



THE US MARKET FOR LIMES

Market Brief #10

INTRODUCTION

Thought to have originated in northeast India, there are several species of citrus trees that produce limes, including the Key lime (Kargzi lime), Persian lime, Kaffir lime, and Desert lime. In the United States, limes are an important product used widely to flavor foods and drinks, as well as to produce extracts and essential oils for perfumes, cleaning supplies and other common products. Key and Persian limes (a variety of Tahitian limes) are the two varieties most commonly imported and consumed in the United States.



PRODUCTION

From 2006 to 2012, global lime production increased from 13.7 million MTs to 15.1 million MTs, or by approximately 11%. In 2012, China (15% of global output), India (14.5% of global output), and Mexico (14% of global output) were the three largest producers, with Argentina and Brazil significant secondary producers.

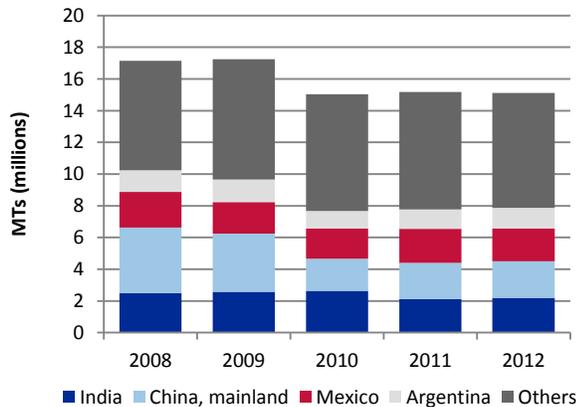
China, the largest world producer of limes, produces mostly the Persian variety. Chinese production has been somewhat erratic in recent years, with a production spike from 2008 to 2009 as plantings on previously expanded acreage reached full production. Since 2010, production has been stable at an average of 2.2 million MTs.

India ranks second in world production of limes, and primarily produces the Key Lime variety, as well as smaller quantities of Tahitian Sweet limes and Kaffir limes. From 2006 to 2012, Indian production has been relatively stable at between 2.1 and 2.6 million MTs per year. Over the same period, Indian lime exports amounted to approximately 1% of this production, with the vast majority of India's production consumed domestically.

Mexico is the third-largest world producer of limes, and mostly produces the Key and Persian lime varieties, with production averaging 2 million MTs from 2006 to 2012.

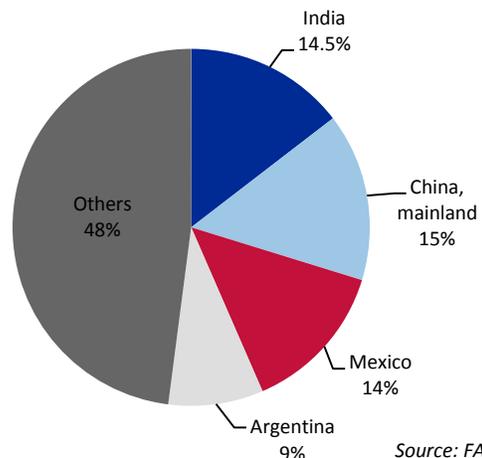
Until the early 1990s, the **United States** also produced significant volumes of lime, but since then lime production has fallen to its currently low level. What little production there currently is in the US comes from Florida and southern California, but it is practically irrelevant in terms of global market share.

Figure 1: World Production of Lemons/Limes



Source: FAOStat

Figure 2: 2012 World Production of Lemons/Limes (MT)



Source: FAOStat

Table 1: World Production of Lemons and Limes (MTs)

Producers	2008	2009	2010	2011	2012
India	2,501,700	2,571,530	2,629,200	2,108,000	2,200,000
China, mainland	4,128,500	3,673,300	2,040,500	2,295,000	2,300,000
Mexico	2,242,539	1,987,453	1,891,403	2,147,740	2,070,764
Argentina	1,362,190	1,425,529	1,113,375	1,228,656	1,300,000
Others	6,917,854	7,584,346	7,371,906	7,393,981	7,247,698
Total	17,152,783	17,242,158	15,046,384	15,173,377	15,118,462

Source: FAOStat

US MARKET

US imports of fresh limes have grown consistently over the last five years. In 2013, the US imported 415,062 MTs, valued at \$208 million. This represents a 6% increase from 2012 imports of 392,283 MTs and an 85% increase from 2002 levels (224,702 MTs). Imports primarily consist of Persian and Key limes, with Persian lime making up the largest share of imports. The US depends almost entirely on Mexico for its limes, which accounted for 97% of the of the US market share in 2013. In recent years, the balance of lime imports has come from Brazil, Guatemala, Honduras, El Salvador and Colombia.

