vegetables exclusively, nearly 40 percent center on fruits, and another 33 percent affect both fruits and vegetables. Ninety percent of the notified produce-related changes involve fresh rather than processed products.

The dispute settlement mechanisms encourage countries to formally consult and find mutually acceptable solutions to trade disputes. If resolutions cannot be reached satisfactorily in the bilateral meetings or through other technical exchanges, then a complainant(s) can request the WTO Dispute Settlement Body (DSB) to establish an impartial panel of trade experts to make recommendations. If a member(s) is dissatisfied with the panel's recommendations, then it can appeal to the WTO Appellate Body. However, members are obligated to adopt the recommendations if approved by the Appellate Body. To date, there have been three SPS cases and all have been appealed to the Appellate Body. The WTO also established an SPS Committee whose objectives include consultation about potential trade conflicts and to ensure implementation of the Agreement.

All three of the SPS cases to reach the Appellate Body have been won by the complainant. One involved horticultural products - a U.S. complaint against Japanese Varietal Testing. The Japanese required that each added variety of an already approved commodity (apples, cherries, nectarines, and walnuts) had to undergo costly testing in order to get approval to enter the Japanese market. The United States argued that methyl bromide treatments effectively exterminate codling moth across all varieties. The United States maintained that once an apple, cherry, or nectarine variety is approved, then other varieties should be allowed to enter Japan without additional testing. The Appellate Body concurred with the panel report that the Japanese requirements were

not based on scientific evidence and varietal testing measures were not based on a risk assessment, nor were they transparent. The United States and Japan are expected to reach a mutually acceptable agreement shortly. In 2000, U.S. cherry exports to Japan equaled over \$100 million, while apple and nectarine exports were barely over a million dollars.

USDA's Animal, Plant and Health Inspection Service (APHIS) publishes its annual SPS Accomplishment Report indicating the resolution of trade barrier issues related to animal diseases and plant pest concerns. These reports indicate gains in market access (first-time access to a market), market expansion (increasing the openness of an existing market), and market retention (an existing market is preserved). Among the recent accomplishments listed, one occurred in 1999 when Japan lifted its 46-year-old ban on imports of most varieties of California and Florida tomatoes. Since then U.S. tomato exports to Japan have steadily increased, expanding from under \$10,000 in 1993 to over \$4 million in 2000, mostly to the foodservice sector.

Trade Remedy Laws

In general, trade remedy laws have as their objective the elimination of market distortions caused by foreign governments. Specifically, these laws target "unfair" pricing practices that result from protectionism or government subsidies allowing firms to export below cost of production. Under current WTO rules, members may levy additional duties to bring export prices closer to the "normal value" (usually, the comparable price of the product in the domestic market of the exporting country) or to remove the injury to the domestic industry in the importing country. In order to do so, a member must show that unfair pricing is taking place, calculate the extent of damage, and show that dumping causes injury to domestic industries.

The use of trade remedy laws rouses controversy within member countries and especially among trading partners. The debate surrounding their application pits

domestic producers against potential foreign competitors and consumers in the importing country. From the perspective of domestic producers, additional duties prevent foreign products from being sold at “unfairly” low prices. Additional duties, however, are likely to agitate potential foreign exporters, who may view them as backdoor attempts to protect domestic markets. For domestic consumers and intermediate industries, anti-dumping duties effectively increase the cost of imported goods from the offending country.

Trade remedy laws will likely emerge as a highly contentious issue during future trade negotiations. Since 1995, countervailing and anti-dumping investigations (agricultural and manufactured goods) have increased steadily and significantly, reaching an all time-high of 340 in 1999 (WTO, 2000e). Increased use of trade remedy laws has revived the fear that contingent protection instruments could be used to restrict the effect of tariff reduction or other liberalization measures on market access. In addition, the United States’ passage of the Continued Dumping and Subsidy Offset Act of 2000 (“Byrd Amendment”) has piqued several U.S. trading partners. This act allows “injured” U.S. companies to collect import duties collected under U.S. antidumping and countervailing duty orders. In December 2000, eight countries plus the EU requested consultations with the United States regarding the act, arguing that it went against WTO rules. It is unclear the extent to which members will push for reform in the application of trade remedy laws or the direction any proposed changes will take. However, some of the world’s largest traders, including Japan, Brazil, and the EU, have expressed interest in placing trade remedy laws on the table for negotiation (WTO, 2000e).

While trade remedy laws are not an agricultural issue per se, U.S. producers have a vested interest in any changes wrought in this area during future negotiations. There appears to be a growing number of agricultural cases, and many of these cases involve fruit and vegetable products. Trade in fresh produce is especially vulnerable to trade remedy laws. The highly perishable nature of most fresh produce may induce producers to sell for less than cost, sparking claims of dumping by competing producers in importing countries.

In recent years, the U.S. horticultural industry filed dumping charges against imports of hothouse tomatoes (Canada), field tomatoes (Mexico), frozen raspberries (Chile), apple juice concentrate (China), honey (Argentina and China), and table grapes (Mexico and

Chile), to name a few. U.S. producers also have expressed concern over the dumping of canned peaches from Greece and clementines from Spain. On the other hand, foreign claims against the U.S. growers also appear to be on the rise. In the case of tomatoes, for example, Canada recently filed charges of dumping against U.S. producers and Mexico has threatened to do the same.

