



# THE US MARKET FOR PAPAYA

Market Brief #11

## INTRODUCTION

Papaya, *Carica papaya*, also called Paw Paw (Caribbean, Australia) or Mamao (Brazil), is an exotic fruit native to southern Mexico and Central America. Today it is widely distributed throughout the tropical and warmer subtropical areas of the world, making it available year round. Ripe papayas are popular as breakfast or dessert fruit, and can be used to make fruit salads, drinks, jam, jelly, marmalade, candies, and crystallized fruits. Papaya is valued by consumers for its nutritional benefits, which include high levels of vitamin C and folate, and as a natural remedy for dyspepsia (indigestion).

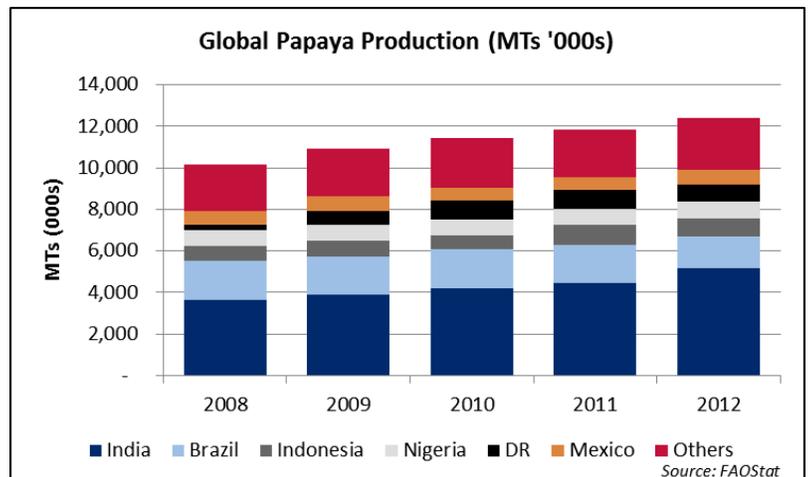


Three important varieties of papaya include the Solo, the Maradol, and the Tainung (also known as Formosa). The Solo papaya is the principle Hawaiian variety, and its genetically modified cultivars, including “SunUp” and “Rainbow” dominate production. Solo papayas generally weigh about one pound and are primarily marketed to retail supermarket chains for individual consumption (hence the name Solo). Maradol papayas are the commercially dominant variety in Mexico, and weigh two to five pounds. Maradols are not as sweet as Hawaiian Solos, but are typically cheaper and are marketed to both retail markets and the food service industry (i.e. major restaurants and hotel chains). Maradols have a strong, distinctive flavor that is most popular with Latino consumer. The Tainung, or Formosa variety tend to weigh just over two pounds, and are popular among mainstream shoppers in the US because of their sweet flavor, mild aroma, and uniform shape. Larger quantities of Tainung papayas are produced in Brazil and Belize. Common hybrids include the Brazilian “Calimosa,” which is a cross of Solo and Formosa. Green-cooking-type papayas are also popular in the US market. These are unripe papayas typically used for cooking, and are popular with Burmese, Mexican, Japanese, and Laotian consumers. Green papayas mainly come from Honduras, the Dominican Republic, and Florida.

## PRODUCTION

Global production of papaya is concentrated among six countries: India, Brazil, Indonesia, Dominican Republic, Nigeria, and Mexico. Combined these countries make up nearly 80% of world production. US production of papaya makes up a small percentage, about 0.1%, of the total world production of papaya. US papaya production primarily occurs in Hawaii (Solo variety), which ships product to Canada, East Asia and the continental US.

