



# THE US MARKET FOR PROCESSED GUAVA

Market Brief #15

## INTRODUCTION

The common Guava (*Psidium guajava*) is cultivated in many tropical and subtropical countries, but is believed to be indigenous to the American tropics, originating from the area between Mexico and Peru. Due to the ease of its cultivation, high nutritional value and the widespread popularity of its processed products, guava is an important crop for dozens of tropical and subtropical countries.

Although consumption remains relatively low in the EU and North America, guava is nevertheless enjoying more of the international spotlight as a flavoring ingredient, particularly in the beverage industry. Fresh guava itself spoils rapidly once harvested and is widely processed as a means to preserve the quality of the fruit and extend its shelf life. The fruit's aromatic flavor and high natural Vitamin C content makes it an ideal ingredient for the production of single-diluted or blended juices. The bulk of the export trade in guava is therefore in processed form, namely concentrate and pulp, with the pink variety preferred for nectars and the white variety used in blends. Pulp is obtained through cutting, destoning and refining mature guavas, which gives the product a creamy texture, whereas concentrate has had the majority of its water removed, making transportation easier due to weight and volume reduction. Concentrate and pulp may be sweet or sour, off-white ("white" guavas) to deep pink ("red" guavas). Overall, guava pulp can be used to produce guava nectar, juice, concentrate jam, jelly, and cheese (e.g. fruit leather).

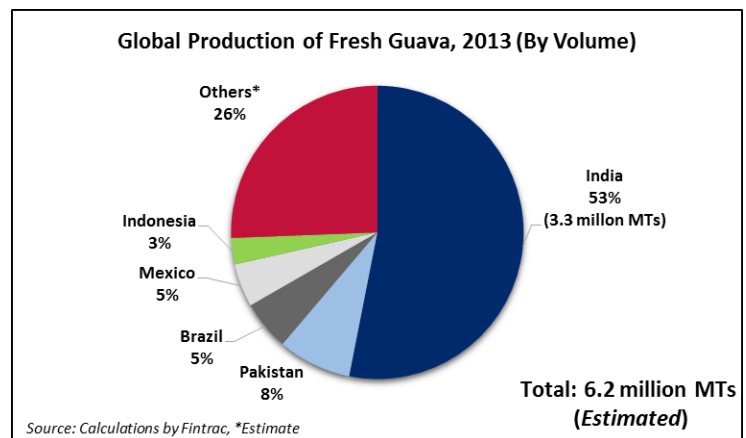


**Pink Guava Pulp**

## PRODUCTION

According to the latest available data, the Food and Agriculture Organization (FAO<sup>1</sup>) estimates that 5.2 million MTs of fresh guava were produced in 2010. The top three producers were India (39% of global output), Pakistan (14% of output), and Brazil (7% of output).

According to calculations made by Fintrac<sup>2</sup>, approximately 6.2 million MTs of fresh guava was produced in 2013. India was the largest producer by far at 3.3 million MTs or 53% of global output. Pakistan and Brazil were the next largest producers at 508,000 MTs (8% of global output) and 342,544 (5% of output), respectively. Mexico and Indonesia are also producers of note and produced 298,062 MTs (5% of output) and 181,632 MTs (3% of output). Historically, Egyptian guava production was on par with Brazil and Mexico, though recent production data has not been published. Other producing nations include, China, Bangladesh, Thailand, Vietnam, Malaysia, Philippines, Cuba, Israel, Sri Lanka,



<sup>1</sup> FAO, "Intergovernmental Group on Bananas and Tropical Fruits" (2011): <http://www.fao.org/docrep/meeting/022/am481t.pdf>

<sup>2</sup> Production data for 2013 has been calculated by Fintrac by aggregating data from various government ministries of guava producing states. Not every producing country has publicly available data. Data for these secondary producers was estimated based on 2005 to 2010 FAO data.

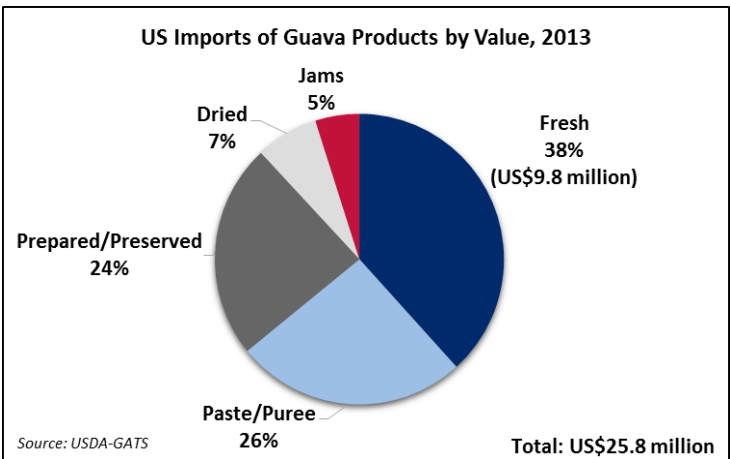
Sudan, South Africa, the Dominican Republic, El Salvador, Guatemala, Colombia, Peru, Suriname, and Venezuela produced an estimated 1.5 million MTs (based on 2005 to 2010 FAO data).

**India** is the largest guava producer and consumer in the world. According to India's National Horticulture Board, during the 2013-2014 production season, India produced an estimated 3.3 million MTs of fresh guava, which was an increase from the 2012-2013 (3.2 million MTs) and 2011-2012 (2.5 million MTs) seasons. Madhya Pradesh State, was the country's largest producer and accounted for 25 % of production during the 2013-2014 season. India's guava crop typically ripens during the winter, but can vary based on when farmers prune their trees.