SUPPLIERS

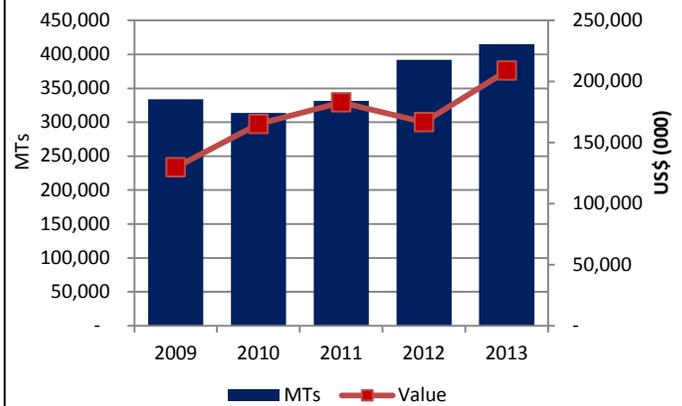
Mexico's early foothold in the US market, the scale of its production, as well as its proximity to the US gives its lime producers a distinct advantage. This has allowed Mexico to dominate the market, supplying 96-98% of imports by volume between 2009 and 2013.

Mexico primarily grows Key and Persian lime varieties. While both are exported, Persian limes are grown primarily for export to the US. Most of the Mexican crop is shipped by truck from Veracruz to entry points in Texas and Arizona.

Strong international prices and low barriers to trade have led Mexican producers to increase their planted area for both Persian and Key limes. In recent years, many producers have replaced orange and grapefruit groves with Persian limes, and in 2012, plantings of Persian limes increased 5%, accounting now for 47% of total lime area in Mexico. According to producers, these increased plantings, as well as warmer than usual temperatures in the winter season led to overproduction and lower prices.¹ Further, despite its overwhelmingly dominant position as a US supplier, industry experts say that consistent supply and quality remain a challenge—usually relating to bad weather, disease or organized crime.

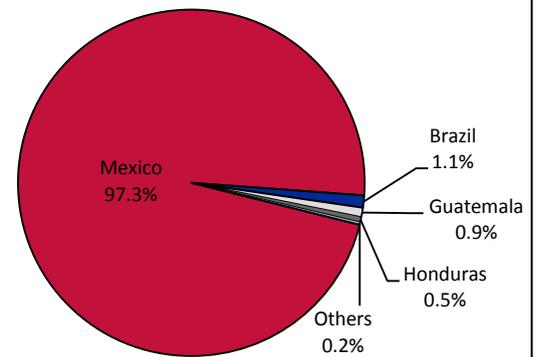
The remainder of US lime imports comes mainly from Guatemala, Honduras, El Salvador, Colombia, and Brazil. Guatemala and El Salvador experienced a reduction in the volume of their exports to the US between 2009 and 2013, as have most of the other minor suppliers. This is likely associated with Brazil's recent entry into the US import market in 2013, when it took 42% of the share

Figure 3: U.S Imports of Fresh Limes (All Suppliers)



Source: USDA-

Figure 4: 2013 Total US Lime Imports, MTs (All Suppliers)