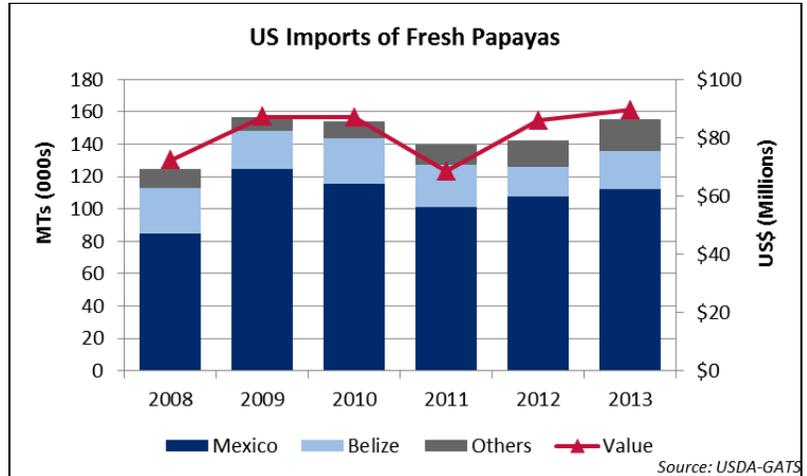
From 2008 to 2012, global fresh and dry papaya production increased from approximately 10.1 million MTs to 12.4 million MTs, or by 22%. During this period, Indian production rose 42% from 3.6 million MTs to 5.1 million MTs, while Brazilian output declined from 1.8 million MT to 1.5 million MTs (-20%). Indonesia recorded a 26% growth rate (718,000 MTs to 906,000 MTs), while Nigeria experienced a marginal uptick of 3% growth (750,000 MTs to 775,000 MTs). In 2012, Hawaii produced 13,000 MTs of papayas. Total US papaya exports in 2012 were 4,455 MTs, which went mainly to Canada, with minor exports to Japan, Hong Kong, and China.



## MARKETS

The US market for fresh papayas grew quickly in the 1990s and early 2000s, and has been fairly stable for the past decade. The growth in the US Latino population (from 22 million in 1990 to 53 million in 2013) is a widely cited driver of growth across all tropical fruit categories, including papaya. However, the product's appeal has also grown among other consumers due to its health benefits and increasing acceptance as a fruit flavor. Maradol papaya (supplied from Mexico, Guatemala, Belize, and the Dominican Republic) dominate the US market, followed by Solo and Tainung papayas<sup>1</sup>.

The US is a net importer of fresh papaya. From 2008 to 2013, US imports of fresh papayas increased from 124,355 MTs to 155,109 MTs (or by 25%), while equivalent values rose from US\$72 million to US\$89 million (or by 24%). Imports decreased in 2011, in part due to a salmonella outbreak linked to Mexican papayas which resulted in an FDA ban on imports from Mexico in August of that year. Since then import volumes have been rebounding, and in 2013 import volumes were close to 2009 levels. Mexico's Maradol papayas are imported over land to San Diego, Laredo, and Nogales. Product arriving from Central America and the Caribbean is shipped by sea to Miami, with small volumes arriving by air.



### US Imports of Papayas, Fresh

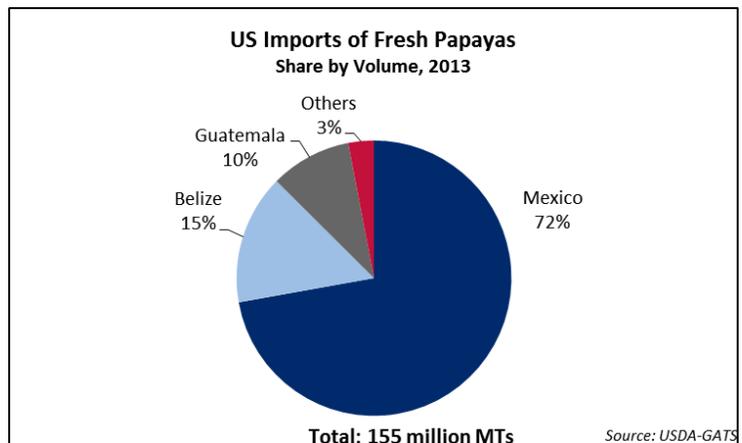
Suppliers	2008		2009		2010		2011		2012		2013	
	MTs	\$000s										
Mexico	84,901	\$50,201	124,742	\$69,126	115,214	\$65,946	100,894	\$44,831	107,358	\$62,637	111,966	\$64,906
Belize	28,170	\$11,656	23,747	\$10,683	28,569	\$11,984	26,372	\$11,720	18,517	\$9,282	23,673	\$10,786
Guatemala	3,721	\$1,177	2,112	\$682	3,882	\$1,939	6,195	\$3,935	11,221	\$7,195	14,800	\$7,717
Brazil	3,793	\$4,992	2,923	\$3,823	2,984	\$4,326	3,582	\$4,525	2,339	\$3,230	2,535	\$3,567
Jamaica	1,096	\$2,183	785	\$1,580	755	\$1,428	547	\$1,619	776	\$2,218	544	\$1,569
Others	2,673	\$2,122	2,086	\$1,324	2,488	\$1,402	2,221	\$1,747	2,007	\$1,243	1,591	\$951
<b>Total</b>	<b>124,355</b>	<b>\$72,330</b>	<b>156,394</b>	<b>\$87,218</b>	<b>153,891</b>	<b>\$87,025</b>	<b>139,812</b>	<b>\$68,376</b>	<b>142,219</b>	<b>\$85,804</b>	<b>155,109</b>	<b>\$89,495</b>