**Pakistan** is the second largest guava producer in the world. According to a Pakistani media source<sup>3</sup>, in 2013, the country produced approximately 512,300 MTs of fresh guava. On average, Punjab Province accounts for 80% of production, with harvests typically occurring during the autumn and winter periods..

**Brazil** is a major producer and consumer of fresh and processed guava. According to the Brazilian Institute of Geography and Statistics (IGBE), in 2013, the country produced 342,544 MTs of guava. In 2013, São Paulo State and Pernambuco State (northeastern Brazil) accounted for 40% (138,058 MTs) and 30% (103,697 MTs) of total output, respectively. Guava production occurs year-round, with a large share destined for processing into pulp and juice.

**Mexico** is a large producer of guava and noted processor. According to Mexico's Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA), in 2013, Mexico produced 298,062 MTs of fresh guava, which was a slight increase from 2012 (295,398 MTs) and 2011 (290,659 MTs). Located in western Mexico, Michoacán State was the largest producer and accounted for 45% of production in 2013, 2012, and 2011. The peak production period for Mexico runs from September to February. Approximately 85% of production is consumed fresh while the remaining 15% is sold for processing.

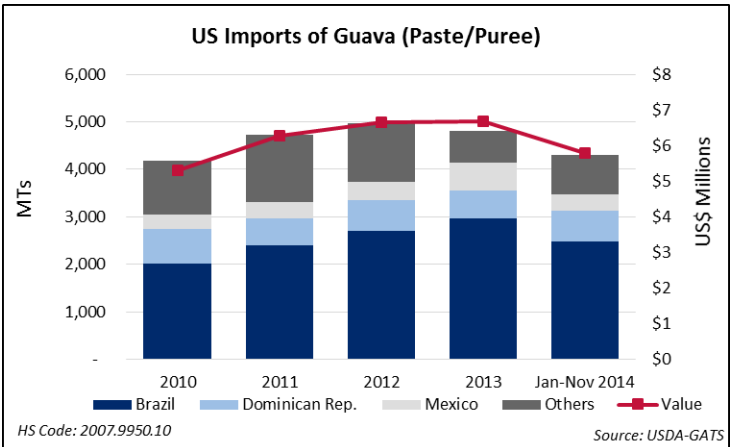


## US MARKET

The US imports a variety of different guava products including fresh guava, guava paste/puree, prepared/preserved guava, dried guava, and guava jam<sup>4</sup>. In 2013, the US imported US\$25.8 million worth of guava products, with fresh comprising 38% (~US\$9.8 million) of imports by value, followed by guava paste/puree at 26% (~US\$6.6 million), prepared/preserved guava at 24% (~US\$6.1 million), dried guava at 7% (~US\$1.8 million), and guava jam at 5% (~US\$1.2 million).<sup>5</sup>

### Fresh Guava

In 2008, Mexican guava producers were granted increased access to the US market after meeting USDA-APHIS phytosanitary requirements (e.g. anti-fruit fly



<sup>3</sup> Dawn Media, Pakistan "Guava, the apple of tropics"; 3 February 2013

<http://www.dawn.com/news/783397/guava-the-apple-of-tropics>

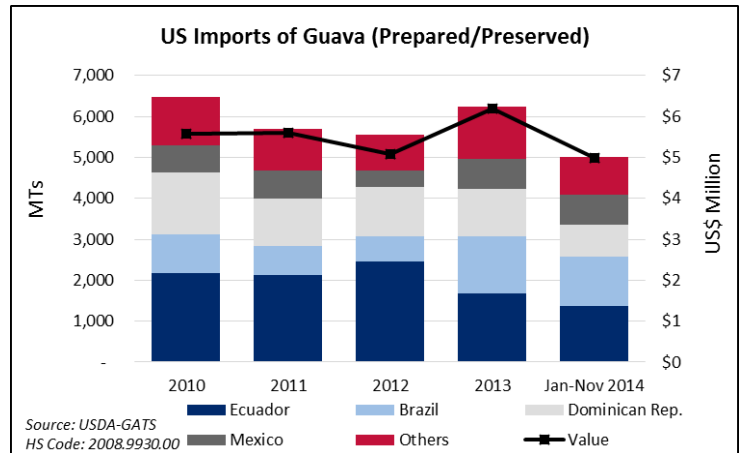
<sup>4</sup> Fresh Guava (HS codes: 0804.5040.80, 0804.5060.80); Guava Paste/Purée (HS code: 2007.9950.10); Prepared/Preserved Guava (HS code: 2008.9930.00); Dried Guava (HS code: 0804.5080.90); Guava Jam (HS code: 2007.9930.00)

<sup>5</sup> December 2014 data has yet to be published by USDA-GATS at the time this survey was produced. Therefore, all 2014 data presented are inclusive of January through November only.

campaigns and irradiation treatment). As a result, US imports of fresh guava increased from 856 MTs in 2008 to 2,728 MTs in 2009. From 2010 to 2014, the US import market for fresh guava fluctuated between 4,000-6,000 MTs, with Mexico averaging an annual import market share of 91%. The only other supplier of note was Thailand, accounting for approximately 8% of imports over the same period. Despite Mexico's dominance in supplying fresh guava, the country is only a secondary supplier of processed guava to the US market.

