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THE US MARKET FOR PASSION FRUIT JUICE

Market Brief #17

INTRODUCTION

Passion fruit is a popular ingredient widely used in juice-making that addresses consumer interest in healthy and exotic beverages. The variety of passion fruit most often used in juicing is the yellow maracuyá (*Passiflora edulis f. flavicarpa*), while the purple varieties are marketed through fresh channels. Passion fruit juice is sold to juice manufacturers and other processors as single strength aseptic juice (14-16 brix¹) or frozen concentrate (50 brix). The concentrate is a potent blending ingredient with high acidity and strong aroma. Many buyers prefer to source concentrate over single strength form as this lowers the cost of shipping. Most juice manufacturers in the EU, the largest import market for passion fruit juice use it as a blending ingredient in tropical juices.



Yellow Passion Fruit Juice

PRODUCTION

Passion fruit juice production primarily occurs in South America and Asia, which corresponds to where the bulk of fresh fruit cultivation takes place. Asian passion fruit juice production is geared towards the domestic market and is not widely traded on the international market. South America, which accounted for an estimated 75% of global passion fruit production in 2013, dominates the international trade of passion fruit juice. This is particularly true for Ecuador, Peru, and Colombia, which are well-known producers and exporters of passion fruit juice.

Brazil is the largest producer and consumer of passion fruit juice in the world. In 2013, the country produced 834,749 MTs of fresh passion fruit, with the majority of production destined for processing. Brazil has long had a well-established passion fruit industry with large-scale juice extraction plants. Yellow passion fruit accounts for 95% of production and is primarily used for juice processing, while purple passion fruit accounts for the remaining 5% and is sold in the fresh fruit market. Peak production periods occur from March to April and from October to November. Despite being the largest producer, Brazil is not a major exporter and even periodically imports juice concentrate to make up for domestic shortages. This occurred in 2012 and 2013, when Brazil imported approximately 1,400 and 1,100 MTs from Peru, and 150 MTs and 603 MTs from Ecuador, respectively. Brazil is not a regular supplier and only exports juice when surpluses are available.

Ecuador is a major producer of passion fruit (aka *parchita* or *maracuyá*) juice concentrate and is the world's largest exporter. Thanks to favorable climatic conditions Ecuador can grow passion fruit nearly year round, with peak production periods occurring from March to April, July to August (smaller peak), and November to January. Passion fruit yields can range from 1.2 to 45 tons per hectare, but generally average 12 tons per hectare. This wide variation means that costs (and subsequently prices) can shift dramatically. Like Brazil, Ecuador primarily grows the yellow passion fruit and is the dominant variety used by the juicing industry. In 2013, the country produced approximately 4,000 MTs of passion fruit concentrate (50 brix only, not including single strength), a significant decline from 20,000 MTs in 2011 and its lowest output since 1995. The recent decline in passion fruit juice production, which mirrors the decline in fresh fruit output, was influenced by declining prices on the international market². The resulting contraction of Ecuadorian production pushed prices up throughout 2013 and into 2014. These high prices have led some farmers to replant passion fruit. According to

¹ Brix is the sugar content of the juice, with one degree brix equal to one gram of sucrose in 100 grams of solution. In general, the brix number represents the sucrose strength of a solution (as a percentage of weight).

² The price of Ecuadorian 11 brix NFC (C+F, Europe) decreased from US\$2,500 to US\$1,600 per MT from March 2010 to September 2011.

Foodnews, Ecuadorian production in 2014 recovered slightly, though 2015 and 2016 output is not expected to reach 2011 levels.

Peru is a significant producer of passion fruit and a well-known exporter of passion fruit juice when output exceeds domestic demand. Like Ecuador, Peru suffers from a boom and bust cycle, but not as pronounced as the country is generally a smaller producer. In 2013, Peru produced an estimated 67,600 MTs of fresh passion fruit. Based on export data, Peru's passion fruit juice production capacity is not as large as Ecuador's. However, Peruvian output is such that it has become a reliable secondary supplier on the global market. Peak harvest periods for passion fruit occur from July to September.