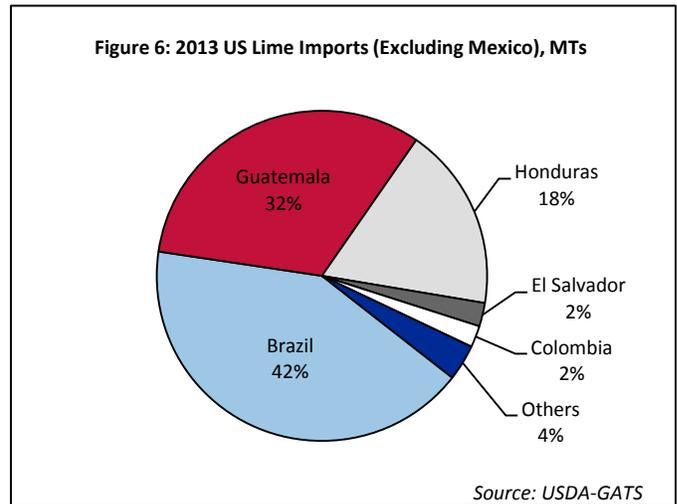
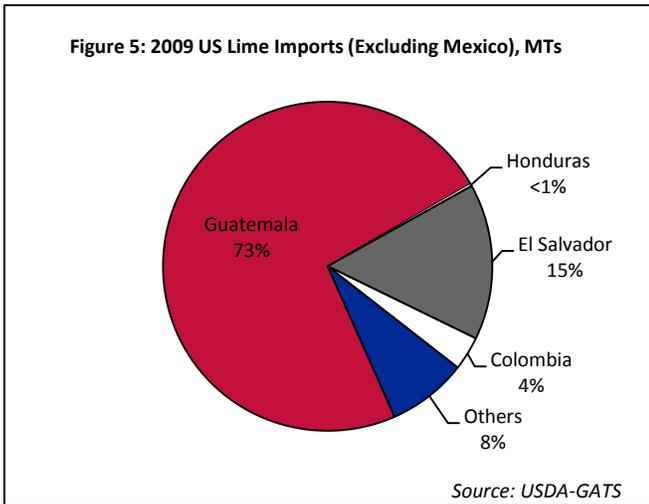


Source: USDA-GATS

¹ "Mexico Citrus Annual 2013 Report" USDA Foreign Agricultural Service, Global Agricultural Information Network, December 30, 2013 http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Citrus%20Annual_Mexico%20City_Mexico_12-30-2013.pdf

of imports coming from secondary suppliers (excluding Mexico). This increase from Brazil appears to be associated with a plummeting of prices in Europe (Brazil's primary market for limes) and a simultaneous spike in prices and demand in the US due to shortages of Mexican limes. It remains to be seen whether Brazil will maintain its current level of supply to the US market, however various sources suggest that with the projected recovery of the Mexican lime industry in the coming year and improving prices in Europe, US imports from Brazil are likely to return to pre-2013 levels.

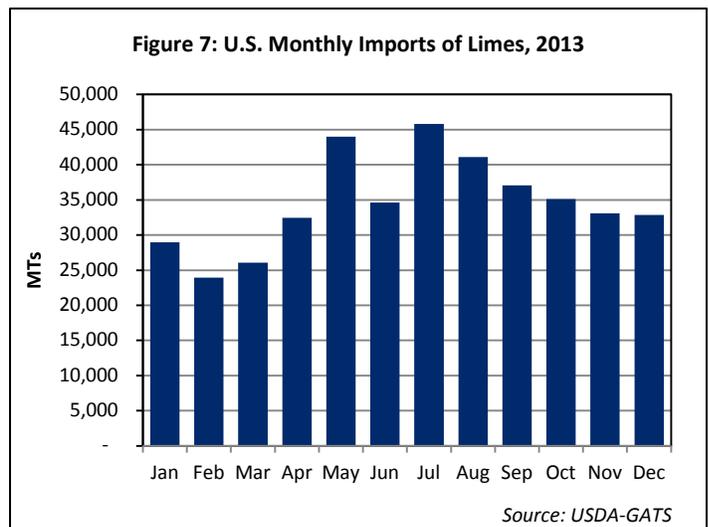
Honduras has significantly increased its exports to the US over the past 5 years, moving from filling less than 1% of the share of secondary supplier imports in 2009, with just 18 MT of production, to 18% with a volume of 2,038 MTs in 2013. This increase is likely due to increases in area of production and improved crop productivity in recent years, as reported by FAO. Yet, accounting for all suppliers to the US market, including Mexico, Honduras' 2013 market share still was only 0.5%. Sources also suggest that Colombia could become a bigger player, as its industry recently began an initiative to enhance production and export of Tahitian limes and is focused on capitalizing on periods during the year when Mexico and other large producers have lower supplies. Despite these changes, the total US imports of all countries outside of Mexico are still just a fraction of the overall import market, representing only approximately 3% of the market share.



SEASONALITY

Limes are produced year-round, with a peak season in Latin American and Caribbean countries lasting from May through August. The main crop of Mexican Key limes is harvested around February, allowing them to enter the market first, while the Persian lime harvest begins in early April. Irrigation and diverse microclimates in Mexico allow for year-round production of both Persian and Key limes, as well as varied harvest times that allow certain regions to target different seasons and levels of demand.