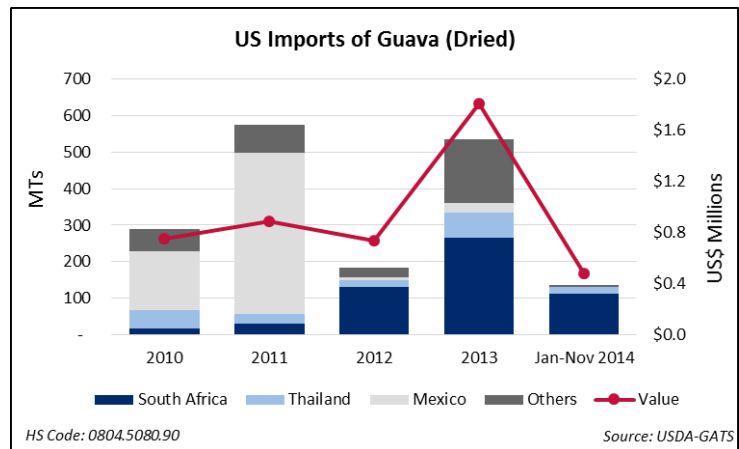
### Guava Paste/Purée

Guava paste/purée is guava that has been cut, pulped, deseeded, refined<sup>6</sup>, and homogenized into a creamy liquid. US Imports of guava paste/purée have been stable historically and ranged from 3,500 MTs to 5,000 MTs annually from 1992 to 2014. From 2010 to 2014, US imports averaged 4,600 MTs and US\$6.1 million per year. Imports hit a peak of 4,975 MTs in 2012 before progressively declining in 2013 and 2014. Despite a fall in volumes, 2013 recorded the highest US import value ever at US\$6.6 million. Brazil was the dominant supplier while the Dominican Republic and Mexico were secondary suppliers.



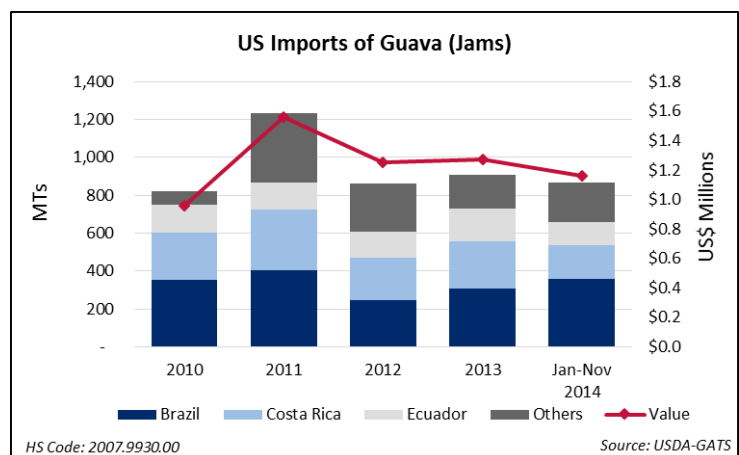
### Guava Prepared/Preserved

US imports of guava prepared/preserved varied from 3,000 MTs to more than 7,000 MTs between 1992 and 2014. From 2010 to 2014, US imports averaged 5,800 MTs and US\$5.5 million per year. Imports peaked in 2010 at 6,476 MTs. While Ecuador has traditionally been the dominant supplier, Brazil has taken some of this market share in recent years.



### Dried Guava

Dried guava is guava that has undergone a dehydration process (sun drying or industrial drying) to remove the majority of its water content. US imports of dried guava fluctuate wildly from year to year. These large fluctuations are due in part to the long shelf life (18 months, or longer if frozen) of dried guava, allowing US importers to search out low prices from various countries and store their inventory. As such, imports hit a high of 575 MTs in 2011, plummeted to 182 MTs in 2012, and rebounded to 534 MTs in 2013. In 2014, imports dropped again to 136 MTs.



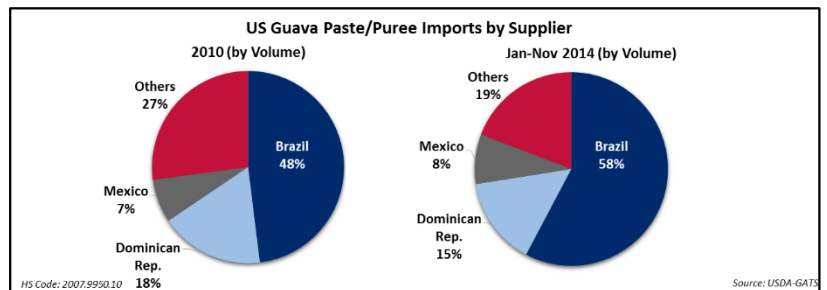
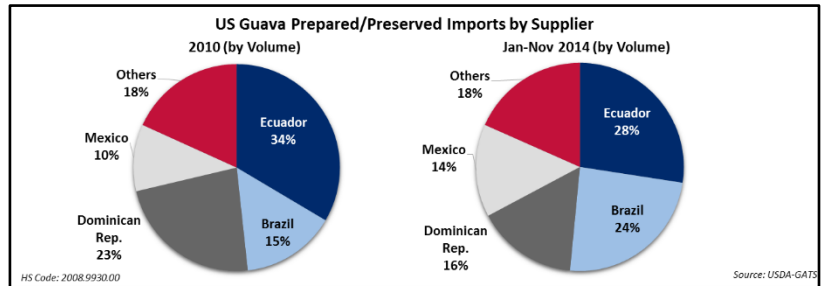
### Guava Jams

Guava jam is guava pulp that has been combined to varying degrees with sugar, pectin (a food gelling agent), and citric acid (a natural preservative). From 2010 to 2014, US imports averaged 940 MTs annually and had an average value of US\$1.2 million. Imports peaked in 2011 at 1,235 MTs that were valued at US\$1.5 million. Brazil, Costa Rica, and Ecuador were the top suppliers.

<sup>6</sup> Thickening agents such as glycerol monostearate, guar gum, or carboxymethyl cellulose are typically added to aid the dehydration process.