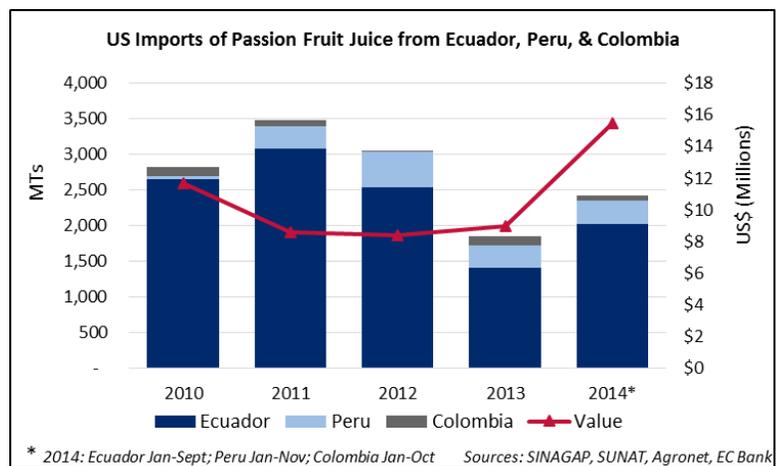
Colombia is a significant producer of fresh passion fruit and a noted supplier of passion fruit juice. According to a Fresh Plaza news article³, in 2013, Colombia produced an estimated 80,000 MTs of fresh passion fruit, an increase from 65,232 MTs that was reported by its National Statistics Agency (DANE). Colombia has two peak production seasons which run from June to August and from November to January.

US MARKET

The USDA and USITC do not track imports of passion fruit juice. Instead, passion fruit juice trade data is aggregated with "other fruit juices" (HS code: 2009.8960.91), making it impossible to pin down imports from the US side. However, it is possible to collect data on Ecuadorian, Peruvian, and Colombian exports to the US via their respective reporting agencies. It should be noted that 2014 data varies as each individual country has yet to fully report (as of January 2015) their trade figures for the year. Please refer to the footnote⁴ below for the sources used to determine US imports.

From 2010 to 2013, US imports of passion fruit juice declined from 2,828 MTs to 1,854 MTs and equivalent values fell from US\$11.6 million to US\$8.9 million.

However, imports did hit a peak of 3,479 MTs (valued at US\$8.6 million) in 2011 before declining. In 2014⁵, imports rebounded to 2,421 MTs and were valued at US\$15.4 million. Ecuador was the dominant supplier but saw its import market share slip from 93% (by volume) to 83% from 2010 to 2014. Peru has emerged as a secondary supplier,



Country	2010		2011		2012		2013		2014*	
	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$	MTs	US\$
Ecuador	2,651	\$11,227,170	3,074	\$7,690,750	2,532	\$6,810,560	1,409	\$6,850,888	2,017	\$13,540,864
Peru	39	\$125,000	325	\$749,000	503	\$1,562,000	312	\$1,761,285	334	\$1,700,000
Colombia	138	\$318,127	80	\$178,026	9	\$20,103	133	\$351,387	70	\$200,981
Total	2,828	\$11,670,297	3,479	\$8,617,776	3,044	\$8,392,663	1,854	\$8,963,560	2,421	\$15,441,845

Sources: SINAGAP, SUNAT, Agronet, EC Bank²

*2014: Ecuador Jan-Sept; Peru Jan-Nov; Colombia Jan-Oct²

³ Fresh Plaza "Colombian passiflora growers seek to take advantage of FTAs"; December 2014

<http://www.freshplaza.com/article/116161/Colombian-passiflora-growers-seek-to-take-advantage-of-FTAs>

⁴ Ecuador – Sistema de información Nacional de Agricultura, Ganadería, Acuacultura y Pesca (SINAGAP):

<http://sinagap.agricultura.gob.ec/> (2010-2012 data); Banco Central del Ecuador: <http://www.bce.fin.ec/> (2012-2014 data)

Peru – Superintendencia Nacional de Administración Tributaria (SUNAT): <http://www.sunat.gob.pe>

Colombia – Agronet: <http://www.agronet.gov.co/>

⁵ As of January 2015, Ecuador has only reported January to September 2014 export data; Peru January to November only; Colombia January to October only

accounting for just over 1% of imports in 2010 to 14% by 2014. Colombia was a marginal supplier, generally accounting for 4% of US imports.

