



United States
Department
of Agriculture

FTS-341-01
April 2010



A Report from the Economic Research Service

www.ers.usda.gov

Fruit Policies in Japan

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Abstract

Government programs and subsidies regulate and support Japan's large fruit-production sector, bolstering farm incomes and output levels. Supply-management programs that target annual production levels for some fruits, in order to maintain market prices, contribute to higher prices for consumers, although other programs aim to increase fruit consumption. Japan's tariffs and phytosanitary measures also create barriers to fruit consumption and limit imports. Producers in the United States, a major fruit supplier to Japan, could benefit from reduced barriers.

Keywords

Japan, fruits, policies, production, subsidies, insurance, farm markets, tariffs, phytosanitary measures

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Approved by USDA's
World Agricultural
Outlook Board

Acknowledgments

The authors gratefully acknowledge the review and comments of Molly Garber, Lewrene Glaser, Sophia Huang, Gary Lucier, Mary Anne Normile, Agnes Perez, and Susan Pollack, Economic Research Service; Hyunok Lee, University of California at Davis; Thomas Marsh, Washington State University; William Gorman and Hiroshi Mori, New Mexico State University; Carol Goodloe, Office of the Chief Economist; and Reed Blauer and Shari Kosco, Foreign Agricultural Service. Editorial and design support was provided by Angela Anderson.

Introduction

Japan is a large market for fruits and its consumers spend \$10 billion per year (wholesale value) on fresh and preserved fruits.¹ The United States, the second-largest foreign supplier of fruits to Japan, sent about \$450 million in fruit exports to Japan in 2009—10 percent of total U.S. fruit exports (table 1).² Japanese Government policies regarding this large market affect U.S. fruit exports and offer a point of comparison for other developed countries, including the United States. This report is one in a series examining Japan's policies that protect and regulate its agricultural markets. Japan's policies affect existing trade patterns and are relevant to the current round of global trade negotiations conducted by the World Trade Organization (WTO).

Fruit demand in Japan appears to be declining. Japan's population, currently at about 127 million people, has also begun to decrease. Consumption of traditionally important fruits, such as citrus fruits and apples, has been declining, while consumption of some minor fruits, such as blueberries, has increased. Expenditures on fruits for consumption at home have decreased (fig. 1). Japanese consumers are increasing their purchases of food away from home, but data on fruit consumption in restaurants and other venues are not available. Consumer prices for fruits have been stable, both in absolute terms and relative to the general price index, except for a spike in 2007 (fig. 2).³ Although not a growing market, Japan's fruit consumption remains large and economically significant.

Fruit production, by volume, declined about 20 percent from the 3-year average for 1994-96 to the average for 2004-06. Japan produces many fruit crops, benefiting from the climatic variation, both in latitude and in elevation above sea level, that the long string of mountainous islands offers. The leading fruit produced in Japan, by volume, is the mikan tangerine (or unshu), followed by apples, melons, pears, persimmons, grapes, strawberries,

¹ 1.193 trillion yen, from *Statistical Yearbook of the Ministry of Agriculture, Forestry and Fisheries*, 2007-08, p. 550.

² U.S. exports of fruits and fruit preparations, not including fruit juice.

³ Weather-related problems in North America (oranges and lemons) and low yields in Japan (mikan tangerines, persimmons, peaches, and others) reduced supplies and pushed prices higher in 2007.

Table 1

U.S. fruit exports to Japan, 2004-08

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Average 2007-09 | Japan tariff or tariff range |
|--------------------------------------|---------------------------------|---------|---------|---------|---------|---------|--------------------|---------------------------------|
| | 1,000 U.S. dollars ¹ | | | | | | Percent | |
| Grapefruit, fresh | 120,234 | 65,542 | 97,498 | 139,426 | 99,816 | 97,436 | 112,226 | 10 |
| Cherries, all forms ² | 85,521 | 86,935 | 58,838 | 62,484 | 67,636 | 70,092 | 66,737 | 8.5-17 |
| Lemons, fresh | 33,997 | 34,973 | 36,747 | 81,021 | 66,646 | 47,261 | 64,976 | 0 |
| Oranges, fresh | 50,987 | 58,518 | 67,473 | 41,893 | 71,747 | 61,322 | 58,321 | 16-32 |
| Strawberries, all forms ² | 39,466 | 32,829 | 34,894 | 34,311 | 38,251 | 30,531 | 34,364 | 6-12 |
| Raisins | 28,756 | 30,805 | 27,101 | 30,557 | 34,328 | 30,531 | 31,805 | 1.2 |
| Prunes | 34,539 | 30,746 | 31,624 | 31,528 | 28,072 | 28,172 | 29,257 | 2.4 |
| Blueberries, all forms ² | 22,457 | 25,609 | 24,490 | 26,693 | 28,098 | 22,014 | 25,784 | 6-12 |
| Grapes, fresh | 7,283 | 4,870 | 7,774 | 5,652 | 4,670 | 5,898 | 5,407 | 7.8-17 |
| Melons, except watermelons | 5,936 | 6,115 | 4,970 | 5,250 | 6,667 | 7,591 | 6,503 | 6-12 |
| Other fruit, except juices | 54,462 | 50,245 | 51,407 | 45,821 | 46,861 | 47,435 | 46,524 | 0-25 |
| Total | 483,638 | 427,187 | 442,816 | 504,636 | 492,792 | 448,283 | 481,904 | |

¹ Nominal dollars, not adjusted for inflation.

² "All forms" means fresh, frozen, dried, and otherwise preserved.

Source: ERS calculations based on data from Foreign Agricultural Trade of the United States database and table 4.

and peaches (table 2). The planted area and production of these fruits have gradually declined in recent years. Cherries are one of the few fruits in Japan with recent growth in area planted.

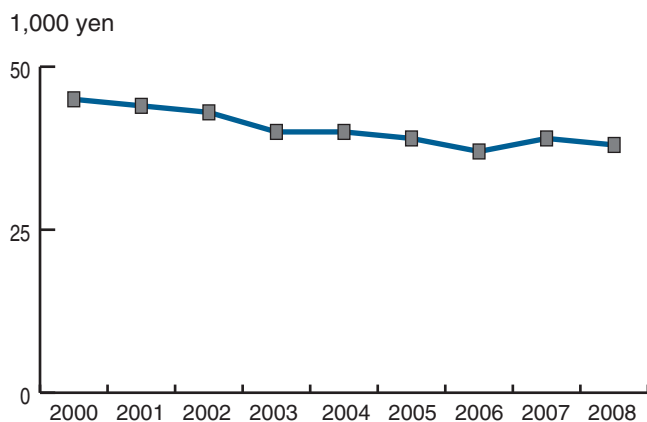
From 1994-96 to 2004-06, the quantity of fruits and nuts that Japan imported grew by almost 9 percent. Foreign producers often have advantages, such as low labor costs, that make imports competitive with Japan’s domestic products. Japan does not have extensive areas suitable for tropical fruits, and its high humidity limits some fruit production. Japan’s orchards and fields tend to be smaller than those in some exporting nations, both for topographic and historical reasons, potentially limiting Japan’s ability to achieve economies of size.

Bananas are Japan’s largest fruit import, by volume, followed by citrus fruits (table 2). Banana imports have remained relatively stable since 1999, while citrus fruit imports have declined since 1994. Pineapples are among the few fresh fruits with increasing import levels. Frozen fruit import volume grew until 2005, but has remained stable since. The Philippines have become the largest source for Japan’s fruit imports (40 percent of value in 2008), followed by the United States (25 percent). Other countries supply small shares of the import market, but collectively provide almost 35 percent of Japan’s imports (fig. 3).