## SUPPLIERS

**Brazil** supplies the US with a variety of processed guava products including paste/purée, prepared/preserved, and jams. Of the three, paste/purée was the leading product with Brazil accounting for 58% of US imports in 2014 by volume (excluding December), an increase from the 48% import share of 2010. Brazil generally supplies 2,600 MTs worth of guava paste/purée annually to the US market. Brazil is also the top supplier of guava jams and had a 41% US import market share in 2014, comparable to 2010 when it had 43% share. On average, Brazil exports roughly 335 MTs of guava jams per year to the US. Finally, Brazil is also a significant supplier of guava prepared/preserved, second only to Ecuador. Over the past two years (2013, 2014), Brazilian exports have exceeded 1,000 MTs annually, something it has only done once in the preceding 20 years. As such, in 2014, Brazil accounted for 24% of US imports by volume, a rise from 2010's 15% import share. Despite Brazil's dominance in the processed market, the country does not export fresh guava to the US.



**Ecuador** is the top supplier of guava prepared/preserved to the US market, though its market share has diminished in the face of increased competition. From 2010 to 2014, Ecuador's share decreased from 34% (2,170 MTs) to 28% (1,372 MTs). In addition to guava prepared/preserved, Ecuador was the third largest supplier of guava jams to the US. From 2010 to 2014, the country accounted for 16% (145 MTs per year) of US imports on average. Ecuadorian shipments of guava paste, dried guava and fresh guava were insignificant in all years.

The **Dominican Republic** is a major exporter of paste/purée (second largest US supplier) and prepared/preserved guava (third largest supplier), as well as a minor supplier of guava jams. From 2010 to 2014, the Dominican Republic's import share of paste/purée declined slightly from 18% (738 MTs) to 15% (634 MTs). At the same time, its share of prepared/preserved guava decreased from 23% (1,492 MT) to 16% (786 MTs). Despite declines in both categories, the Dominican Republic will likely remain an exporter of significance owing to its free trade agreements with the US and proximity to the major US import hubs of San Juan and Miami.

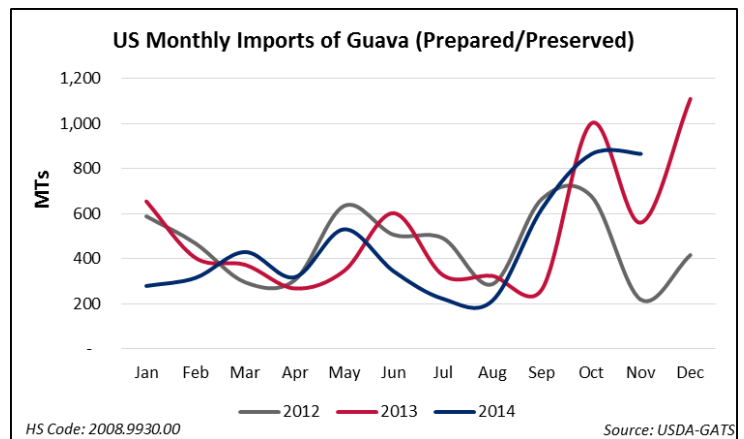
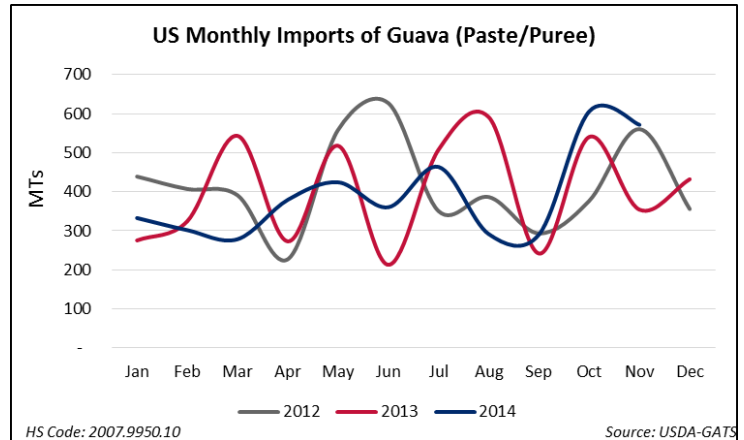
**Mexico**, the dominant supplier of fresh guavas, is only a second-tier US supplier of processed guava. From 2010 to 2014, its import share of paste/purée marginally increased from 7% (306 MTs) to 8% (357 MTs). During the same period, its share of prepared/preserved guava grew from 10% (676 MTs) to 14% (720 MTs). Mexico is also a small supplier of jams, with exports totaling a few dozen metric tons per year. In 2010 and 2011, the country was the top supplier of dried guava, but has yet to export any volumes in 2014.

Within Central America, **Costa Rica** is the largest supplier of processed guava. In 2014, the country accounted for 5% (231 MTs) of US prepared/preserved imports. During the same year, the country accounted for 21% (180 MTs) of US guava jams imports, a decline from 2013 when 253 MTs was shipped. In 2014, **Guatemala** exported 46 MTs of prepared/preserved guava, an increase from 2013 (40 MTs). Also in 2014, for the first time in its history, **El Salvador** exported a processed guava product to the US; 34 MTs of prepared/preserved guava. **Honduras**, is not a US supplier, exporting only 18 MTs of prepared/preserved guava in 2012.

## SEASONALITY

US imports of **guava paste/purée** are not seasonal and do not rise and fall with the harvests of supplier countries. From 2012 to 2014, monthly imports peaked at 628 MTs in June 2012 and hit a low of 213 MTs exactly a year later (June 2013). When averaging all volumes from 2012 to 2014, US imports generally ranged from 300 to 500 MTs per month. The lack of seasonality is likely the result of the relatively long shelf life of guava paste/purée. This would cause imports to be dictated more by price and demand as opposed to seasonal supply.