SUPPLIERS

Ecuador, traditionally the largest global exporter of passion fruit juice, has experienced declining shipments in recent years. According to Ecuador’s SINAGAP, from 2010 to 2012, exports of passion fruit juice declined from 27,540 MTs to 14,720 MTs and equivalent values (FOB-Ecuador) decreased from US\$96.1 million to US\$39.4 million. In 2011, exports hit a high volume-wise of 31,345 MTs, but values only totaled US\$77.9 million, a US\$18 million decline from the year prior. This drop in value partially influenced farmers to forgo planting passion fruit resulting in the area under cultivation to fall from 4,286 hectares in 2012 to 3,888 ha in 2013. Accordingly, in 2013, exports totaled just 10,667 MTs (valued at US\$46.7 million). The decline in exports mirrored the rise of passion fruit juice prices that occurred throughout 2013. Exports recovered somewhat in 2014 as the country shipped 14,885 MTs of juice that was valued at US\$71.5 million.

The US is a minor importer of Ecuadorian passion fruit juice though the country is the US’s largest supplier. From 2010 to 2012, US imports remained relatively stable and declined only slightly from 2,651 MTs to 2,532 MTs. In 2013, imports dropped dramatically to 1,409 MTs before recovering slightly to 2,017 MTs in 2014 (January to September). On average, from 2010 to 2014, the US accounted for 13% of Ecuadorian passion fruit exports.

Peru has emerged as a major supplier of passion fruit juice on the international market and is the second largest exporter in South America after Ecuador. According to Peru’s National Tax Administration (SUNAT), from 2010 to 2013, Peruvian exports of passion fruit juice decreased from 8,982 MTs to 5,027 MTs, while equivalent values (FOB-Peru) declined slightly from US\$28.9 million to US\$28.4 million. In 2014 (data only covers January to November), Peruvian exports rose to 7,050 MTs (US\$35.9 million). Similar to Ecuador, Peru also recorded a significant decline in exports in 2013 due in part to a combination of poor domestic output and high local demand in Lima.

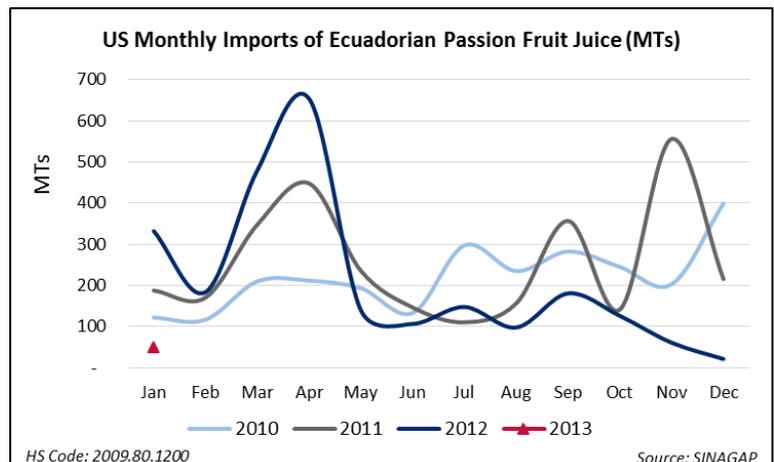
The US is a small but growing importer of Peruvian passion fruit juice. In 2010, a low point in their trade, the US only imported 39 MTs. In 2011, US imports jumped to 325 MTs and increased further to 503 MTs in 2012. In 2013 and 2014 (January to November), US imports fell to 312 MTs and 334 MTs, respectively. The drop in imports matches the overall drop in the market that resulted from lackluster production.

Colombia is a small exporter of passion fruit juice on the global market, well behind its neighbors of Ecuador and Peru. According to Colombia’s Ministerio de Agricultura y Desarrollo Rural (Agronet), in 2010, Columbia exported nearly 800 MTs valued at US\$2.7 million (FOB-Columbia), a high point. In 2011 exports dipped to 168 MTs and were valued at just US\$353,146. In 2013, exports recovered slightly and totaled 454 MTs and were valued at US\$2.5 million. According to the latest available data, in 2014 (January to October), Colombia exported 239 MTs of passion fruit juice valued at US\$1.5 million. The US and Puerto Rico are secondary importers of Colombian passion fruit juice. From 2010 to 2014 (January to October), the US imported a total of 430 MTs (~86 MTs per year), while Puerto Rico imported 439 MTs (~88 MTs per year).