Japanese fruit farms face a variety of structural problems:

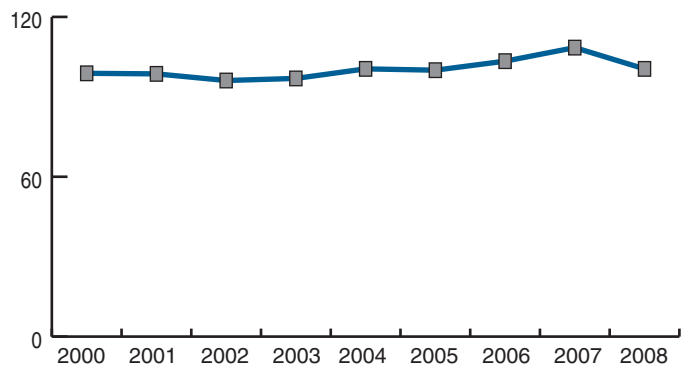
- More aging farmers and fewer new farmers;
- Inefficient farm infrastructure; and
- A shortage of young leaders in agriculture (see box, “Structural Change in Fruit Farming”).

Figure 1
Annual fruit expenditures per Japanese household (for at-home consumption)



Source: Ministry of Internal Affairs and Communications, Family Income and Expenditure Survey.

Figure 2
Fruit prices in Japan: Consumer price index (CPI) for fruits/consumer prices for all goods
 Index, 2005=100



Note: CPI for fruits divided by CPI for all goods multiplied by 100.
 Source: ERS calculations based on Portal Site of Official Statistics of Japan, Statistics Bureau.

Table 2

Japan's production and imports of fresh fruit

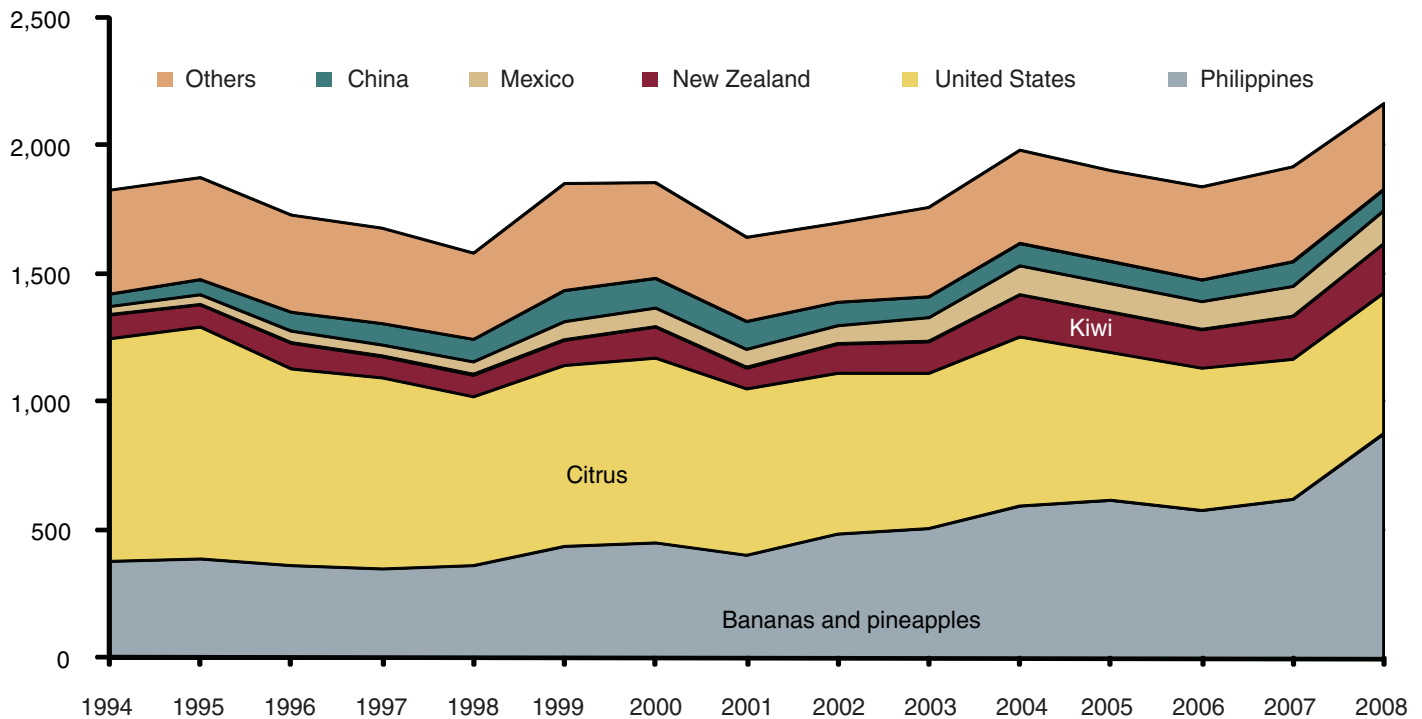
| Fruit crop | Japan's production, 2007 | Import volume, 2008 | | Japan's tariff or tariff range |
|-----------------------------|-----------------------------|---------------------|------------------------|-----------------------------------|
| | | From all sources | From the United States | |
| | | Metric tons | | Percent |
| Mandarin oranges/tangerines | 1,066,000 | 10,228 | 7,780 | 17 |
| Apples | 840,100 | 37 | 0 | 17 |
| Watermelons | 421,600 | 99 | 61 | 6 |
| Japanese pears | 296,800 | 80 | 0 | 4.8 |
| Persimmons | 244,800 | 0 | 0 | 6 |
| Other melons | 221,300 | 31,073 | 6,612 | 6 |
| Grapes | 209,100 | 6,612 | 1,669 | 7.8-17 |
| Strawberries | 191,400 | 3,278 | 3,087 | 6 |
| Peaches | 150,200 | 0 | 0 | 6 |
| Mume apricots | 120,600 | 0 | 0 | 6 |
| Kiwifruit | 32,800 | 59,222 | 81 | 6.4 |
| Other pears | 29,600 | 0 | 0 | 4.8 |
| Plums | 21,900 | 0 | 0 | 6 |
| Cherries | 16,600 | 8,525 | 8,454 | 8.5 |
| Pineapples | 10,400 | 144,408 | 0 | 17 |
| Oranges | 9,000 | 97,818 | 71,486 | 16-32 |
| Lemons and limes | 5,250 | 59,357 | 36,728 | 0 |
| Mangoes, guavas | 2,300 | 11,589 | 285 | 0-3 |
| Bananas | 205 | 1,092,738 | 0 | 10-25 |
| Grapefruit | 0 | 184,022 | 126,097 | 10 |
| Papaya | NA | 3,817 | 889 | 0-2 |

Sources: ERS calculations based on Statistical Yearbook of the Ministry of Agriculture, Forestry and Fisheries, 2007-2008; USDA Production, Supply and Distribution database; United Nations, Food and Agriculture Organization, FAOSTAT; World Trade Atlas; table 4.

Figure 3

Japan's fruit imports, by country of origin

Million U.S. dollars



Note: Commodities with over \$100 million import value from one country are listed in the originating country section.

Source: ERS calculations based on Japan trade statistics. Fruit categories included are those found in chapter 8 of the Harmonized System.

As in other countries, weather conditions affect Japan's fruit crops and sometimes create unbalanced supply-demand situations in the market. Therefore, market prices are fairly volatile and Japanese farmers often face unstable income prospects, especially if domestic demand is static. To address these issues, Government policies try to mitigate structural and market volatility in order to support and stabilize farmers' incomes.

Some Government policies help finance the adjustment to a larger-scale farm structure, and others regulate production, reduce risk, and support prices, with the goal of maintaining income. These policies include border protection. Some policies also aim to increase domestic demand. Changes to Japan's domestic fruit policies legislated in 2005 went into effect in 2007. The changes reflect the Japanese Government's intent to stimulate larger-scale agricultural production and yet to maintain relatively comprehensive support to all producers. These domestic regulations and subsidies, import taxes, and phytosanitary rules help define the Japanese market for imported fruit.