In contrast to guava paste/purée, US imports of **guava prepared/preserved** is seasonal. From 2012 to 2014, imports peaked from June to July and from September to January. The smaller peak from June to July was primarily due to Brazilian supply, which, from 2012 to 2014, averaged more than 200 MTs in June and approximately 120 MTs in July. The second peak (September to January) was caused by supply from Ecuador, the Dominican Republic, and Mexico. Supply from Ecuador, the largest US supplier, was generally high throughout the year, only dipping below 100 MTs during the month of August and peaking to nearly 250 MTs in December and January. The Dominican Republic and Mexico showed the highest degree of seasonality. For the Dominican Republic, from 2012 to 2014, shipments averaged roughly 50 MTs per month but spiked to nearly 380 MTs in October, while a smaller spike of 150 MTs occurred in December. Mexican supply peaked from October to December, climbing from roughly 130 MTs to 175 MTs over this three month period before settling to roughly 20 to 50 MTs for the remaining months. The month of April is when US monthly imports were at their lowest (< 300 MTs).



Like guava paste/purée, US imports of dried guava and guava jams are not seasonal. This is due to the long shelf life of these processed products.

## PRICES

The most reliable international price data on processed guava comes from the International Trade Center's Market News Service (ITC-MNS). ITC-MNS price data differentiates between single-strength (ss) pulp and pulp concentrate<sup>7</sup>. In addition to single-strength and concentrate, the price data also differentiates between "brix" or sugar content of the pulp<sup>8</sup>.

Price differentials are partly a function of brix content, with the higher brix pulp garnering a

Processed Guava Prices* (US\$ per Metric Ton)				
Origin, Type, Brix (Port)	Apr-14	Jul-14	Sep-14	Dec-14
Brazil, Pink Pulp, 9 Brix (FOB São Paulo)	\$1,250	\$1,250		
Brazil, Pink (Frozen) Pulp, 19 Brix (CFR Netherlands)			\$1,175	
Brazil, White (Frozen) Pulp, 20 Brix (CFR Netherlands)			\$1,250	
Brazil, Pink (Frozen) Pulp, 30 Brix (FOB São Paulo)	\$2,225			
South Africa, Pink Pulp, 9 Brix (CFR Netherlands)	\$695	\$713		
South Africa, Pink (Concentrate) Puree, 19 Brix (CFR Netherlands)				\$1,250
South Africa, Pink (Frozen) Pulp, 30 Brix (CFR Netherlands)		\$1,675		
Egypt, Pink (Concentrate) Puree, 20 Brix (CFR Netherlands)				\$1,250

Source: International Trade Centre - Market News Service (ITC-MNS)

\*Average prices given

<sup>7</sup> According to the Food and Agriculture Organization's (FAO) Codex of General Standard for Fruit Juices and Nectars (CODEX STAN 247-2005), single-strength is pulp not from concentrate (i.e. water has not been removed), whereas concentrate requires reconstitution.

<sup>8</sup> Note that one degree brix is equivalent to one gram of sucrose in 100 grams of solution, and represents the strength of the solution (as a percentage of weight). There is a positive relationship between price and brix level.

premium price. In December 2014, pink guava puree (concentrate, 19 brix) was reported at US\$1,250 per MT (CFR Netherlands), which a 175% price increase vis-à-vis single strength prices that were recorded in mid-2014. At the end of 2014, international guava pulp prices were high due to lackluster output that did not meet global demand. Prices are expected to remain at high levels during the first half of 2015.

## STANDARDS, LAWS AND REGULATIONS

**Tariff and Trade:** Honduras and other countries in Central America qualify for a 0% duty rate owing to the Dominican Republic - Central American Free Trade Agreement (DR-CAFTA) free trade agreement. In general, US guava paste/purée (HS Code: 2007.9950.10) imports have a 1.3% Normal Trade Relations (NTR) duty rate. Countries that fall outside of the NTR (e.g., Cuba, North Korea) have a 35% duty rate.

US guava prepared/preserved (HS Code: 2008.9930.00) imports have a 0% Normal Trade Relations (NTR) duty rate (e.g. duty-free), while non-NTR countries have a 35% duty rate. Honduras automatically qualifies for the 0% rate.

US dried guava (HS Code: 0804.5080.90) imports have a US\$0.015 per kg Normal Trade Relations (NTR) duty rate, while non-NTR countries have a US\$0.331 per kg duty rate. Honduras automatically qualifies for a 0% duty rate owing to the DR-CAFTA agreement.

US guava jam (HS Code: 2007.9930.00) imports have a 0% Normal Trade Relations (NTR) duty rate (e.g. duty-free), while non-NTR countries have a 35% duty rate. Honduras automatically qualifies for the 0% rate.

**Grades and Standards** Guava juice and pulp processing facilities that intend to export to the US market must comply with Hazard Analysis and Critical Control Point (HACCP) protocols for processing operations (66 FR 6138<sup>9</sup>). Guava juice itself must meet the standards established by the Codex Alimentarius Commission, specifically CODEX STAN 247-2005<sup>10</sup>. Released in 2005, the standard requires that the minimum brix level for reconstituted passion fruit juice and purée be at least 8.5 brix. Additionally, guava nectar<sup>11</sup> must contain at least 25 percent juice or purée.

