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An Overview of US Blueberry Production, Trade, and Consumption, with Special Reference to Florida[1]

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Introduction

Blueberry is cultivated commercially in about 27 countries worldwide, most of which are located in temperate zones. Between 2002 and 2011, world blueberry production grew at an annual rate of 5.45 percent, from 230,769 tonnes in 2002 to 356,533 tonnes in 2011. Blueberry production in 2011 was 13.66 percent higher than in the previous year, and 54.50 percent above the 2002 calendar year. The top five blueberry producers are the United States, Canada, Poland, Mexico, and Germany, respectively (FAOSTAT 2013a). The United States is by far the largest blueberry producer, with a production share of 56.07 percent between 2009 and 2011, followed by Canada (30.29%), Poland (2.92%), Germany (2.5%), and Mexico (0.94%).

Between 2001 and 2010, global exports of blueberry more than doubled, from 53,232 tonnes in 2001 to over 113,000 tonnes in 2010 (FAOSTAT 2013b). During this same period, export value grew from $119.29 million in 2001 to $370.97 million in 2010. The top five exporters are the United States, Canada, Poland, the Netherlands, and Spain, respectively. The United States accounted for 50.94 percent of the world exports from 2008 to 2010, followed by Canada (25.89%), Poland (6.78%), the Netherlands (5.44%), and Spain (1.74%). Blueberry has a high export ratio, as a significant percentage of its production goes to the international markets. For example, in 2010, about 26.62 percent of

the total production of blueberries was traded in the world market.

Global blueberry imports grew from 49,224 tonnes in 2002 to over 113,000 tonnes in 2010. The United States is the largest importer, absorbing 63.30 percent of the global imports between 2008 and 2010, followed by Canada (19.08%), Germany (3.69%), Austria (2.33%), and the

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Netherlands (1.17%). These top five importer countries accounted for over 89 percent of the global blueberry trade between 2008 and 2010 (FAOSTAT 2013b).

In terms of consumption, the United States and Canada, respectively, are the main consumers of blueberries. Together, these two countries consume 76.82 percent of the global blueberry exports. This is noteworthy considering that the combined population of these two countries is less than 350 million people, or about 5 percent of the estimated 7 billion people comprising the global population.

While the United States plays an important role on the international blueberry market as both exporter and importer, it is mainly a net blueberry importer. Domestic production and per-capita consumption of the fruit have followed an upward trend since 2000. Florida blueberry cultivation has expanded due to early-ripening cultivars that bring higher prices during the early part of the domestic crop season. Therefore, Florida growers might explore blueberries as a profitable alternative crop.

The objective of this document is to provide updated information about the recent trends in blueberry production, consumption, and trade for the US market. Current and future short-term trends are discussed. Price analysis at the wholesale level for selected markets on the US East Coast (New York City) and US West Coast (Los Angeles) are presented. Also, the national average retail prices for conventional and organic blueberries are presented.

US Blueberry Market Production

The United States is the largest blueberry-producing country, accounting for over half of the global production. Because of the availability of cultivars suitable for very different climatic conditions, blueberry production is widely spread throughout the continental United States. For example, in 2011, the top five state producers and their share of total production were Michigan (19.21%), Maine (17.44%), Oregon (11.53%), New Jersey (11.25%), and Georgia (11.18%) (USDA/ERS 2013). North American blueberries are available from April through October, with the peak season running from June to August (Blueberry-council.org 2013). There are five main types of blueberries grown in the United States: *northern highbush*, *southern highbush*, *rabbiteye*, *lowbush,* and *half-high* (Strik and Finn 2008).

Northern highbush blueberries are native to much of the eastern and northeastern United States, from the Appalachian Mountains to the Atlantic Ocean. Northern highbush blueberries have a long chilling time (exposure to low temperatures) requirement (more than 800 hours) compared to southern highbush and rabbiteye blueberries. Plants grow five to nine feet tall.

Southern highbush blueberries were developed to allow blueberry production in "low-chill" areas. A dormant plant requires a certain amount of chilling (exposure to temperatures between 32°F and 45°F during winter dormancy) to break bud and flower normally. Southern highbush blueberries have a low chilling requirement (200 to 300 hours) compared to other types of blueberries. Plants can grow as high as ten feet tall.

Rabbiteye blueberries are native to the southeastern United States. These blueberries require long, hot summers. Plants grow from six to ten feet tall.

Lowbush blueberries are native from Minnesota to Virginia and from the northeastern United States to the maritime provinces of Canada. They seldom grow higher than 1.5 feet tall, and are protected from extreme winter weather by snow. In the marketing data, they often are listed as wild blueberries.