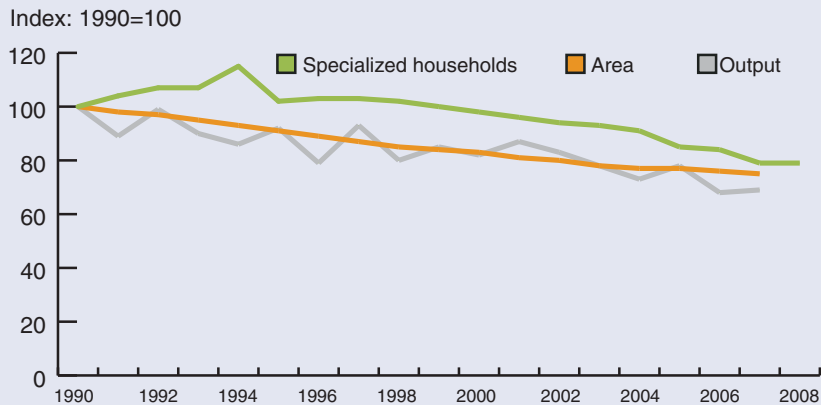
Structural Change in Fruit Farming

Structural change in Japan's fruit farming industry has been slow. Since 1990, fruit area, output, and the number of farm households have all declined, with little indication that average farm size or per-hectare yield has increased (see figure below). Japan's topography and land ownership structure are not favorable to create large, unified farm operations. A thorough land reform after World War II helped keep Japan's farmland divided into millions of small holdings. These relatively small and scattered areas may be suitable for fruit production but would be quite expensive to consolidate by private owners. New policies encourage contract farming, renting out, cooperative farming, and other solutions that apply to all crops.

Japan's 2005 Census of Agriculture counted almost 300,000 farms that produced fruit in orchards, fields, or greenhouses, including many small-scale, part-time growers. In 2006, the last year with available data, 48,000 households growing fruit were classified as "business farms." This meant that the household received over 50 percent of its income from farming, that at least one family member spent 60 days or more on farm activities, and that the farmer was younger than 65 years.

The Government is eager to support the business farm and would like to see it proliferate by absorbing some of the part-time operations. This type of farm, however, has been decreasing in Japan, chiefly because farmers are aging beyond 65 years. In response, the Government continues to change its policy measures to encourage younger farmers to replace this aging population.

Number of fruit farms, area, and output



Note: Specialized households are those engaged just in fruit farming.

Source: ERS calculations based on data from the *Statistical Yearbook*, Ministry of Agriculture, Forestry and Fisheries.

Domestic Policies

Japan's domestic fruit policies are based on the 1961 Act on Special Measures Concerning the Promotion of Fruit-Growing Industries. Since then, the Ministry of Agriculture, Forestry and Fisheries (MAFF) has revised the Basic Policy for Fruit Industry Promotion (which implemented the 1961 Act) several times. In the most recent revision (spring 2005), Japan ended its existing policies supporting fruit markets and replaced them with a new set that went into effect on April 1, 2007.⁴ Some of the new policies are similar to previous ones, and some are different. The 2005 Basic Policy looked at fruit production, farm management, distribution, exports, and consumption and suggested measures to revitalize Japan's fruit agriculture over a 10-year horizon.

The 2005 Basic Policy's key elements include:

- Reform of the fruit farming structure;
- The fostering of future agricultural leaders;
- Supply-demand adjustments;
- Management assistance and programs to help stabilize farm income; and
- Risk management tools (unchanged by the 2005 Basic Policy).

Japan's fruit-growing sector faces significant challenges, including insufficient farm labor, inefficient farm infrastructure, inflexible farmland usage, and other problems that lead to declining harvested areas and fruit production. In the 2005 Basic Policy, MAFF encourages the establishment of local farmers' committees to formulate a strategic plan for the next 5-10 years that focuses on structural reform to revitalize fruit-farming communities. The committees' plans should consider the viability of farming, future leadership, marketing, production, labor issues, and the like. MAFF strongly suggests that the plan should be developed by farmers.

Japan's policymakers and fruit farmers believe that the current structure of Japanese agriculture is unsustainable, because aging farmers are not likely to be replaced in equal measure by new farmers. The most recent policy changes (including the 2005 fruit policies) try to redirect Government funds toward farmers who are capable of expanding the size of their operations and who are adept at anticipating market changes and adjusting their output in response. Because previous policies subsidized all farmers, redirection of funds in 2007 means some farmers will get less funding than before.

On the demand side, the Basic Policy for Food, Agriculture and Rural Villages, which was issued by MAFF in March 2005, promoted consumption of locally grown fruits in the school lunch program and through farmers' markets.

Policy Measures Affecting Management, Supply and Demand, and Income

In April 2007, the Japanese Government put new measures into place for fruit farming and replaced the previous price-subsidy scheme with a new market stabilization program. These measures aim to stabilize farm businesses and

⁴ The old policies included an income stabilization program related to farm-gate prices for fruit; national supply-demand management to prevent prices from falling below desired levels; and payments to plant orchards in diverted rice paddies. These policies are described briefly in "Appendix: Previous Fruit Policies."

farm income, in part, by improving farm structure in fruit producing regions. The new fruit measures include two programs (effective from April 2007 to March 2011):

1. The Fruit Farm Management Support Program
2. The Fruit Supply-Demand Stabilization Program

The Fruit Farm Management Support Program

This program provides subsidies to farmers who transplant better fruit cultivars, improve farm infrastructure, hire labor, etc. The program applies to all fruit categories and has two tiers. The first tier helps farmers improve their production infrastructure, and the second helps agricultural producer cooperatives reform fruit production structures.

Subsidies are available to farmers for converting to better cultivars, grafting trees, or abandoning unproductive orchards/groves (table 3). Fruit farmers are also eligible to receive subsidies of up to half the total cost of infrastructure changes, such as improving farm roads, leveling hilly lands, improving the soil, and upgrading the waterways. These subsidies are only provided for two fruit crops: Mikan tangerines and apples. These fruits account for 60 percent of Japan's total fruit production. This program runs from April 1, 2007, to March 31, 2011, with a budget of 4.75 billion yen (\$54.1 million) for each of the 4 years.

These subsidies help farmers expand, update, or abandon their orchards. The implicit intent is to encourage fruit farm restructuring, where younger, full-time farmers expand or update their production and older, smaller farmers exit the industry.

Subsidies are available to agricultural producers' cooperatives for production reform measures and cover up to half of the cost. Producer cooperatives are important in Japanese horticulture, as they set up collection, sorting, and packing facilities and arrange for marketing. Activities eligible for subsidy support include:

- Developing a reliable farm labor supply system;
- Developing an information system that supports farm leaders;

Table 3

Subsidies to encourage productivity and structural changes for fruit farming

| Activity | Eligible fruit stock | Subsidy amount | |
|--|------------------------------|----------------------|--------------------------------|
| | | Yen/10a ¹ | U.S. dollars/acre ² |
| Transplanting trees | Mikan tangerines | 220,000 | 8,611 |
| | Apples for dwarfing purposes | 320,000 | 12,524 |
| | Apples of regular cultivars | 160,000 | 6,262 |
| | Other fruit cultivars | Up to half the cost | |
| Grafting trees | All fruit cultivars | Up to half the cost | |
| Abandoning unproductive orchards or groves | Mikan tangerines | 100,000 | 3,914 |
| | Apples | 80,000 | 3,131 |
| | Other fruit trees | Up to half the cost | |

¹ 10a (10 ares) are equal to 0.2471 acre.

² The average exchange rate was 103.4 yen per U.S. dollar in 2008.

Source: Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF).

- Setting up large-scale seedling facilities;
- Supporting new technologies; and
- Supporting market development.

The Fruit Supply-Demand Stabilization Program

This program focuses on stabilizing market prices by adjusting production volumes and/or adjusting shipping volumes to the fresh market. It is similar to the Supply-Demand Adjustment Program that operated in 2001-07 (see, “Appendix: Previous Fruit Policies”). Japan’s Government notified the WTO that it spent 1.2 billion yen annually between 2001 and 2005 (\$9.5-11 million U.S. dollars) on payments related to price, presumably for the Supply-Demand Adjustment Program.⁵ Spending levels for the new program are not available. Currently, this program applies to only two major fruit crops: Mikan tangerines and apples. There are two tiers for this program: (1) the Planned Fruit Production project, and (2) the Emergency Supply-Demand Adjustment project.