**Packaging:** Guava pulp and concentrate is typically packaged in a 200 or 215 liter aseptic (e.g. sterile) bag and sealed within a drum for transport (80 drums per 20 Foot Container Load or FCL). Pulp can also be packaged in a 20 kg aseptic bag in box. Guava pulp packaged in aseptic bags has a shelf life of 18 months under ideal storage conditions. Ideally, the pulp should avoid direct sunlight and be stored at 4°C - 8° C (40°F - 46° F).

**Post-harvest Handling:** In many regions guava is a host to fruit flies and careful inspection is necessary. Maturity grading can be accomplished by submerging the fruit in clean water. Immature fruit sink and can be separated from floating mature fruit. The clean, whole fruit may be puréed by passing through a paddle pulper. Care must be taken to exclude stone cells that contribute a grainy texture to the purée. These cells are distinct from the seeds and are easily removed by the pulper.

## OUTLOOK

Nicknamed the “apple of the tropics” guava has had difficulty becoming an established fruit product in the US due to its short shelf life (approximately 14 days) and susceptibility to fruit fly contamination. This latter concern is particularly relevant after a guava fruit fly infestation was detected in California in mid-2013, threatening the state’s citrus industry. Imports are tightly controlled with only Mexico exporting fresh guava in any significant volumes; these shipments must originate from a certified orchards that meets the USDA’s strict phytosanitary requirements. As a result of these difficulties, processed guava has become more important than its fresh counterpart in the US market. In 2013, the US imported nearly US\$16 million worth of processed guava while fresh imports totaled US\$9.8 million. The majority of these imports take the form of guava pulp and concentrate, which are in turn used by multinational food and beverage

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<sup>9</sup> HACCP Standard 66 FR 6138, “Procedures for the Safe and Sanitary Processing and Importing of Juice”

<http://www.gpo.gov/fdsys/granule/FR-2001-01-19/01-1291>

<sup>10</sup> CODEX Standard 247-2005, “General Standard for Fruit Juices and Nectars”

<http://www.codexalimentarius.org/committees-task-forces/?provide=committeeDetail&idList=26>

<sup>11</sup> FDA, The Juice HACCP Regulation: “Nectars are diluted juice beverages that contain fruit juice or puree, water, and may contain sweeteners”: <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Juice/ucm072602.htm>

companies to produce nectars, juices, jams, jellies, and even cheese (e.g. dried fruit leather). One such company, Goya Foods, a private US food processor, noted that their US-based business only imports processed guava or “finished goods”, and expressed interest in potentially procuring guava jam from Honduras.



### BUYER CONTACTS

Contact	Details
<p><b>Goya Foods</b> 350 County Road Jersey City, NJ 07307</p> <p>Mr. Fernando LaTorre (Guava Jam) Fernando.latorre@goya.com (201) 348-4900 Ext. 32350</p> <p>Mr. Steven Henson (Juices) Steven.henson@goya.com (201) 348-4900 Ext. 32410</p>	<p>Mr. LaTorree is interested in any offers or samples ACCESO may have regarding Honduran guava jam.</p> <p>Mr. Steven Henson is also interested in offers ACCESO may have on guava or passion fruit juice.</p>



## ANNEX

US Imports of Guava (Prepared/Preserved)										
Country	2010		2011		2012		2013		Jan-Nov 2014	
	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$
Ecuador	2,170	\$1,539,403	2,133	\$1,672,459	2,464	\$1,986,325	1,673	\$1,668,842	1,162	\$1,012,284
Brazil	957	\$911,087	699	\$888,006	597	\$665,148	1,387	\$1,179,552	1,015	\$912,398
Dominican Rep.	1,492	\$1,009,255	1,156	\$825,325	1,219	\$867,705	1,176	\$822,684	637	\$458,945
Mexico	676	\$969,786	700	\$966,075	398	\$531,719	732	\$1,056,456	720	\$981,164
Others	1,181	\$1,150,669	995	\$1,236,144	870	\$1,034,231	1,263	\$1,450,493	1,469	\$1,619,888
<b>Total</b>	<b>6,476</b>	<b>\$5,580,200</b>	<b>5,683</b>	<b>\$5,588,009</b>	<b>5,548</b>	<b>\$5,085,128</b>	<b>6,229</b>	<b>\$6,178,027</b>	<b>5,003</b>	<b>\$4,984,679</b>

Source: USDA-GATS; HS Code: 2008.9930.00

US Imports of Guava (Paste/Puree)										
Country	2010		2011		2012		2013		Jan-Nov 2014	
	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$
Brazil	2,009	\$2,312,399	2,404	\$2,933,076	2,694	\$3,357,467	2,965	\$3,521,829	2,484	\$2,869,861
Dominican Rep.	732	\$1,206,889	570	\$1,039,561	650	\$1,208,748	592	\$1,126,047	634	\$1,200,068
Mexico	306	\$440,734	338	\$563,770	382	\$636,018	586	\$844,949	357	\$566,243
Others	1,135	\$1,354,269	1,423	\$1,752,050	1,248	\$1,442,351	673	\$1,176,348	826	\$1,166,574
<b>Total</b>	<b>4,182</b>	<b>\$5,314,291</b>	<b>4,736</b>	<b>\$6,288,457</b>	<b>4,975</b>	<b>\$6,644,584</b>	<b>4,817</b>	<b>\$6,669,173</b>	<b>4,302</b>	<b>\$5,802,746</b>