Source: USDA-GATS, HS Code 807200000

## SUPPLIERS

The majority of US Papaya imports originate in Mexico, which has an import market share of over 70 percent. In 2013, the US imported a total of 111,966 MTs of papayas from **Mexico** valued at nearly \$65 million. The remaining suppliers have substantially smaller shares of the market but have remained relatively steady or increased since 2009.

**Belize** maintained a 15 percent share of the US import market for papayas in 2013. Imports from Belize peaked in 2010 and have decreased since. However Belize remains the second most important supplier of papayas to the United States.



<sup>1</sup> University of Florida, IFAS Extension: An Overview of US Papaya Production, Trade, and Consumption - <http://edis.ifas.ufl.edu/fe914>

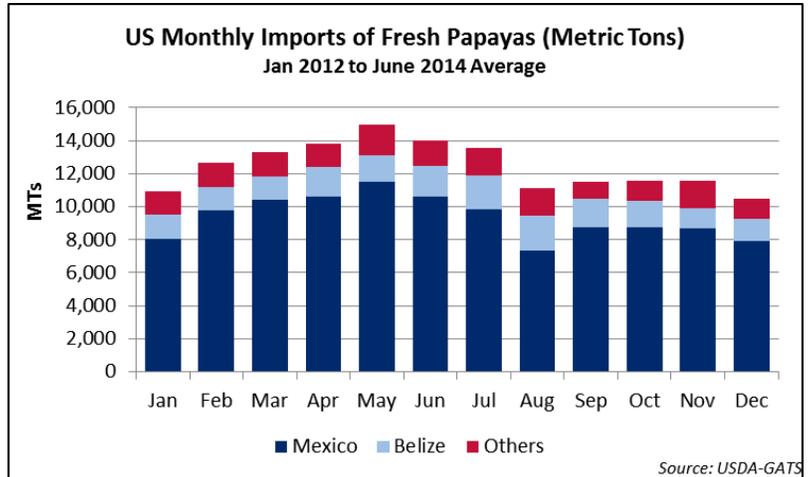
Imports from **Guatemala** amounted to 10% of the US papaya imports in 2013. Imports from Guatemala have increased dramatically since 2009, growing from 2,112 MTs to 14,800 MTs in 2013. Guatemala’s national production has also skyrocketed, from 55,000MT in 2002 to 206,500MT just 10 years later, in 2012.

**Brazil** is the second largest producer of papayas in the world (after India), and the main exporter of papayas to the European Union. In 2001, Brazilian exports of papayas to the US were 5,089 MTs, up from 8 MTs in 1997. However, due in part to the distance between Brazil and the US, and limited shelf life of papayas, Brazil’s exports to the US have decreased to 2,500-3,000 MT per year since 2009. Exports to the US continue, but at relatively small quantities compared to Mexico and other Central American suppliers.

**Dominican** papaya exports to the US include green papayas, as well as Tainung varieties. From 2009 to 2013, imports from the Dominican Republic ranged from 2,339 MTs to 3,582 MTs, with the highest volume imported in 2011.