The Planned Fruit Production Project. Each year, MAFF, local governments, and grower cooperatives set an adequate shipment volume for the season based on supply and demand projections and then inform local grower cooperatives so they can adjust their production to meet production targets. The production adjustment is usually carried out by culling fruit from trees early in the season (culled fruit is destroyed). Farmers who participate in this project are eligible for subsidies of half the cost incurred. Japan Agriculture (JA), the national farmers’ cooperative, receives the funds from the national Government and passes it on to eligible producers.

The Emergency Supply-Demand Adjustment Project. At harvest, if Japan’s total production exceeds an adequate market level, growers and grower cooperatives are asked to divert some product to the processing sector to avoid oversupply in the fresh market. Growers and grower cooperatives are eligible to receive 34 yen per kilogram (15 cents per pound) for fresh produce diverted to the processing market.

Risk Management

About 86,000 of Japan’s fruit farms insured about 44,000 hectares in 2006 (the last year of available data).⁶ One set of insurance policies applies to fruit and another to fruit trees or vines (after they have reached fruit-bearing age). Insurance for fruit can be comprehensive, covering yield decrease and/or quality deterioration caused by weather, fire, plant disease, insects, and other pests. Alternatively, a farmer can insure only against damage from storm, hail, or frost. Farmers can choose to insure yields for the entire farm or on a plot-by-plot basis. Yield and quality are both insured if a farmer chooses to insure a standard income level. Tree/vine insurance covers plant death or heavy damage if trees wither, are washed away, disappear, or are buried.

Insurance programs are available for the following fruits:⁷

- All citrus fruits;
- Apples, pears, peaches, cherries, Japanese apricots, and plums;

⁵ Notifications G/AG/N/JPN108, 124, 129, and 132, accessible at http://docsonline.wto.org/gen_search.asp?searchmode=advanced. In these notifications, Japan exempted the payments from the Aggregate Measurement of Support because they constituted only 0.2 percent of the farm value of production, and thus fell under the de minimis rule of the WTO’s Agreement on Agriculture.

⁶ *Statistical Yearbook* of the Ministry of Agriculture, Forestry and Fisheries, 2007-08, p. 670. The growing area for major fruits was about 225,000 hectares in 2006. Thus, about 20 percent was insured.

⁷ No insurance is provided for strawberries or other fruits not listed, unless they are grown in greenhouses. A separate insurance program covers greenhouse crops.

- Grapes and kiwis;
- Persimmons, chestnuts, loquats, and pineapples.

Japan's agricultural insurance is centrally organized and was not changed by the 2005 Basic Policy. Agricultural Mutual Relief (AMR) associations are locally based and act as the primary insurance agents for farm activities. They collect premiums and dispense indemnities when claims are made. The AMR associations are grouped into prefectural AMR associations, which act as reinsurers for the local AMRs.⁸ MAFF acts as the reinsurer for the prefectural AMRs and pays half the insurance premium for fruit farmers as a subsidy. MAFF also pays part of the administrative costs for the local and prefectural AMRs (National Agricultural Insurance Association (NAIA), 2005). In 2007, MAFF paid premiums of 2.2 billion yen (\$19 million) for fruit farmers (NAIA, 2009).

The premium rate is estimated every 3 years and primarily depends on the farm damage rate over the previous 20 years. The Government matches the amount paid by farmers. In 2004, the average participating fruit farmer paid 33,000 yen for about 0.5 hectare of fruit area (i.e., about \$305 for 1.19 acres).

Indemnities for ordinary damage, such as setbacks for an individual farm, are paid jointly by the local and prefectural AMR associations. For extensive damage (e.g., damage over a wide area), most of the indemnity is paid by the national Government, with 20 percent of the indemnity coming from the local and prefectural AMR associations (NAIA, 2005). In 2006, indemnities of 4.858 billion yen (\$42 million) were paid out for damaged fruit and trees. In recent years, aggregate premium revenue has been larger than indemnities.⁹

In addition to the insurance program, the Japan Finance Corporation (a Government corporation) offers low-interest loans (current rate for the loans is 1.10-1.25 percent annually) to cover costs when farm operations are damaged by acts of nature, such as typhoons, heavy rainfall, drought, cold weather, or earthquake.¹⁰

School Lunch and Other Consumption Programs

MAFF promotes "local production for local consumption" (*chisan chisho*) to improve Japan's food self-sufficiency so that it is in line with the Basic Policy for Food, Agriculture and Rural Villages (March 2005). The school lunch program and farmers' markets help promote local production and consumption.

The Basic Policy for Dietary Education Promotion (March 2006) states that school lunch programs should supply over 30 percent of their foodstuff with locally produced products by 2010 (as a national average). The policy promotes locally produced products for local consumption to build trust between growers and consumers and also to improve public interest in and understanding of fresh local foods. The definition of "local production for local consumption" is food produced and consumed within the same prefecture. In 2006, about 21 percent of school lunch consumption was provided by local production. A survey in 2004 found that 76.6 percent of schools used "local production for local consumption" food in their school lunch programs,

⁸ Japan is divided into approximately 50 prefectures, which are regional governments with significant capacity to encourage and regulate agriculture within their boundaries.

⁹ *Statistical Yearbook* of the Ministry of Agriculture, Forestry and Fisheries, 2007-08, p. 671.

¹⁰ Created in 2008, Japan Finance Corporation (<http://www.jfc.go.jp/>) consolidated four finance corporations: the Public Finance Corporation; the Agriculture, Forestry and Fisheries Finance Corporation; the Japan Finance Corporation for Small Business; and the Japan Bank for International Cooperation.

while only 14 percent of schools did not use any locally produced products. Food demand for Japan's school lunch program is estimated at approximately 500 billion yen (\$5 billion) annually. There are no Government subsidies for fruit purchases by school lunch programs.¹¹

Japan's school lunch program uses relatively few imported fruits. Imported grapefruit, oranges, bananas, and kiwifruit are served for dessert in school lunches when domestic fruit supply is down. Dried-fruit products, such as California prunes and raisins, are occasionally served in school lunches.

There are approximately 13,000 farmers' markets throughout Japan. About 3,000 markets are operated by agricultural cooperatives or local governments. Average annual sales per market are approximately 60 million yen (\$580,000) at markets operated by cooperatives or local governments.

Farmers' markets are often found in local Government parking lots or in a local shopping mall on weekends. Some large-scale farmers' markets are permanently established roadside on major highways. Farmers pick seasonal fruits and vegetables early in the morning and display them at a nearby farmers' market on the same day so that consumers can buy fresh-picked products at a reasonable price.

Two major nonprofit organizations are also active in consumption programs for fresh vegetables and fruits in Japan. The Five-a-Day Association promotes fruit and vegetable consumption through dietary education—"Let's eat five servings of vegetables (350 grams) and two servings of fruit (200 grams) every day." The organization consists of over 130 companies, including supermarkets, trading companies, food processing companies, and growers.¹² Activities for Vegefru-seven are similar to those of the Five-a-Day program and promote fruit and vegetable consumption through dietary education and encouragement of a healthy lifestyle.¹³

¹¹ In 1978-2000, mikan juice was subsidized by 2-5 yen/kg. The program ended in 2000.

¹² <http://www.5aday.net/>

¹³ <http://www.vf7.jp/>

Border Policies

The import of fresh fruits and fruit products into Japan must overcome a number of obstacles—tariffs and sanitary standards—that ultimately affect cost and product availability. Fruit tariffs are set ad valorem (according to the product’s value) and may vary according to the source country, the season, and the form (fresh or processed) of the fruit. In addition to the tariffs, fruit imports must meet phytosanitary and sanitary standards. In many cases, these standards are greater barriers to imports than the tariffs.

Tariffs

Japan’s tariffs on fruit range from 0 to 32 percent of the value (table 4). The highest tariff—32 percent—applies to oranges imported between December and May, when Japan’s main citrus crop is marketed.¹⁴ For all fruit—fresh, dried, frozen, or provisionally preserved¹⁵—the tariff for least-developed countries is zero.¹⁶ For many developing countries, the tariff is less than that for developed countries.¹⁷ Tariffs on imports from developed countries are generally more than zero, except for fresh dates, lemons, and limes, which face no tariff.