Source: USDA-GATS; HS Code: 2007.9950.10

US Imports of Guava (Jams)										
Country	2010		2011		2012		2013		Jan-Nov 2014	
	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$
Brazil	351	\$490,620	406	\$561,132	249	\$428,168	305	\$474,369	358	\$481,934
Costa Rica	249	\$213,577	319	\$294,157	224	\$231,349	253	\$248,388	180	\$190,230
Ecuador	151	\$152,587	141	\$152,786	136	\$162,945	173	\$220,609	119	\$164,827
Others	73	\$103,746	369	\$552,233	253	\$428,920	178	\$327,645	209	\$321,425
<b>Total</b>	<b>823</b>	<b>\$960,530</b>	<b>1,235</b>	<b>\$1,560,308</b>	<b>861</b>	<b>\$1,251,382</b>	<b>908</b>	<b>\$1,271,011</b>	<b>867</b>	<b>\$1,158,416</b>

Source: USDA-GATS; HS Code: 2007.9930.00

US Imports of Guava (Dried)										
Country	2010		2011		2012		2013		Jan-Nov 2014	
	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$
South Africa	18	\$151,174	30	\$253,766	130	\$551,065	267	\$955,458	113	\$356,275
Thailand	50	\$52,667	26	\$24,874	19	\$77,363	67	\$294,476	18	\$91,102
Mexico	160	\$309,347	441	\$325,256	8	\$4,673	27	\$18,632	-	\$0
Others	61	\$239,729	79	\$285,251	25	\$101,839	174	\$539,933	5	\$33,839
<b>Total</b>	<b>289</b>	<b>\$752,917</b>	<b>575</b>	<b>\$889,147</b>	<b>182</b>	<b>\$734,940</b>	<b>534</b>	<b>\$1,808,499</b>	<b>136</b>	<b>\$481,216</b>

Source: USDA-GATS; HS Code: 0804.5080.90

## REFERENCES

- 1) Basisdata Statistik Pertanian, Indonesia (Database of Agricultural Statistics); Accessed January 2015  
<http://aplikasi.deptan.go.id/bdsp/index.asp>
- 2) CODEX Standard 247-2005, "General Standard for Fruit Juices and Nectars"; Accessed January 2015  
<http://www.codexalimentarius.org/committees-task-forces//?provide=committeeDetail&idList=26>
- 3) Dawn.com, Pakistan "Guava, the apple of tropics"; 3 February 2013  
<http://www.dawn.com/news/783397/guava-the-apple-of-tropics>
- 4) Department of Agriculture, Forestry and Fisheries (DAFF), South Africa "Statistical information"; Accessed January 2015  
<http://www.nda.agric.za/publications/publications.asp?category=Statistical-information>
- 5) Embrapa Semiárido, Brazil "3rd International Symposium on Guava and Other Myrtaceae"; April 2012  
<http://ainfo.cnptia.embrapa.br/digital/bitstream/item/58373/1/SDC247.pdf>
- 6) ESPAC, Ecuador "Procesador de estadísticas agropecuarias (Processor Agricultural Statistics)"; Accessed January 2015  
<http://www.ecuadrencifras.gob.ec/procesador-de-estadisticas-agropecuarias-3/>
- 7) European Fruit Juice Association (AIJN), "Liquid Fruit Market Report"; 2012  
<http://www.aijn.org/pages/main/file.handler?f=AIJNMarketReport2012.pdf>
- 8) FAO, Intergovernmental Group on Bananas and Tropical Fruits, Tropical Fruits Compendium, Fifth Session; May 2011  
<http://www.fao.org/docrep/meeting/022/am481t.pdf>
- 9) FDA, The Juice HACCP Regulation: "Nectars are diluted juice beverages that contain fruit juice or puree, water, and may contain sweeteners"; Accessed January 2015  
<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Juice/ucm072602.htm>
- 10) Foodnews "Expensive guava"; 8 June 2012  
<https://www.agra-net.net/agra/foodnews/expensive-guava--1.htm>
- 11) Foodnews "Australian guava left to rot"; 20 July 2012  
<https://www.agra-net.net/agra/foodnews/australian-guava-left-to-rot--1.htm>
- 12) Foodnews "Mexico expects larger guava harvest this year"  
<https://www.agra-net.net/agra/foodnews/raw-material/mexico-expects-larger-guava-harvest-this-year--1.htm>
- 13) Foodnews "First guava juice from processor's own fruits"; 8 November 2013  
<https://www.agra-net.net/agra/foodnews/beverages/fruit-juices/tropical/first-guava-juice-from-processor-s-own-fruits--1.htm>
- 14) Foodnews "Guava prices rising in Indian producing states"; 11 December 2013  
<https://www.agra-net.net/agra/foodnews/beverages/puree/guava-prices-rising-in-indian-producing-states--1.htm>
- 15) Foodnews "India develops new pink-pulp guava"; 1 April 2014  
<https://www.agra-net.net/agra/foodnews/raw-material/fresh-fruit/india-develops-new-pink-pulp-guava--1.htm>
- 16) Foodnews "Guava processing gets under way in India"; 20 October 2014  
<https://www.agra-net.net/agra/foodnews/beverages/puree/guava-processing-gets-under-way-in-india-458601.htm>
- 17) Foodnews "Egyptian processor seeks share of mango purée market"; 28 October 2014  
<https://www.agra-net.net/agra/foodnews/beverages/puree/mango/egyptian-processor-seeks-share-of-mango-puree-market-459478.htm>
- 18) Foodnews "Agricultural production in São Paulo falling"; 2 December 2014  
<https://www.agra-net.net/agra/foodnews/raw-material/fresh-fruit/tomatoes/agricultural-production-in-sao-paulo-falling-463121.htm>
- 19) Foodnews "Chile and India both losers after EU formalises new purée tariffs"; 15 June 2012  
<https://www.agra-net.net/agra/foodnews/chile-and-india-both-losers-after-eu-formalises-new-puree-tariffs--1.htm>
- 20) Fresh Fruit Portal "Mexico's guava exports to the U.S. continue to rise"; 28 December 2011  
<http://www.freshfruitportal.com/2011/12/28/mexicos-guava-exports-to-the-u-s-continue-to-rise/>
- 21) Fresh Fruit Portal "Mexican guava consumption rises in key U.S. cities"; 26 January 2012  
<http://www.freshfruitportal.com/2012/01/26/mexican-guava-consumption-rises-in-key-u-s-cities/>
- 22) Fresh Fruit Portal "South Africa's guava industry at crucial crossroads"; 16 July 2012