Half-high blueberries are the result of crosses between the northern highbush and lowbush blueberry varieties. They were developed for cold climates; these cultivars will tolerate –35°F to –45°F temperatures. Plants grow from 3 to 4 feet tall, with most of the fruiting area below the snow line.

Between 2002 and 2011, total US blueberry production more than doubled, from 113,976 tonnes in 2002 to 231,994 tonnes in 2011 (USDA/ERS 2012a). The rise in production can be attributed to several factors, including new production regions, higher yields, and significant increases in planted areas in some of the established production states. The top three US blueberry-producing states are Michigan, Maine, and Oregon. Michigan is the largest producer, with a production share of 19.21 percent for 2009 to 2011, followed by Maine (17.44%) and Oregon (11.53%). Together, these three states supply almost half of the total domestic blueberry production. California and Mississippi are the latest entrants into the domestic blueberry market. Between 2009 and 2011, California contributed 5.84 percent and Mississippi 1.67 percent of the total blueberries sold on the market. Production in most of the blueberry-producing states continues on its upward trend, with the following states experiencing sharp significant increases in output over the 2002–2011 period: Florida (637.93%), Washington (346.88%), Georgia (264.70%), and Oregon (174.16%).

Between 2009 and 2011, about 51 percent of the total US blueberry production was sold as fresh fruit, while 48 percent of production was sold as processed fruit (USDA/ERS 2012a). As mentioned earlier, production in Florida has been on the upswing, and it is sold mainly in the fresh market. The state is currently ranked ninth according to the 2009–2011 data, but is expected to improve in ranking in the future. Florida commercial blueberry production takes place in three regions of the state: north-central, central, and south-central. Most of the Florida blueberry crop is grown in the north-central region (Alachua, Lake, Marion, Putnam, and Sumter Counties), which accounts for about 40 percent of the state blueberry acreage. Next in importance is the central region (Hernando, Hillsborough, Orange, Pasco, and Polk Counties), which accounts for 35 percent of the state blueberry acreage. Last in importance is the south-central region (Desoto, Hardee, Highlands, Manatee, and Sarasota Counties), which accounts for about 20 percent of the state blueberry acreage.

Because Florida blueberry production comes from early-ripening varieties, Florida growers receive higher prices from April to May, when they are the main suppliers (Williamson, Olmstead, and Lyrene 2012). Because of the availability of blueberry cultivars adapted to the different growing conditions throughout the state and the early market advantage that Florida growers have, blueberry production may become an interesting alternative to growers seeking to diversify their agricultural production and increase their farm income.

US Blueberry Import and Export Trade

The United States is the world's largest blueberry importer, absorbing almost two-thirds of the global imports during the 2008–2010 period (FAOSTAT 2013b). US blueberry imports (fresh and frozen) more than doubled, from 54,022 tonnes in 2003 to 148,517 tonnes in 2012. During this same period, US fresh blueberry imports trended upward, from about 43 percent of the total in 2003 to about 65 percent in 2012 (USDA/FAS 2013).

US blueberry imports come from two main origins: cultivated and wild. The rise in US blueberry imports is due to the rising global supply of cultivated blueberries. Since 2008, there has been a sharp increase in the world supply of cultivated blueberries. For example, fresh and frozen cultivated blueberries represented about 40 percent of all US blueberry imports in 2003, and 82.23 percent in 2012 (Figure 1). US imports of fresh and frozen wild blueberries represented 60.12 percent of all blueberry imports in 2003, and 17.34 percent in 2012. Data collection of US imports of organic blueberries began in 2011; organic blueberries accounted for 0.45 percent of the total US blueberry imports in 2012.

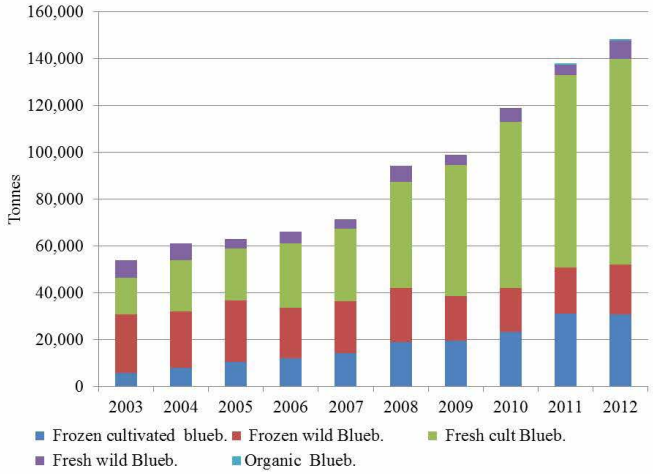

Figure 1. US fresh and frozen blueberry imports, 2003–2012 (tonnes) [Source: USDA/FAS 2013]