¹⁴ Mori et al. provide more information about Japan’s orange tariff and the seasonal pattern of orange trade.

¹⁵ Provisionally preserved fruits are cooked, dried, or otherwise changed so that they can be easily shipped to processing facilities for inclusion in finished consumer food items.

¹⁶ Least-developed countries in Asia include Burma, Cambodia, Laos, the Maldives, Bangladesh, East Timor, Afghanistan, Nepal, Bhutan, and Yemen. Least-developed countries outside Asia include Haiti, many countries in Africa, and certain island countries in Oceania.

¹⁷ Developing countries in Asia include China and all countries and territories in Asia except 1) those in the least-developed group (see footnote 16) and 2) North Korea, Taiwan, Hong Kong, Singapore, Macao, Brunei, Bahrain, Kuwait, Qatar, Oman, Israel, and the United Arab Emirates. North Korea faces statutory tariffs that are generally higher than those faced by developed countries.

Table 4

Japan’s tariffs on fruit imports by exporting countries’ development level

| Fruit | Fresh | | | | | |
|---------------------------------------|------------------------|------------|-----------------|---------------|------------|-----------------|
| | Full year or in-season | | | Out-of-season | | |
| | Developed | Developing | Least-developed | Developed | Developing | Least-developed |
| | <i>Percent</i> | | | | | |
| Bananas | 25 | 20 | 0 | 20 | 10 | 0 |
| Dates | 0 | | | | | |
| Figs | 6 | 3 | 0 | | | |
| Pineapples | 17 | 17 | 0 | | | |
| Avocados | 3 | 0 | 0 | | | |
| Guavas and mangoes | 3 | 0 | 0 | | | |
| Durians, rambutan, passionfruit, etc. | 5 | 2.5 | 0 | | | |
| Pawpaws/papayas | 2 | 0 | 0 | | | |
| Oranges | 32 | 32 | 0 | 16 | 16 | 0 |
| Mandarins/tangerines | 17 | 17 | 0 | | | |
| Lemons and limes | 0 | | | | | |
| Grapefruit | 10 | 10 | 0 | 10 | 10 | 0 |
| Grapes | 17 | 17 | 0 | 7.8 | 7.8 | 0 |
| Melons | 6 | 6 | 0 | | | |
| Apples | 17 | 17 | 0 | | | |
| Pears | 4.8 | 4.8 | 0 | | | |
| Apricots | 6 | 6 | 0 | | | |
| Cherries | 8.5 | 8.5 | 0 | | | |
| Peaches | 6 | 6 | 0 | | | |
| Plums | 6 | 6 | 0 | | | |
| Persimmons | 6 | 6 | 0 | | | |
| Strawberries | 6 | 6 | 0 | | | |
| Cranberries | 6 | 3 | 0 | | | |
| Other berries | 6 | 3 | 0 | | | |
| Kiwi | 6.4 | 6.4 | 0 | | | |

—Continued

Table 4 (continued)

Japan's tariffs on fruit imports by exporting countries' development level

| Fruit | Frozen | | | Provisionally preserved | | | Dried | | |
|--|----------------|------------|-----------------|-------------------------|------------|-----------------|-----------|------------|-----------------|
| | Developed | Developing | Least-developed | Developed | Developing | Least-developed | Developed | Developing | Least-developed |
| | <i>Percent</i> | | | | | | | | |
| Bananas ¹ | 12 | 12 | 0 | 25/20 | 25/20 | 0 | 3 | 0 | 0 |
| Dates | 12 | 12 | 0 | 12 | 12 | 0 | 0 | | |
| Figs | 12 | 12 | 0 | 12 | 12 | 0 | 6 | 3 | 0 |
| Pineapples | 23.8 | 23.8 | 0 | 12 | 12 | 0 | 7.2 | 7.2 | 0 |
| Avocados ² | 12/7.2 | 12/3.6 | 0 | 12 | 10 | 0 | 3 | 0 | 0 |
| Guavas and mangoes ² | 12/7.2 | 12/3.6 | 0 | 12 | 10 | 0 | 3 | 0 | 0 |
| Durians, rambutan, passionfruit, etc. ² | 12/7.2 | 12/3.6 | 0 | 12 | 6 | 0 | 7.5 | 3.8 | 0 |
| Pawpaws/papayas ² | 12/7.2 | 6/3.6 | 0 | 12 | 6 | 0 | 7.5 | 3.8 | 0 |
| Oranges ¹ | 12 | 12 | 0 | 32/16 | 32/16 | 0 | 32/16 | 32/16 | 0 |
| Mandarins/tangerines | 12 | 12 | 0 | 17 | 17 | 0 | 17 | 17 | 0 |
| Lemons/limes | 12 | 12 | 0 | 0 | | 0 | | | |
| Grapefruit | 12 | 12 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| Grapes | 12 | 12 | 0 | 12 | 12 | 0 | 1.2 | 0 | 0 |
| Melons | 12 | 12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Apples | 12 | 12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Pears | 7 | 7 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Apricots | 12 | 12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Cherries ³ | 13.8 | 6.9 | 0 | 17 | 17 | 0 | 9 | 9 | 0 |
| Peaches | 7 | 7 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Plums | 12 | 12 | 0 | 12 | 12 | 0 | 2.4 | 0 | 0 |
| Persimmons | 12 | 12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Strawberries ² | 9.6/12 | 9.6/12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Cranberries | 12 | 12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Other berries ² | 9.6/6 | 4.8/3 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |
| Kiwi | 12 | 12 | 0 | 12 | 12 | 0 | 9 | 9 | 0 |

Notes: This should not be regarded as an authoritative or complete listing. For more information, check the Customs Tariff Schedules of Japan.

¹ Seasonal tariffs apply to provisionally preserved and/or dried fruit, indicated by two tariffs separated by a "/".

² Tariffs differ in one or more processed categories, depending on whether sugar has been added. The first tariff refers to product with sugar added, and the second to product without added sugar. Tariffs are separated by "/".

³ Tariffs in the frozen category are for sour cherries containing added sugar. The tariff on other cherries is 12 percent for developed and developing countries.

Source: Customs Tariff Schedules of Japan, 2008.

Tariffs also vary depending on whether a fruit is imported in fresh, frozen, dried, or provisionally preserved form. Tariffs on frozen¹⁸ and provisionally preserved¹⁹ fruits are typically 12 percent for imports from developed countries, while tariffs on dried fruits are often 9 percent.²⁰ Thus, in general, tariffs are highest on frozen and provisionally preserved fruit imports (presumably to protect Japanese fruit processors) and on fresh oranges, bananas, pineapples, mikan tangerines, and grapes—all fruits with some production in Japan.

Phytosanitary Rules

Japan prohibits fruit imports from many parts of the world (Korea is the main exception) due to 17 pests that may be found in or on the product.²¹ Two—codling moth and fire blight—are significant for temperate fruits. Some countries—notably the United States, Australia, New Zealand, and Chile—have

¹⁸ Tariffs on frozen sour cherries and frozen pineapples are higher at 13.8 percent and 23.8 percent, respectively.

¹⁹ Tariffs on provisionally preserved bananas, oranges, mikan tangerines, and cherries are higher than 12 percent.

²⁰ Only tariffs on dried oranges and tangerines are higher than 9 percent.

²¹ See MAFF, "List of the plants which are prohibited to be imported (Plant Protection Law Enforcement Regulations Annexed Table 2)" at [http://www.pps.go.jp/english/law/list2-\(080911-\).html](http://www.pps.go.jp/english/law/list2-(080911-).html).

negotiated exceptions to trade bans on some fruits (table 5, for U.S. fruits).²² Japan permits imports of apples, cherries, plums, and nectarines from the United States if “shipped directly, meeting standards of MAFF.”^{23, 24} U.S. apricots and peaches, among other fruits, are not allowed entry because of codling moth concerns, and U.S. pears are barred because of both codling moth and fire blight.

Japan’s Plant Protection Station is a MAFF agency that regulates plant disease issues both for domestic and imported items. It inspects shipments at

²² Calvin and Krissoff (2005) provide an overview, p. 5.