<http://www.freshfruitportal.com/2012/07/16/south-africas-guava-industry-at-crucial-crossroads/>

- 23) Fresh Fruit Portal "Mexico: Veracruz explores guava to fight HLB citrus infections"; 26 February 2013  
<http://www.freshfruitportal.com/2013/02/26/mexico-veracruz-explores-guava-to-fight-hlb-citrus-infections/>
- 24) Fresh Plaza "Mexico: Strong guava and citrus production figures"; 18 December 2012  
<http://www.freshplaza.com/article/104236/Mexico-Strong-guava-and-citrus-production-figures>
- 25) Fresh Plaza "Mexico: Aguascalientes sells 90% of processed guava in the U.S."; 17 January 2013  
<http://www.freshplaza.com/print.asp?id=104987>
- 26) Fresh Plaza "Guava fruit flies threaten California's fruit industry"; 16 July 2013  
<http://www.freshplaza.com/article/111344/Guava-fruit-flies-threaten-Californias-fruit-industry>
- 27) Fresh Plaza "Mexican govt grants phytosanitary status to guava growers"; 6 September 2013  
<http://www.freshplaza.com/article/112858/Mexican-govt-grants-phytosanitary-status-to-guava-growers>
- 28) Fresh Plaza "Mexico: Forecasts for the guava harvest estimate it at 100,000 tons"; 11 October 2013  
<http://www.freshplaza.com/article/114099/Mexico-Forecasts-for-the-guava-harvest-estimate-it-at-100,000-tons>
- 29) Fresh Plaza "Mexico: 3,000 tonnes of guava to be exported to the U.S."; 29 January 2014  
<http://www.freshplaza.com/print.asp?id=117357>
- 30) Fresh Plaza "Mexico is the largest exporter of avocados, lime, green pepper and guava"; 21 August 2014  
<http://www.freshplaza.com/print.asp?id=125616>
- 31) HACCP Standard 66 FR 6138, "Procedures for the Safe and Sanitary Processing and Importing of Juice"; Accessed January 2015  
<http://www.gpo.gov/fdsys/granule/FR-2001-01-19/01-1291>
- 32) Instituto Brasileiro de Geografia e Estatística, Brasil (IBGE, Brazilian Institute of Geography and Statistics); Accessed January 2015  
<http://www.ibge.gov.br/estadosat/>
- 33) International Society for Horticultural Science "International Market of Fresh and Processed Guava"; Accessed January 2015  
[http://www.actahort.org/books/959/959\\_1.htm](http://www.actahort.org/books/959/959_1.htm)
- 34) International Trade Centre - Market News Service (ITC-MNS) "Fruit Juice Market - 04 April 2014"  
[http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market\\_Data\\_and\\_Information/Market\\_information/Market\\_Insider/Fruit\\_Juice/Fruit%20Juice%20Market%20April.pdf](http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market_Data_and_Information/Market_information/Market_Insider/Fruit_Juice/Fruit%20Juice%20Market%20April.pdf)
- 35) International Trade Centre - Market News Service (ITC-MNS) "Fruit Juice Market – July 2014"  
<http://www.intracen.org/itc/blogs/market-insider/Latest-fruit-juice-and-puree-prices-and-market-comments/>
- 36) International Trade Centre - Market News Service (ITC-MNS) "Fruit Juice Market - September 2014"  
[http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market\\_Data\\_and\\_Information/Market\\_information/Market\\_Insider/Fruit\\_Juice/Fruit%20Juice%20Market%20September%20.pdf](http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market_Data_and_Information/Market_information/Market_Insider/Fruit_Juice/Fruit%20Juice%20Market%20September%20.pdf)
- 37) International Trade Centre - Market News Service (ITC-MNS) "Fruit Juice Market - December 2014"  
[http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market\\_Data\\_and\\_Information/Market\\_information/Market\\_Insider/Fruit\\_Juice/Fruit%20Juice%20December%202014%20.pdf](http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market_Data_and_Information/Market_information/Market_Insider/Fruit_Juice/Fruit%20Juice%20December%202014%20.pdf)
- 38) Jadli Foods, India "Rich Health Benefits Of Guava Pulp/Puree"; Accessed January 2015  
[http://www.jadlifoods.com/Guava\\_Pulp\\_Puree.html](http://www.jadlifoods.com/Guava_Pulp_Puree.html)
- 39) Jain Irrigations Systems "Guava Concentrate, Pulp & Puree"; Accessed January 2015  
<http://www.jains.com/fruit/guava.htm>
- 40) National Horticulture Board, India "Area and Production Statistics"; Accessed January 2015  
<http://nhb.gov.in/area%20production.html>
- 41) SAGARPA – Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación "Guayaba"; Accessed January 2015  
<http://www.siap.gob.mx/guayaba/>
- 42) Shimla Hills "Guava – Pulp, Juice & Puree Concentrate"; Accessed January 2015  
<http://www.shimlahills.com/guava-products.php>
- 43) Sun Impex, Dubai "Guava"; Accessed January 2015  
<http://www.sunimpex.biz/guava.php>