As shown in Figure 2, the main foreign blueberry suppliers to the US market are Chile, Canada, Argentina, Mexico, and "others," respectively. Chile is the largest supplier, accounting for 45.83 percent of the total imports between 2010 and 2012, followed by Canada (42.38%), Argentina (9.07%), Mexico (1.83%), and others (0.90%). Imported blueberries are supplied to the US market year-round, with most of the supply arriving on the US market from July to March. The bulk of the Chilean blueberry crop arrives on the US market from December to March, reaching its peak on the US market in January. The bulk of the Canadian crop arrives on the US market from July to November. The value of the US blueberry import market in 2012 reached $523.7 million, up 9.03 percent from $480.3 million in 2011.

Between 2003 and 2012, US exports of fresh and frozen blueberries grew 65.94 percent, from 32,338 tonnes in 2003 to 53,640 tonnes in 2012. While the United States exports blueberries to several countries, most of the US blueberry exports go to Canada and Japan. Between 2003 and 2012, Canada received 74.19 percent of the US blueberry exports, followed by Japan (14.96%) and others (10.85%) (USDA/FAS 2013). Figure 3 shows the seasonality of the US blueberry exports between 2010 and 2012. The United States exports most blueberries from May to August when blueberries reach a peak; fresh wild blueberries constitute

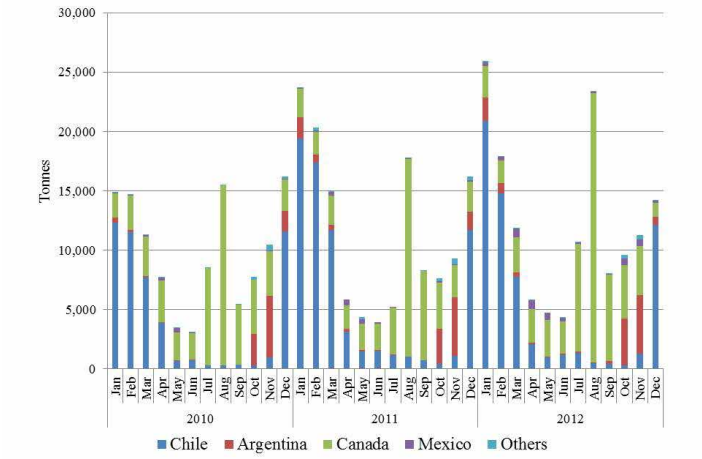

Figure 2. Seasonality of US blueberry imports, by orgin, 2010–2012 (tonnes) [Source: USDA/fas 2013]

a significant part of the August exports. While Canada was the main destination for US blueberries in 2010 and 2011, there was a change in the US export pattern in 2012, when a significant portion of the April to July exports were shipped to Japan. One possible reason for this change may be the agreement in 2011 between the United States and Japan on maximum pesticide residue levels, allowing more US blueberries in the Japanese market (USTR 2012).

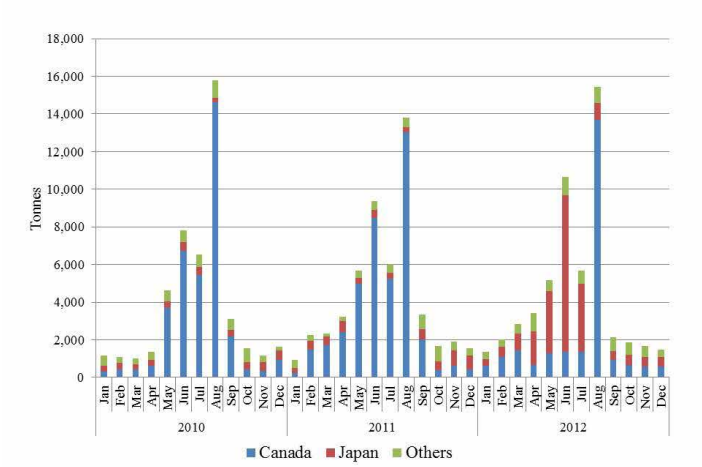

Figure 3. Seasonality of US blueberry exports, by destination, 2010–2012 (tonnes) [Source: USDA/FAS 2013]

In 2012, Oregon became the only US state cleared to ship blueberries to South Korea. This was the result of a free trade agreement (FTA) between South Korea and the United States (USDA/APHIS 2012). The tariff (40.5% in 2012) on Oregon blueberry exports shipped to South Korea is scheduled to decrease 5 percent annually until it zeroes out in 2020 (Lies 2012).