²³ “These standards include the terms and conditions for the type and variety of plants, its production area, methods of sterilization, means of transportation, etc.” See <http://www.pps.go.jp/english/jobs/index.html>.

²⁴ Calvin and Krissoff review the history of Japan’s phytosanitary controls on cherry imports (p. 4).

Table 5
Quarantine conditions for various U.S. fruits

| Fresh fruit | Cultivars | Year market opened | Pest | Required treatment |
|----------------------|----------------------------|--------------------|--|---|
| Papaya ¹ | Solo | 1969 | Mediterranean fruit fly, Oriental fruit fly complex, and melon fly | Vapor heat treatment |
| Mango ¹ | Keitt Haden | 2000 | | |
| Cherry | Bing | 1978 | Codling moth | Methyl bromide fumigation |
| | Lambert | | | |
| | Van | 1986 | | |
| | Rainier | 1992 | | |
| | Garnet | 1995 | | |
| | Tulare | 1996 | | |
| | Brooks | | | |
| | Lapin | 1999 | | |
| | Sweet Heart | | | |
| | Chelan | 2001 | | |
| Walnuts (in shell) | All other cherry cultivars | 2001 | | |
| | Hartley | 1986 | Codling moth | Methyl bromide fumigation |
| | Payne | | | |
| Franquette | | | | |
| Nectarine | Summer Grand | 1988 | Codling moth | Methyl bromide fumigation |
| | Spring Red | | | |
| | Fir Ebrite | | | |
| | Fantasia | | | |
| | May Grand | | | |
| | Red Diamond | | | |
| | May Fine | 1993 | | |
| | May Glo | | | |
| | May Diamond | | | |
| | Royal Giant | 1995 | | |
| All other nectarines | 2000 | | | |
| European plum | D’agen | 2001 | Codling moth | Methyl bromide fumigation |
| | Tulare Giant | 2005 | | |
| | Moyer | | | |
| Apple ² | All other European plums | | | |
| | Red Delicious | 1994 | Codling moth Fire blight | Cold treatment Methyl bromide fumigation |
| | Golden Delicious | | | |
| | Fuji | 1999 | | |
| | Braeburn | | | |
| | Granny Smith | | | |
| | Gala | | | |
| | Jona Gold | | | |
| All other apples | 2001 | | | |

¹ Hawaiian Islands only.

² Washington, Oregon, and California only.

Source: Japan Fresh Produce Import and Safety Association.

Japanese ports and can accept or reject them. It also inspects plant protection systems in exporting countries for their treatments of certain pests.

Nearly 60 percent of U.S. grapefruit exports to Japan were fumigated at the port of entry in 2008 (table 6), as were significant shares of oro blanco, raspberry, and lemons. Rejections of fruit were much less common.

The United States' ability to export apples, cherries, plums, and nectarines has involved protracted negotiations with Japan. From 1994 to 2005, apples grown for Japanese markets could only come from certain U.S. growing areas and from specific parts of orchards separated by 10-meter buffers from trees bearing apples not designated for Japanese markets. Orchard inspections by MAFF officials at the small fruit stage, chlorine dips, fumigation, and post-harvest inspection all added to the cost of producing such apples. Negotiations with the United States and other trading partners, followed by a WTO case which Japan lost, led to the adoption of a less restrictive, but still onerous, system in August 2005 that includes:

- 55 days of cold treatment;
- Methyl-bromide fumigation; and
- Intensive inspections by MAFF officers.²⁵

In 2009, Japan revised its phytosanitary restrictions on U.S. cherries to allow imports without methyl-bromide fumigation if three conditions are met:

1. Imported crop must come from fields that have had few cases of codling moths;
2. Inspections must take place before the crops are exported from the United States and then again when they arrive in Japan, and;

²⁵ Calvin and Krissoff (2005) provide more detail and discussion of the effects of the new protocol (pp. 11-12).

Table 6

Fresh fruit plant quarantine inspection results: Imports from the United States, 2008

| Fruit | Inspected (kg) | Fumigated at entry to Japan (kg) | Rejected (kg) | Percent fumigated ¹ | Percent rejected ² |
|--------------|----------------|----------------------------------|---------------|--------------------------------|-------------------------------|
| Lemons | 36,734,426 | 2,912,390 | 34 | 7.9 | 0.00 |
| Grapefruit | 122,924,745 | 78,498,271 | 22,450 | 63.9 | 0.02 |
| Oranges | 71,801,074 | 1,140,082 | 4 | 1.6 | 0.00 |
| Minneolas | 7,460,168 | 141,303 | 0 | 1.9 | 0.00 |
| Oro blancos | 1,412,145 | 108,814 | 0 | 7.7 | 0.00 |
| Avocados | 138,194 | 0 | 0 | 0.0 | 0.00 |
| Mangos | 287,244 | 0 | 1 | 0.0 | 0.00 |
| Papaya | 926,530 | 0 | 21 | 0.0 | 0.00 |
| Kiwifruit | 84,651 | 0 | 0 | 0.0 | 0.00 |
| Cherry | 8,472,838 | 0 | 11,364 | 0.0 | 0.13 |
| Raspberry | 427,446 | 23,678 | 0 | 5.5 | 0.00 |
| Table grapes | 1,923,643 | 101,483 | 282 | 5.3 | 0.01 |
| Pomegranates | 274,174 | 10,866 | 0 | 4.0 | 0.00 |

¹ Fumigated volume as percent of the total volume inspected. Products were fumigated at the port of entry, then imported into Japan.

² Rejected volume as percent of the total volume inspected. Products were denied entry into Japan.

Notes: Using lemons as an example, 36,734,426 kilograms of U.S. lemons were inspected and 2,912,390 kilograms (7.9 percent of the total imports) were ordered to be fumigated at the port of entry in 2008; 34 kg were rejected for entry into Japan.

Source: Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF), 2009. Plant Quarantine Statistics (compiled by FAS/Tokyo).

3. Japanese quarantine officials must periodically carry out onsite inspections of U.S. orchards.²⁶

As a result of these new phytosanitary restrictions, U.S. exporters can send cherries by ship instead of by air. Without fumigation, the cherries have a longer shelf life, allowing for ocean shipment that is less expensive than air freight.²⁷ Similar changes were made for plums and nectarines, but trade has yet to occur.

²⁶ FAS/Tokyo, Daily Agricultural Highlights, March 31 and July 2, 2009; and California Cherry Advisory Board, 2009 Export Manual.

²⁷ Associated Press, Shannon Dininny, "New inspection rules help Western cherry exporters," *FAS/Tokyo Daily Agricultural Highlights*, July 9, 2009.

Policy Implications

Japan's Supply-Demand Stabilization Program aims to keep prices stable and at a relatively high level. Because phytosanitary and tariff barriers often keep imports out, controlling domestic supplies may help maintain market prices. Consumers may pay a higher price in most years as a result of this policy, however, and may consume less fruit than if supply were unfettered and prices were lower. Government efforts to restructure fruit farming into larger, more efficient units could lead to lower-cost production, and, potentially, to lower market prices. Structural change, however, has been modest to date.

Japan's fruit prices are often higher than those of neighboring countries and those in the United States. Since the quality of fruits marketed in Japan is very high, the higher prices may be a quality premium. Branding fresh fruits is reportedly more prevalent in Japan than in the United States, and may allow some premiums to be added to market prices.²⁸ Border measures imposed by Japan's Government, however, are another price factor. Otherwise, high-quality fruits could be imported relatively soon after picking from countries where prices are much lower. Japan's tariffs on oranges and other fruits may impede some trade, but tariffs on many fruits are relatively low.²⁹ Phytosanitary rules also affect fruit trade by preventing some imports, raising the cost of others, and/or degrading the fruit.