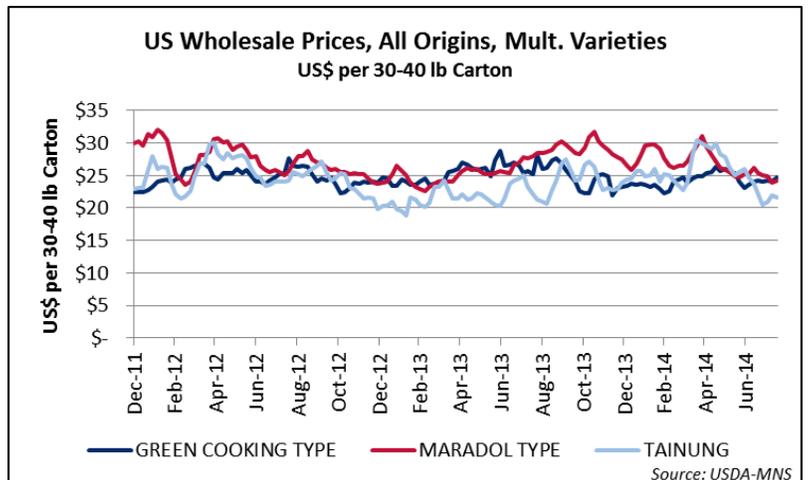
### SEASONALITY

Over the course of 2013 the US imported a monthly average of 13,000 MTs of papaya. Given the nature of papaya production, supply does not tend to be subject to seasonal production gaps, leading to stable year-round supply. Mexico’s peak production period roughly coincides with the seasonal rise in US imports. In general, US imports progressively increase from January to May (peaking in May), decline slightly from June to July, and bottom out from August to September.



### PRICES

In the US wholesale market, Solo papayas generally garner a small premium over other varieties. From December 2011 to July 2014, Solo prices<sup>2</sup> averaged US\$16.83 per 3.5 kg carton (or approximately US\$76.40 per 35 lb). Over the same period, Maradol papayas averaged US\$26.87 per 30-40 lb carton, while the green cooking type averaged US\$24.72 per 30-40 lb carton, and Tainung averaged US\$24.09 per 30-40 lb carton.



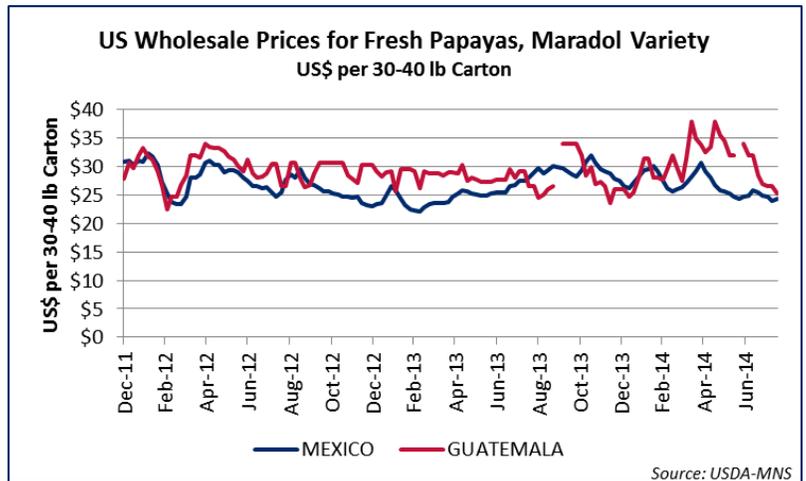
From December 2011 to July 2014, Solo varieties (3.5 kg per carton) from Belize and Mexico were the cheapest and had an average US wholesale price of US\$13.38 per 3.5 kg carton and US\$15.44 per 3.5 kg carton. Solo type papayas are said to demand a premium based on their sweeter flavor and appealing presentation. For Maradol papayas, during the same period, Belize and Mexico sold their papayas for an average of US\$26.57 and US\$26.74 per 30-40 lb carton, while Guatemala averaged US\$28.83 per 30-40 lb carton. For green cooking papayas, Belize supplied the cheapest fruit at an average of US\$23.12 per 30-40 lb carton, while Mexico and Guatemala supply averaged US\$25.00 and US\$25.29 per 30-40 lb carton. Belize was also the cheapest supplier of Tainung papayas and sold their supply for an average of US\$22.53 per 30-40 lb carton. Guatemala was able to undercut

<sup>2</sup> Please note solos are packed in smaller cartons owing to their size.