US Blueberry Consumption

In addition to being a popular and tasty fruit, blueberries have powerful nutritional and medicinal properties, including antioxidants (e.g., resveratrol), which help neutralize free radicals that are the causal agents of several diseases (Rimando et al. 2004). Blueberry may also have medicinal properties that include retarding the effects of aging, particularly memory loss and degeneration of motor skills (Kalt et al. 2001).

US per-capita consumption of selected fruits between 2002 and 2011 is presented in Figure 4. Per-capita blueberry consumption increased from 0.18 kg/person in 2002 to 0.57 kg/person in 2011, or an annualized rate of 21.66 percent (USDA/ERS 2012b). Blueberry consumption in the United States remains low, especially when compared to strawberry (3.34 kg). The gap in per-capita consumption is even wider when compared to bananas (11.60 kg) and apples (6.96 kg) (USDA/ERS 2012b).

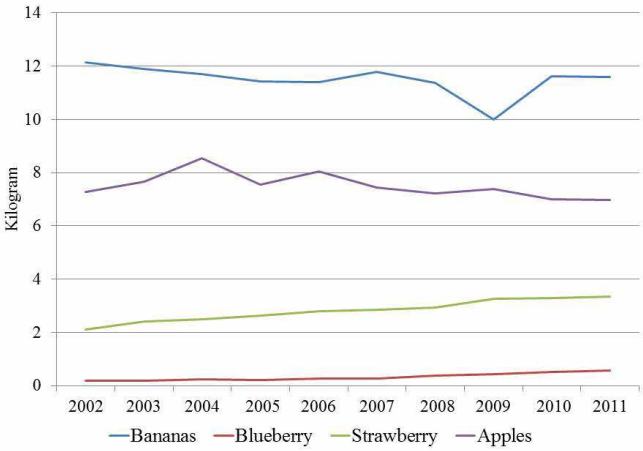

Figure 4. US per-capita consumption of selected fruits, 2002–2011 (kilograms) [Source: USDA/ERS 2013]

California, Texas, New York, Florida, and Illinois, respectively, are the leading blueberry-destination markets (Figure 5). These five states account for 36.88 percent of the total fresh blueberries consumed in the United States in 2009 (US Food Market Estimator 2013). California accounts for the largest share of total US consumption of the fruit at 7,531 tonnes (12.16%), followed by Texas at 4,925 tonnes (7.95%); New York at 3,977 tonnes (6.42%); Florida at 3,759 tonnes (6.07%); and Illinois at 2,646 tonnes (4.27%).

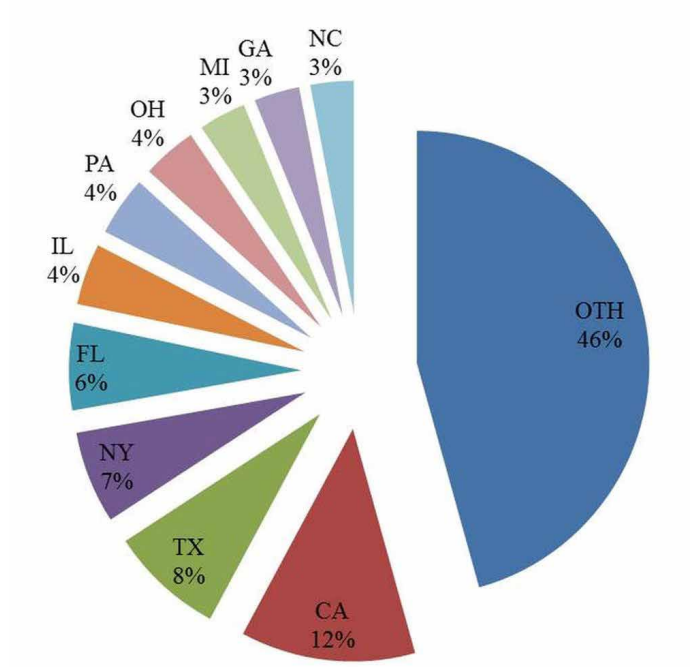

Figure 5. US blueberry consumption by state, 2009 (percentage) [Source: US Food Market Estimator 2013]

July, as the US domestic crop enters the market. Prices start increasing in August, reaching their second peak in October. In November, prices start declining as the Chilean counter-season crop arrives on the eastern US market.