In the fiercely competitive North American tomato market, Canada and the United States have threatened to invoke trade remedy laws on each other. In June 2001, the Canadian Tomato Trade Alliance announced that it had filed a complaint with the Canadian Government against U.S. fresh tomato imports with the claim that dumping is occurring at “absurdly low prices” with margins in the range of 30 - 50 percent. The Canadian complaint comes 3 months after six U.S. greenhouse tomato growers filed petitions with the International Trade Commission (USITC) and the Department of Commerce (USDC) to investigate their charges that the Canadian hothouse industry had dumped product in the United States at below production costs. The United States found Canadians guilty of dumping tomatoes in U.S. markets and to have caused material injury to U.S. growers. The USDC will issue its preliminary finding on dumping margins in September 2001.

In May 2001, the USITC initiated its investigation into allegations that red raspberry imports from Chile were being sold in the United States at less than fair value. In its preliminary determination, the USITC determined that U.S. producers were materially injured or threatened with material injury by imports from Chile of individually quick frozen red raspberries. The case currently resides with the USDC, where estimates of dumping margins will be made public later this year. Chile supplied over 60 percent of U.S. imports of frozen raspberries in 2000.

Two recent cases where U.S. horticultural producers successfully used trade remedy laws to block alleged dumping involve imported field tomatoes from Mexico and apple juice concentrate from China. In the case against Mexican field tomatoes, Florida growers charged Mexican producers with dumping at prices below fair market value. In 1996, the case was suspended, with Mexico agreeing not to export to the United States at prices below an established floor price. In the apple juice concentrate case, The USITC backed the U.S. apple industry’s claim that China’s

producers sold at less than production costs. In 2000, China's apple juice concentrate imports were assessed an additional import duty ranging from 8 to 52 percent. Recently, the U.S. apple industry requested an increase in antidumping duties against China, claiming that China's concentrate suppliers continue to dump product in the U.S. market.

In other cases, U.S. producers were unable to curb alleged dumping using trade remedy laws. For example, in 2001, the Coachella grape growers of southern California claimed that imported table grapes from Chile and Mexico were being sold at prices below production costs. The USITC ruled against the U.S. growers, determining that there was no reasonable indication that a U.S. industry was materially injured or threatened with material injury by reason of imports of spring table grapes from both these countries specifically during the months of April-June.

In addition to the dumping cases, the USITC also has instituted an investigation for the purpose of preparing a report that will describe the effects of EU policies on the competitive position of the U.S. and EU horticultural products sectors generally, and for several specific horticultural products. The USITC report is expected to be published by the end of 2001.

Continuing the Reform Process

As stated in the preamble to the AoA, the long-term objective of the reform process is to establish a fair and market-oriented agricultural trading system, notably through substantial progressive reduction in agricultural support and protection sustained over an agreed period of time. Towards that end, member countries established specific binding commitments in each of the following areas: market access, domestic support, and export subsidies. Countries have generally honored their commitments under the AoA, and the number of disputes about provisions of the Agreement has been limited. However, as Tangermann (2001) points out, the reasonably smooth sailing that the AoA has enjoyed may also be due to the fact that the quantitative country commitments established under it were rather generous, and have not yet constrained policies very much. For the AoA, the real test may come during future negotiations when members must agree on significant further reduction requirements and when

these reductions begin to curtail members' ability to develop and protect sensitive markets.

As discussed in this article, much work remains in the area of horticultural trade liberalization. With regard to market access, the conversion of all non-tariff barriers into tariffs, as well as the binding of all tariffs, signified major progress. However, compared with some other agricultural sectors, average bound tariffs on fruits and vegetables remain quite high. Average bound rates are higher for nonindustrial countries than for industrial countries. Even when we consider that most nonindustrial countries apply tariffs at rates well below the bound rates, the average applied tariffs for these countries are higher than tariffs levied by industrial countries. On the other hand, many industrial countries have adopted sophisticated tariff schedules where rates vary, often dramatically, according to season, entry-price, and level of processing. These practices often afford greater protection than is apparent in average tariff rates.

Progress has been made in the areas of export subsidies and domestic support. Members capped aggregate levels of expenditures, and available evidence showed that actual spending was often well below those commitments. It is difficult, however, to determine the extent that these policies interfere with global horticultural trade since they often lack transparency.

The Economic Research Service (ERS) study entitled "*The Road Ahead: Agricultural Policy Reform in the WTO*" examines full liberalization—removing tariffs, export subsidies, and domestic support—for all agriculture, including an aggregate category for fruits and vegetables. The study finds that produce prices would rise 8 percent, a price increase that would benefit U.S. growers.

While this overall study provides a perspective on the average effect of liberalization, studying individual fruits and vegetables would provide much needed insight on precisely where and how much the gains might be for the horticultural sector. ERS has embarked on a 2-year project to analyze the effects of government intervention for major fresh and processed fruits and vegetables. ERS will report results on this research in our Fruit and Vegetable Newsletters as they are completed.

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