SEASONALITY

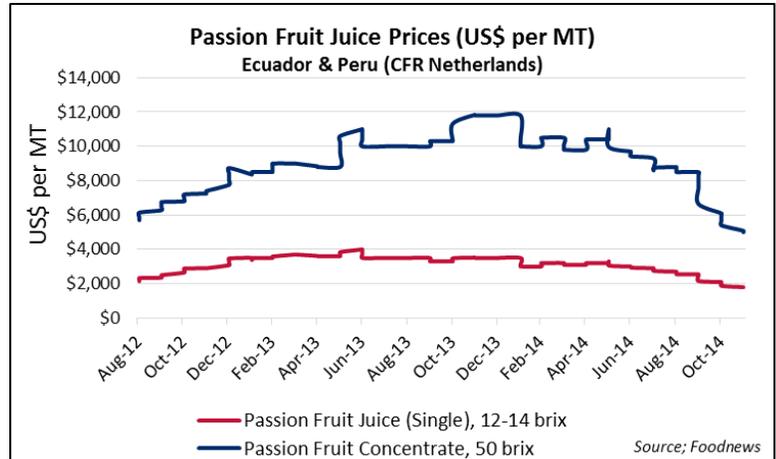
The seasonality of US imports is directly linked to the availability of supply, meaning that imports tend to peak following passion fruit harvests in producing countries. Monthly import data is only available for US imports of Ecuadorian and Colombian passion fruit juice.

In the case of Ecuador, the most recent data available is from January 2010 to January 2013 during which US imports generally peaked in March and April. A smaller import peak also occurs in November. Taken together, these months correspond to Ecuadorian passion fruit harvests. US monthly imports of Colombian passion fruit juice generally peak in January and February, which corresponds to Colombia’s passion fruit harvest cycle.



PRICES

The most reliable international price data on passion fruit juice comes from Foodnews, which combines and averages the passion fruit juice prices of Ecuador and Peru. Foodnews price data differentiate between single strength 12-14 brix juice (packaged in 250 kg drums/barrels) and concentrate 50 brix juice (packaged in 200 kg drums). In addition, the price data is given in CFR⁶ (Cost and Freight). Although packaged in 200 kg and 250 kg drums, prices are given in US dollars per metric ton. Please note that buyers prefer to source concentrate (50 brix) over single strength (12-14 brix) juices, as this can save money in terms of shipping costs (concentrate can be reconstituted as a single strength juice by juicers).



In March 2012, the price for Ecuadorian and Peruvian passion fruit juice (single strength, 12-14 brix) totaled US\$1,850 per MT, a low price. Starting from March 2012 onwards the price steadily rose before hitting a high of US\$4,000 per MT in July 2013. After July 2013, prices began a slow decline settling at US\$1,800 per MT by December 2014.

In March 2012, the prices for Ecuadorian and Peruvian passion fruit concentrate (50 brix) totaled US\$4,800 per MT, a low price. Throughout the remainder of 2012 and for the majority of 2013 prices steadily rose before hitting a high of US\$11,800 per MT from December 2013 to February 2014. Beginning in March 2014, prices began declining and reached US\$5,000 per MT by December 2014.

Prices for Ecuadorian and Peruvian passion fruit concentrate (50 brix) began to decline in March 2014 due to Ecuadorian production coming online. However, Ecuador's harvest was not as high as expected (15-20% below market expectations), tempering prices. In mid-January 2015, prices for juice concentrate rose to US\$5,600 per MT, a US\$600 increase from the month before. Prices will likely hover around US\$5,000 to US\$6,000 per MT until March 2015 when Ecuador begins to harvest its fruit.

STANDARDS, LAWS AND REGULATIONS

Tariff and Trade: US passion fruit juice imports have 0.5 cents/liter Normal Trade Relations (NTR) duty rate. Countries that fall outside of the NTR (e.g., Cuba, North Korea) have an 18 cents/liter rate. Peru and Colombia have a Free Trade Agreement with the US, qualifying them for a 0% tariff rate. Honduras would also qualify for a 0% duty rate owing to the Dominican Republic - Central American Free Trade Agreement (DR-CAFTA).