The Organisation for Economic Co-operation and Development (OECD) estimated that consumers paid 63 billion yen (\$609 million) more for grapes, 49.74 billion yen (\$481 million) more for pears, 20.2 billion yen (\$195 million) more for apples, and 10 billion yen (\$93 million) more for strawberries in 2008 than if they had purchased them at an international reference price.³⁰

At the farmgate, a comparison of Japanese producer prices and U.S. free-on-board (fob) shipping-point prices for seven fruits shows that Japan's farmers receive prices 1.5 to 7.5 times higher than those realized by U.S. farmers (fig. 4). The highest price ratios in 2004-07 were for watermelons, peaches, strawberries, and pears. The lowest price ratios were for grapes. At the retail level, price ratios in 2004-08 for six comparable fruits ranged from 1.2 to almost 3 times higher in Japan than in the United States (fig. 5). Such comparisons, whether at the farmgate or retail, cannot account for quality differences, which can be considerable.

Lemons, which enter Japan without tariff, offer a useful point of reference. In 2006, lemon prices in Tokyo ranged from a low of 1.34 times the average price in U.S. urban areas to a high of 1.68 times the U.S. price. Because neither country imposes significant border tariffs, comparing lemon prices may demonstrate how market conditions, rather than Government policies, affect fruit prices.³¹ In this comparison, Tokyo's retail prices appear to be roughly 50 percent higher than U.S. urban prices. Bananas are also imported by both countries. Japan imposes tariffs of 10 or 20 percent (depending on the season) on banana imports from principal exporting countries,³² and Tokyo's retail prices are 1.75-2 times higher than U.S. urban prices. This price difference does not reflect higher production prices.³³ Rather, the price reflects the tariff as well as marketing and transport charges unique to Japan.³⁴

²⁸ Based on a review by William Gorman and Hiroshi Mori, November 14, 2009.

²⁹ Mori et al. (2009) estimated an own-price elasticity of -1.3 for oranges purchased for home use in Japan. Because the tariff raises the price of oranges in Japan, price-sensitive consumers may purchase fewer oranges because of the tariff.

³⁰ Organisation for Economic Co-operation and Development (OECD), Producer and Consumer Support Estimates, OECD Database 1986-2008, accessed 2/3/10.

³¹ Transportation charges to the importing country may also differ.

³² Japan's tariffs are designed to support its small banana production on southern islands, such as Okinawa.

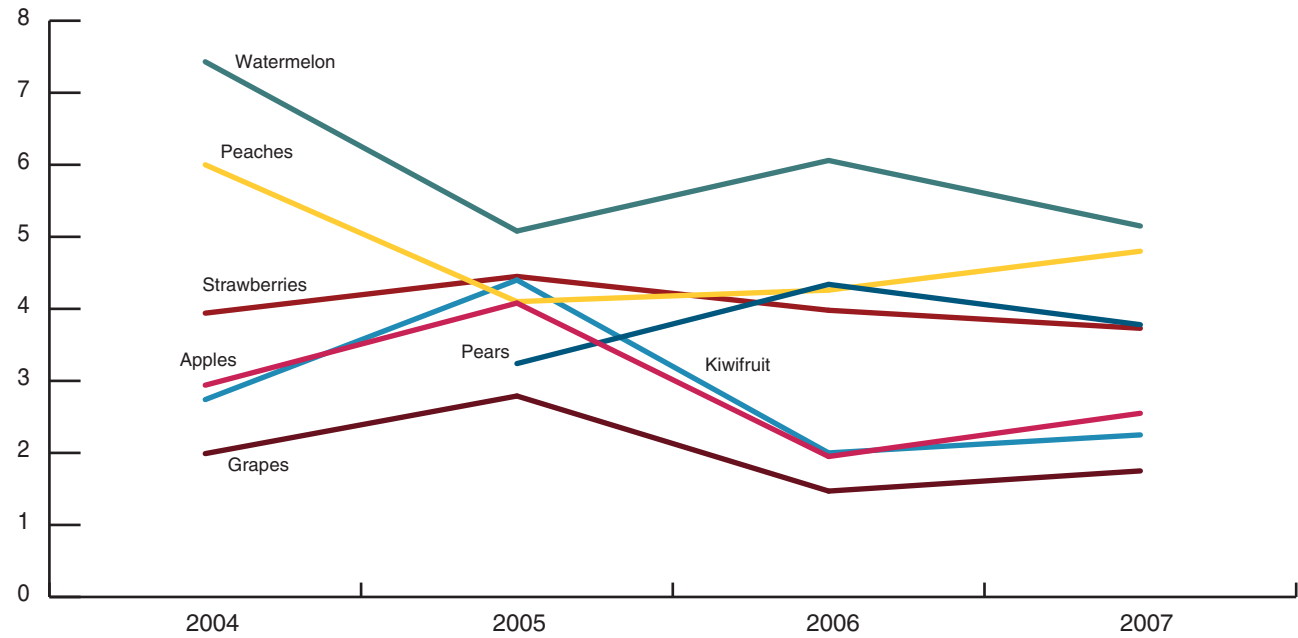
³³ Japan imports mostly from the Philippines, while the United States is supplied principally by Central and South America. Free-on-board export unit values in the exporting countries are similar, regardless of whether the trade flow is to Japan or to the United States.

³⁴ MAFF conducted a survey of retail prices in November 2006, finding that retail prices were lower in New York City for bananas (87 percent of those in Tokyo); and that grapefruits and apples were more expensive in New York City than in Tokyo (127 percent and 110 percent, respectively). *Statistical Yearbook* of the Ministry of Agriculture, Forestry and Fisheries, 2007-08, p. 685. Prices in New York City tend to be higher than in the rest of the United States.

Figure 4

Japan-U.S. producer fruit price ratio

Ratio of Japan's farm price to U.S. shipping-point price

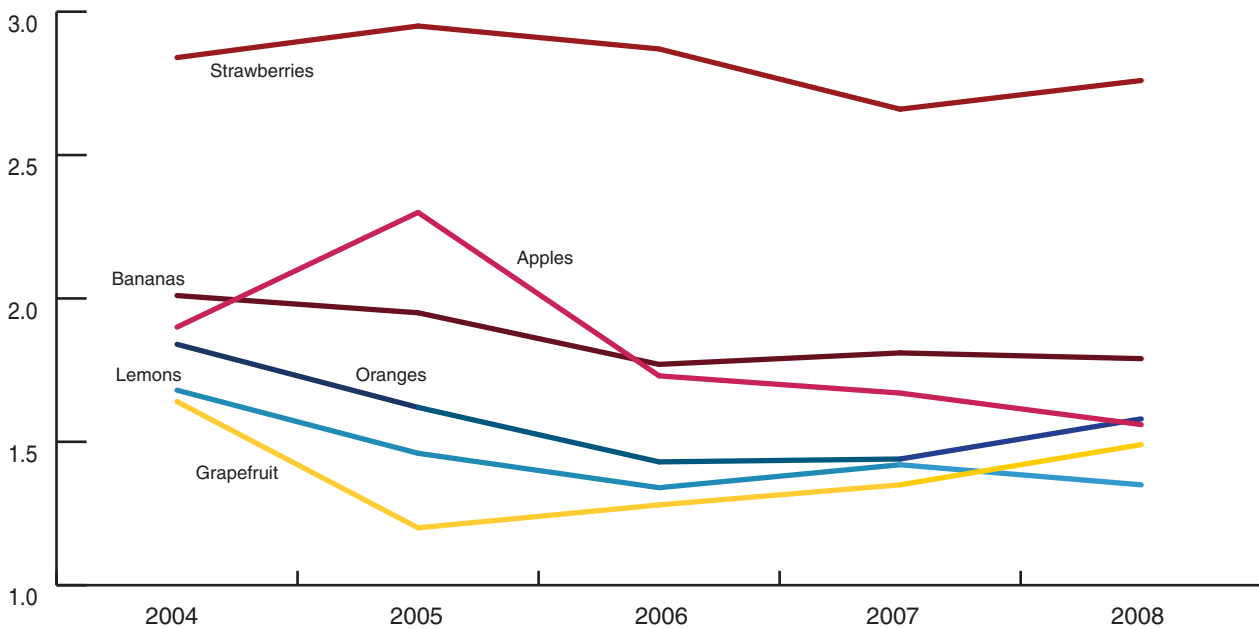


Sources: ERS calculations based on Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF) monthly statistics and data from Lucier (2008) and Perez and Pollack (2008).