In the US, fresh lime imports peak between May and August and are lower between January and March due to tighter supplies from Mexico as well as lighter demand. In late August, importers of Mexican limes regularly begin to face lower supplies, more variation in quality and limited choice among sizes as Mexico harvests the end of the old crop. While there are other points of origin for fresh limes in the Caribbean and Central America, as well as very limited production in the United States, the volumes they supply are small in comparison to those from Mexico and cannot come close to filling the shortages that come during times of low supply.



PRICES

Wholesale prices for fresh limes are based primarily on carton and fruit size. Cartons of 40 and 10 pounds are the most common units of packing for imports into the US. Sizes for limes packed in 40-pound cartons include 110s, 150s, 175s, 200s, 230s, and 250s, indicating the number of limes that fit into the carton. Typically, the dominant Persian lime variety peaks at the 175-200-count size, which is the size range preferred by US buyers. This preference can be seen in price data, where in 2013, for example, prices for the 175s size were generally higher (between \$1 and \$14 higher) than those for 230s.

US fresh lime wholesale prices for Mexican limes remained relatively steady through 2012 and 2013, averaging \$21.66 per 40-lb. carton of 150-175s limes. US wholesale prices for fresh limes from Honduras were similarly steady, averaging slightly lower at \$15.71. In early 2014, bad weather, disease and organized crime affecting Mexico's lime industry caused a shortage in supply and pushed US wholesale prices up to historically high levels. Peak prices in April 2014 were \$120 per 40-pound carton of 175s limes, four times higher than prices at the same time in 2013. However, as industry experts predicted, lime production in Mexico recovered later in 2014 bringing prices back down. While prices were already on their way back down to pre-shock levels by July of 2014, this recent spike demonstrates the fluctuations that buyers face in a market so reliant on one supplier and may provide an opportunity for alternative suppliers to enter the US market.

STANDARDS, LAWS AND REGULATIONS

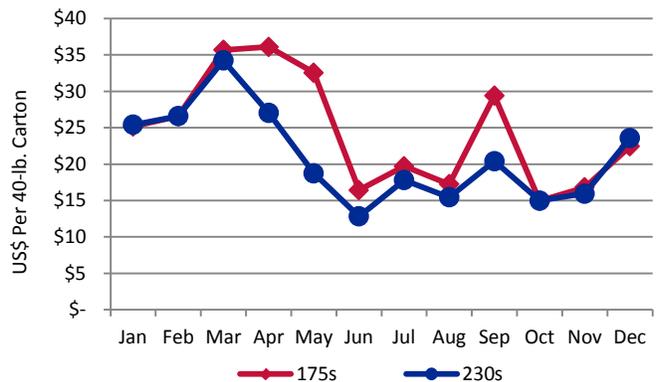
Tariffs and Trade: Under the North American Free Trade

Agreement (NAFTA), Mexican limes are imported duty-free. Most Central American and Caribbean suppliers also enjoy duty-free entry for limes under the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR²). For countries with Normal Trade Relations (NTR) with the United States, the 2014 duty rate for Tahitian and Persian limes (HS Code 0805.5030³) is 0.8% ad valorem. Non-NTR countries are subject to a tariff of 35% ad valorem.

Phytosanitary requirements: Limes are permitted entry into the US from most Latin American and Caribbean producers with only an import permit and do not require special treatments or growing conditions. An import permit can be obtained by applying online with USDA-APHIS. Imported limes will be subject to inspection at the port of entry, and subject to the General Requirements for all imported fruits and vegetables (CFR 319.56-3). To export fresh limes from Honduras to the United States, the government of Honduras also requires that the exporter acquire an export permit from the Servicio Nacional de Sanidad Agropecuaria (SENASA/SAG). In addition, a certificate of inspection for each shipment, and a certificate of analysis of pesticide residues will also be required from the Secretaría de Agricultura y Ganadería (SAG).