Grades and Standards: Passion fruit juice processing facilities that intend to export to the US market must comply with Hazard Analysis and Critical Control Point (HACCP) protocols for their processing operations (66 FR 6138⁷). Passion fruit juice itself must meet the standards established by the Codex Alimentarius Commission, specifically CODEX STAN 247-2005⁸. Released in 2005, the standard requires that the minimum brix level for reconstituted passion fruit juice and purée be at least 12 brix. Additionally, passion fruit nectar⁹ must contain at least 25 percent juice or purée.

Packaging: Passion fruit juice is generally packaged into large (200 to 250 kg) aseptic (i.e. sterile) bags and placed inside drums.

⁶ "Cost and Freight" means that the seller must pay the costs and freight necessary to bring the goods to the named port of destination but the associated risk and potential costs during transit are transferred to the buyer once the goods (e.g. passion fruit juice) are loaded onto the vessel. http://www.worldclassshipping.com/incoterm_cfr.html

⁷ HACCP Standard 66 FR 6138: <http://www.gpo.gov/fdsys/granule/FR-2001-01-19/01-1291>

⁸ CODEX Standard 247-2005: <http://www.codexalimentarius.org/committees-task-forces//?provide=committeeDetail&idList=26>

⁹ 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>

Post-harvest Handling: Harvested passion fruit is typically transported to the processing plant where it is screened, inspected, and washed vigorously with high pressure water jets. Once cleaned, the fruit is passed to a final selection table where it is inspected and cleared for the juice extraction process. Specially designed extractors break down the fruit making it ready for processing and concentration. The flavor of the juice is sensitive to heat, making preservation by freezing preferred. The yield for processing 1 MT of 50 brix concentrate is 12:1. (i.e. 12 kg of fruit to make 1 kg of concentrate).

OUTLOOK

Passion fruit juice has a unique flavor and high acidity which makes it a natural concentrate. When sweetened and diluted it is well liked and blends well with other fruit juices. In general, it is purchased in bulk by industrialized countries that have a sizeable fruit juice processing sector. Though not the largest importer (this designation belongs to the Netherlands), the US is a major market thanks in part to growing consumer awareness of the juice's dietary health benefits and its expanding utilization in yogurt, desserts, and other confectionary products. Despite robust demand in the US, imports are subject to volatile swings owing to the unpredictability of South American supply, particularly from Ecuador and Peru. Production in both countries is subject to weather-related losses, such as El Niño and drought. In addition, local farmers are fairly price sensitive, uprooting vines when passion fruit juice prices bottom-out and replanting when prices spike. This planting practice causes a "boom and bust" supply cycle, as passion fruit orchards generally take 18 months from planting to bear fruit and another 18 months (i.e. three years after planting) to reach their peak yields. The beginning of 2014 marked the height of a "boom" cycle, with prices peaking at nearly US\$12,000 per MT (concentrate, 50 brix) due to diminished supply. By the end of 2014, output recovered its footing somewhat and prices fell to US\$5,000. However, in January 2015, prices unexpectedly began to rise again over concerns of lackluster Ecuadorian and Peruvian output.

Honduras is well placed to take advantage of the market uncertainty and become a modest supplier to the US market. Ecuadorian production is not expected to substantially increase in 2015 or 2016¹⁰, meaning that prices are likely to remain above US\$5,000 per MT (50 brix). Additionally, it is unlikely that Peru will be able to compensate for Ecuador's poor supply. In January 2015, it was reported¹¹ that more than 70% of its output was being consumed in its domestic fresh fruit market, a percentage that has grown progressively over the past three years. Honduras should be able to capture US market share if the country is able to resolve issues relating to logistics, price, or product quality.

¹⁰ Foodnews "Passion fruit juice concentrate price slumps"; 18 November 2014

<https://www.agra-net.net/agra/foodnews/beverages/fruit-juices/tropical/passion-fruit-juice-concentrate-price-slumps-461743.htm>

¹¹ Foodnews "Buyers pile into passion fruit spot market"; 14 January 2015

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