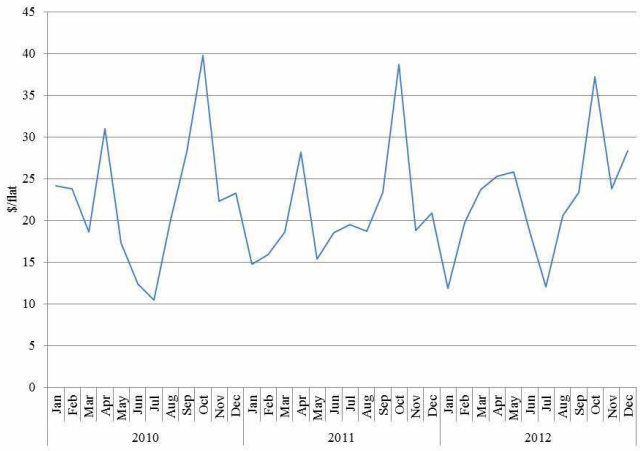

Figure 6. Monthly blueberry wholesale average prices for the New York City market, 2010–2012 [Source: USDA/AMS 2013]

As shown in Table 1, Miami-Dade County (one of the largest metropolitan areas in the United States) has the largest share of total blueberry consumption in the state at 13.08 percent, followed by Broward County (9.64%), Palm Beach County (6.94%), Hillsborough County (6.44%), and Orange County (5.84%) (US Food Market Estimator 2013).

US Wholesale Price Analysis

To analyze US blueberry wholesale prices, New York City was chosen as the representative market on the US East Coast, while Los Angeles was chosen as the representative market on the US West Coast. Blueberry packaging varies between markets, with the fruit frequently marketed in flats containing 4.4-ounce or six-ounce packages. The following USDA analysis reports the wholesale prices of blueberry flats, each containing 12 six-ounce packages, from January 2010 to December 2012 (USDA/AMS 2013).

Average monthly prices of wholesale blueberries on the New York City market are presented in Figure 6. Shipments of blueberries arrive year-round to the eastern United States, with prices ranging from a low of $10/flat to a high of $40/flat. US East Coast blueberry prices reach two peaks annually (March/April and October). Blueberry prices reach their first peak during March and April, as the Chilean blueberry counter-season supply ends. Prices then decrease, reaching lower levels during May, June, and

Monthly blueberry wholesale average prices on the Los Angeles market are presented in Figure 7. Shipments of blueberries arrive year-round to the western United States, with prices ranging from a low of $12/flat to a high of $35/flat. US West Coast blueberry prices reach two peaks annually (April and October). On the US West Coast, prices start to increase as blueberry imports fade out during the first months of the year. Prices reach their first peak by April, when the blueberry counter-season supply ends. Prices then decrease, reaching lower levels during June, July, and August, as the US domestic crop enters the market. Prices start increasing in August, reaching their second peak in October. In November, prices start declining as the Chilean counter-season crop arrives on the western US market.

US Retail Price

US blueberry national average retail prices are reported from November 2010 to December 2012 (USDA/AMS 2013). The price data reported are based on the national weighted average price for a six-ounce package of blueberries. From 2010 to 2012, prices for non-organic blueberries fluctuated from a minimum of $2.59/package to a maximum of $3.95/package (Figure 8). Retail prices of conventional blueberries are lower during May, June, and July, which coincides with the domestic production entering the market. From 2010 to 2012, retail prices for organic blueberries fluctuated from a minimum of $2.84/

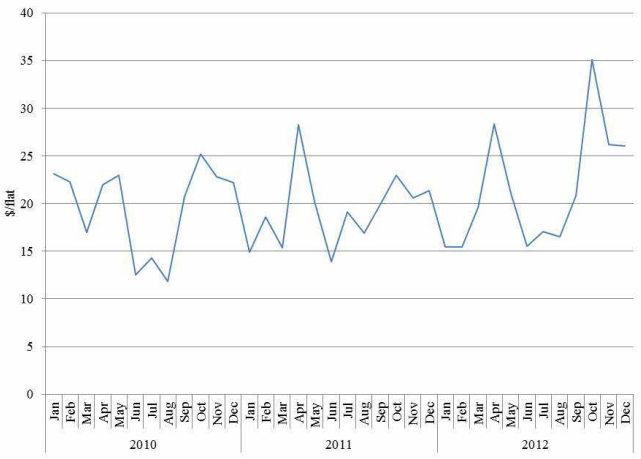

Figure 7. Monthly blueberry wholesale average prices for the Los Angeles market, 2010–2012 ($/flat) [Source: USDA/AMS 2013]

package to a maximum of $3.99/package. There was, on average, a price differential of $0.35/package of the organic fruit over the non-organic fruit; however, the gap on prices was not constant. The price gap appears to be wider during the months of November, December, and January for the imported blueberries, compared to the price gap between the US organic and non-organic blueberries.