Mexico, selling Tuinung varieties for an average of US\$24.26 versus US\$27.23 per 30-40 lb carton. Overall, average wholesale prices showed little fluctuation in 2013, reflecting the balance of supply and demand throughout the year.

## STANDARDS, LAWS AND REGULATIONS

**Tariffs:** The majority of US papaya imports enjoy duty-free entry under current trading agreements (e.g., NAFTA and CAFTA-DR) with most Latin American and Caribbean supplier countries. Imports from other suppliers are levied a tariff of 5.4 percent.



**Phytosanitary Requirements:** USDA/APHIS restricts the entry of papayas according to the country of origin, product type and growing zone. Possible introduction of the Medfly, the South American fruit fly, and the Asian fruit fly is strictly monitored. Papayas must be shipped in accordance with the US Government's Code of Federal Regulations (7 CFR 319.56-3) dictating the importation of fruits and vegetables. All papayas are subject to inspection at the port of entry. Additionally, imported papayas are not permitted entry into Hawaii (cartons destined to the US must be stamped with "Not for importation or distribution within HI"). Imports are currently allowed from most Latin American suppliers, albeit in many cases this is limited to selected production areas. For example, import permits for papayas originating in Honduras are only issued if the crop comes from departments of Comayagua, Cortes, and Santa Barbara, and are accompanied by a phytosanitary certificate declaring compliance with 7 CFR 319.56-3.<sup>3</sup> Specific details on the required production and processing procedures for importation from Central and South America can be found under 7 CFR 319.56-25.

**Grades and Standards:** USDA/AMS does not maintain grades or standards for papayas. Nevertheless, buyers tend to look for fruit with smooth, unblemished skin. Avoid dark spots, as they may go below the surface of the skin and spoil the flavor. Ripe fruit must be uniformly tender, with a green to yellow color. Solos are harvested at a mature-green state, with hints of yellow at the blossom. The ideal state of ripeness is three-quarters yellow-orange, with a soft, fruity aroma.

**Packing:** Papayas are shipped in 7 to 10-lb cartons for Solo types, which vary in size from 6s to 14s, and 30-lb to 40-lb cartons for Maradols, which vary in size from 6s to 16s.

**Postharvest Handling:** Papayas are ready to harvest when most of the skin is yellow-green, but dark green fruit will not ripen properly off the tree, even though it may turn yellow on the outside. Mature fruits can be stored at 50°F–55°F (10°C–12°C) for about 3 weeks, their chill point is 44°F (6.6°C) and they must be stored with no top ice and without being sprinkled with water. They have a high moisture loss rate (greater than 1.4 percent daily) and a high ethylene emission rate. Their optimal humidity for storage is between 85 and 95 percent. For fruit fly control purposes, papayas should be treated in hot water for 20 minutes at 49°C (120.2°F).

<sup>3</sup> Papaya (Fruit) from Honduras into All Ports Except Hawaii: [https://epermits.aphis.usda.gov/manual/index.cfm?action=cirReportP&PERMITTED\\_ID=8951](https://epermits.aphis.usda.gov/manual/index.cfm?action=cirReportP&PERMITTED_ID=8951)

## OUTLOOK

US papaya imports grew quickly from the 1990s to early 2000s. The growth originated in Latino communities but spread to include wider consumer appeal, as is the case today. Since 2008, imports have leveled out somewhat though consumption remains high (vis-à-vis other states) in California, Texas, New York, Florida, and Illinois. We expect for papaya demand to remain relatively constant, implying stable import volumes. This is substantiated by stable imports which have remained above 130,000 MTs per year since 2009. While Mexican papayas continue to dominate the market, Guatemala more than doubled its exports to the US between 2011 and 2013. Papayas from Guatemala now make up 10% of the US's imports. Prospects will remain strong for the more expensive Solo papaya, and that demand from mainstream consumers will drive the growth of this variety.