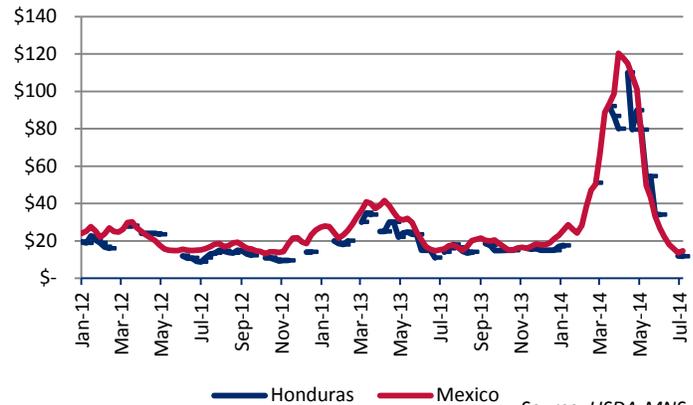
Grades and Standards: Classifications for fresh limes are based on characteristics such as surface texture, color, and juice content. Grades include US No. 1, US No. 2 and US Combination, with US No. 1 being the highest quality, US No. 2 slightly lower, and US Combination be a mix of the two with at least 60% (by count) of the limes in the lot meeting the requirements of US No. 1

Figure 8: US Fresh Lime Wholesale Prices, 2013



Source: USDA-MNS

Figure 9: US Wholesale Prices for Seedless Limes
US\$ per 40 lb. Carton (150-175 Limes)



Source: USDA-MNS

² CAFTA-DR: <http://www.ustr.gov/trade-agreements/free-trade-agreements/cafta-dr-dominican-republic-central-america-fta>

³ USITC HS Code 08055030 - Tahitian limes, Persian limes and other limes of the Citrus latifolia variety, fresh or dried (Begin Effect Date: 10/31/2012)

grade. CODEX Standards classifications for fresh limes include “Extra” Class, Class I and Class II. “Extra” Class is given to product of superior quality, while Class I and Class II allow for certain slight defects in shape and coloring. Additional information on classifications can be found with USAD’s Agricultural Marketing Service and in the Codex Standard for Limes (CODEX STAN 213-1999).

Packaging: Most limes imported to the US are packed in 10 or 40-pound cartons. Codex Standards for limes require that limes be packed to properly protect produce, in new, clean, quality materials and using paper and stamps printed using non-toxic materials. The Codex Standard for Limes (CODEX STAN 213-1999) also gives standards for labeling.

Postharvest Handling: Limes should be cooled and stored at 10 degrees with 95% relative humidity. Under optimal conditions, limes can be stored up to 8 weeks. Both Key and Persian limes are very susceptible to stem-end rots caused by various pathogens. Green and blue mold is also a risk with wounds made during harvesting and handling and can appear in storage. Careful handling to minimize damage, as well as proper sanitation of packing line equipment and use of postharvest fungicides can help reduce postharvest diseases.

OUTLOOK

Despite Mexico’s market dominance it appears that opportunities to capture market share do exist. Many importers believe that the lime market is a “sleeping giant”, with the issue of inconsistent quality being the only factor hindering significant growth. Along with quality issues, other opportunities for new suppliers include growing demand, the slowdown of Mexican lime supplies between September and December, and a growing interest in specialty citrus products.

For importers, inconsistent quality (variations in lime size, formation, skin condition, etc.) remains a concern, particularly between November and January when supplies grow tight in Mexico. Meanwhile, US demand for limes continues to grow at a healthy pace. Per capita lime consumption in the US more than doubled from 1.2 lbs/person in 1997 to 2.6 lbs/person in 2010. Between 2003 and 2013, US imports of fresh limes grew by 80%, from 225,000 MTs to 415,000 MTs per year. Americans’ focus on healthy lifestyles and a growing Hispanic population are expected to continue driving this upward trend. The shortage of fresh limes in early 2014 provided solid evidence of the growing importance of limes and the stability of demand in the US market. During April 2014, the lime market hit nearly \$120 for a 40-pound carton (a 300% spike from the \$40 high in 2013) and demand barely wavered.

With increasing demand for fresh limes, interest in specialty citrus varieties similar to limes has also been growing. Products such as finger limes (*Citrus australasica*) and Meyer lemons (citrus × meyeri) have become trendy and are popular in high end restaurants. There is also increasing demand for seedless citrus produce. So far, consumer preference for seedless citrus has been associated with lemons (Persian limes are already seedless), however their success on the market could suggest demand for seedless key limes in the future.

Those considering entering the US market for fresh lime would do well to focus on exploiting the opportunities created by these trends. A supplier that can provide consistent and/or superior quality, fill seasonal supply shortages, or enter the specialty products market would be well positioned to take a portion of the US market share for limes.

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