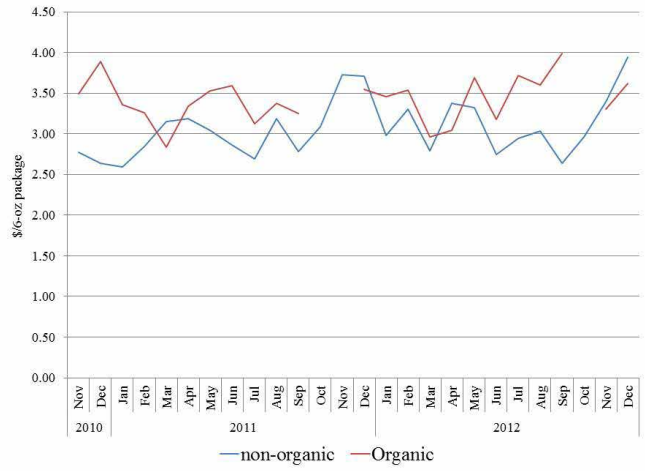

Figure 8. US national average retail prices for organic and conventional blueberries ($/6-oz package) [Source: USDA/AMS 2013]

Market Outlook

The main reason behind the increase in blueberry supply for the international markets is the production expansion among nontraditional blueberry producers (e.g., Chile) growing the fruit mainly as an export crop. Because of the low consumption of blueberries among nontraditional production countries and the higher prices paid for the fruit outside the regular market season in the main importing countries, the blueberry supply in the international markets is expected to continue growing in the short term. A 2013 report by the North American Blueberry Council (FreshFruitPortal.com 2013) stated that the global production of blueberries surpassed one billion pounds in 2012 and is set to grow by another half billion pounds between 2012 and 2017. The report further predicted that most of the growth will come from the United States, Chile, Canada, Europe, and China.

In terms of global demand, the United States will continue to be the largest blueberry importer and consumer as it accounts for over 63 percent of the global imports of the fruit. In the export market, the growing demand from emerging markets (e.g., China) may redistribute some of the current export allocations and may exert upward price pressure or prevent prices from falling in the international markets.

Chilean exporters enjoy higher prices because they are the main counter-season suppliers to the US market. However, as market dynamics change in the medium term, Chile may face increasing competition from Mexico in the US import market because both countries export blueberries to the United States during the same timeframe, and Mexico is physically closer to the US market. Because of their significantly lower transportation costs, Mexican blueberry exporters may exert downward pressure on imported blueberry prices in the US market.

In the meantime, Chile is the unchallenged supplier of organic blueberries to the US market. Argentina, the next major supplier of imported organic blueberries to the United States, is well behind Chile in terms of volume exported. Because of the retail price premiums that imported organic blueberries command over conventional blueberries, there is a market incentive to increase the supply of the organic product, especially during the market counter-season.

While there is no reason to believe that Florida growers' advantage in the domestic blueberry market will be challenged in the short term, it will be necessary to monitor the Mexican blueberry export market, as well as domestic competitors, specifically Georgia. Also, as citrus greening continues to spread throughout Florida, it is anticipated that acreages currently devoted to citrus production will be repurposed for blueberries and that blueberry production will increase accordingly.

Promotional efforts to educate consumers about the nutritional and health benefits of blueberry consumption

might help to further increase the demand for the fruit and sustain prices, given the recent upward trend in both the domestic and imported supplies of the fruit on the US market. Therefore, in the next five years, while Florida blueberry production/acreage is expected to grow, prices may be flat or trending even lower.

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Table 1. Florida blueberry consumption, by county (tonnes)

County	Quantity	Percentage
	(tonnes)	(%)
Miami-Dade County	492.11	13.08
Broward County	362.74	9.64
Palm Beach County	261.08	6.94
Hillsborough County	242.17	6.44
Orange County	219.78	5.84
Other Counties	5947.08	58.06

Source: US Food Market Estimator (2013).