Figure 5

Japan-U.S. retail fruit price ratio

Ratio of Japan's price to U.S. price



Sources: ERS calculations based on Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF) monthly statistics and data from Perez and Pollack (2008).

The highest price ratio in the available set of comparable retail prices is for strawberries. Tokyo's retail strawberry prices are 2.65-2.95 times higher for strawberries than in the United States. Producer prices in Japan are 3.5-4.5 times higher than in the United States. Strawberries are a relatively perishable crop, which likely raises transport costs. Tariffs on fresh strawberries are relatively low (6 percent for strawberries from the United States and all countries geographically close to Japan), but phytosanitary rules may be an obstacle—Japan reports no imports from China, a large, nearby producing country.³⁵

Farmers in exporting countries could increase exports if Japan's fruit market were more accessible. Table 2 shows a generally inverse relationship between fruit production and imports: Imports are relatively minor for the fruits Japan produces the most of, and domestic production is minor for fruits which Japan imports the most. However, varietal differences, seasonal differences, and price factors can lead to trade even when a country produces a great volume of a fruit. For example, Japan imports significant amounts of tangerines, melons, grapes, and strawberries, despite large domestic production. Trade is negligible or nonexistent for a number of fruits—pears, persimmons, peaches, apricots, and plums—with tariffs of 6 percent or less (see table 2). Trade in these markets is likely discouraged by phytosanitary regulations.

In general, even though the relatively high tariffs on oranges, apples, grapes, and pineapples hinder imports of these fruits, perhaps the greatest opportunity to improve imports in Japan could come by addressing phytosanitary issues. Fumigation, for example, affects fruit quality. Alternative phytosanitary rules would allow imports to be priced lower, and also increase imports of the fruit cultivars grown in the rest of the world but currently unavailable in Japan.

³⁵ Official Japanese trade data, reported by the World Trade Atlas.

Conclusions

Japan's trade policies were created to support fruit production, and generous subsidies help farmers improve their orchards. The Government protects farmers against natural hazards (damage and disease) with insurance subsidies. Protection against market risk (chiefly lower prices) is achieved by culling fruit or through subsidies to farmers who send some fruit to processing rather than to fresh markets. Subsidies also help farmers exit the sector, encouraging farm consolidation. Despite this financial support, structural change has been slow, and the fruit farm sector has gradually shrunk while the average age of fruit farmers has risen.

Consumers in Japan pay higher fruit prices because of internal supply-management policies, tariffs, and phytosanitary rules applied to imports. To some extent, consumers may also pay higher prices because of real or perceived quality differences, branding efforts, or higher marketing costs. Given lower prices, consumers could save money but would also be likely to purchase more fruit.³⁶ Consumers (taxpayers) also pay as their tax dollars fund supply-management, hazard insurance, orchard improvement, and infra-structural support subsidies provided to fruit farmers.

At the Japanese border, relatively high tariffs apply to some fruit imports. Phytosanitary regulations, however, constitute the main impediment to imports, especially regulations that target codling moths and fire blight. Of the 19 major fruits produced in Japan, 8 fruit crops see no import activity, likely as a result of phytosanitary barriers. U.S. fruit producers, who currently export almost \$500 million in fruit products to Japan, would benefit if Japan reduced its tariffs and if they could consistently meet Japan's phytosanitary standards, either by improving U.S. management and technology or by revising Japan's strict standards. Japan's consumers would also benefit from lower prices stemming from increased import supply.

³⁶ Calvin and Krissoff (2005) estimate consumer impacts of Japan's phytosanitary controls on apples.

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Appendix: Previous Fruit Policies

The old fruit policies focused on adjusting supply-demand to stabilize market prices and on stabilizing farm management through farm income support. These old measures were in effect from 2001 to April 2007, when they were replaced by the new fruit import and production policies.

Supply-Demand Adjustment Project

This project was effective from April 2001 to March 2007 and applied to mikan tangerines and apples. Each year, MAFF set production and shipment levels by looking at supply and demand situations and then prompted local JA's (agricultural growers' cooperatives) to adjust their production plans (often through culling) to meet goals for the season (app. table 1).

Management Stabilization Project

If market prices fell below a predetermined standard price, growers participating in the Supply-Demand Adjustment Project were eligible for price subsidies. This price subsidy program ended in March 2007 and enabled growers to receive a direct payment equal to approximately 80 percent of the difference between the actual market price and the predetermined standard price for subsidies, per unit of output. Fifty percent of the fund that provided the subsidies was contributed by MAFF and the rest by local governments and participating member growers.¹ The standard price for subsidies was determined by an average market price for the last 6 years adjusted with each year's variation coefficient. The standard price was established for each prefecture for each season. For the first 4 years of the project (2001-04), the total amount of subsidies paid out was 18.8 billion yen (\$160 million, at the 2008 yen/dollar exchange rate) to unshu mikan growers and 7.2 billion yen (\$61 million) to apple growers (app. table 2). Subsidy amounts for each prefecture varied by fruit crop based on average market prices and the standard price for subsidies in 2005 (app. table 3).

Rice Diversion Payments

Under the rice diversion program (ended in 2007), farmers were encouraged to plant fruit orchards in former rice paddies, addressing two issues:

1. Reducing rice production, which exceeded demand; and,
2. Increasing fruit production, which the Government favored.

In 2001, for example, the annual rice diversion payment was as high as 150,000 yen/hectare (\$1,240 U.S. dollars).²

¹ Nineteen prefectures participated annually in the case of unshu mikan tangerines and six in the case of apples.

² Fukuda, Dyck, and Stout, pp. 7-8.

Appendix table 1

Supply-demand target and actual levels, 2004-2005

| Levels | Mikan tangerines | | Apples | |
|-------------------|--------------------|-----------|------------|----------|
| | Production | Shipment | Production | Shipment |
| 2004 | <i>Metric tons</i> | | | |
| Actual levels (a) | 1,060,000 | 937,000 | 754,000 | 667,000 |
| Target levels (b) | 1,110,000 | 985,000 | 870,000 | 780,000 |
| Ratio (a/b) | 96% | 95% | 87% | 86% |
| 2005 | | | | |
| Actual levels (a) | 1,130,000 | 1,010,000 | 819,000 | 724,000 |
| Target levels (b) | 1,110,000 | 985,000 | 870,000 | 780,000 |
| Ratio (a/b) | 102% | 102% | 94% | 93% |

Source: Ministry of Agriculture, Forestry and Fisheries

Appendix table 2

Management stabilization subsidies

| Year | Mikan tangerines | Apples | Total |
|------|--------------------|--------|-------|
| | <i>Billion yen</i> | | |
| 2001 | 11.8 | 3.3 | 15.1 |
| 2002 | 3.4 | 3.9 | 7.3 |
| 2003 | 3.6 | 0 | 3.6 |
| 2004 | 0.3 | 0 | 0.3 |
| Sum | 18.8 | 7.2 | 26.0 |

Note: Totals may not sum due to rounding.

Source: Ministry of Agriculture, Forestry and Fisheries.

Appendix table 3

Mikan tangerines: Major prefectures

| Prefecture | Average price (March 2006) | Standard price for subsidy | Subsidy amount paid | Average per-farm subsidy paid |
|------------|-------------------------------|-------------------------------|------------------------|-------------------------------------|
| | <i>Yen/kg</i> | <i>Yen/kg</i> | <i>Billion yen</i> | <i>Thousand yen</i> |
| Shizuoka | 173 | 185 | 0.8 | 141 |
| Wakayama | 149 | 160 | 0.8 | 126 |
| Hiroshima | 110 | 145 | 0.8 | 191 |
| Ehime | 155 | 170 | 0.5 | 69 |
| Fukuoka | 130 | 140 | 0.1 | 106 |
| Saga | 127 | 140 | 0.4 | 122 |
| Nagasaki | 147 | 150 | 0.1 | 26 |
| Kumamoto | 124 | 150 | 1.3 | 517 |

Notes: Seventeen prefectures participated in the program and received subsidies. Total subsidies paid were 5.1 billion yen in 2005. The average exchange rate was 110.2 yen per U.S. dollar in 2005.

Source: Ministry of Agriculture, Forestry and Fisheries.