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# Fruit and Tree Nuts Outlook: Economic Insight

# U.S. Cherries

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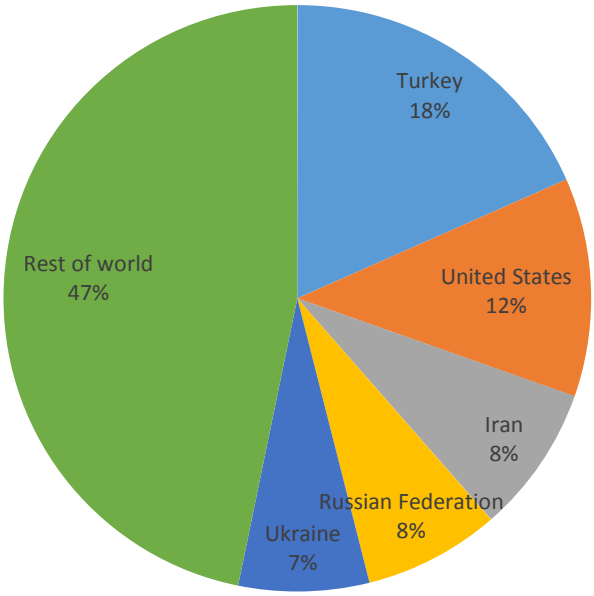
The United States is recognized as one of the leading global producers and suppliers of cherries. By growing both sweet and tart (or sour) varieties, U.S. cherry production caters to the fresh and processed markets. Fresh-market cherries, however, continue to dwarf production for processing, reflecting the influence of growing domestic and international demand and the grower-price advantage in the fresh market. With expanding bearing acreage, the sweet cherry crop—produced primarily for the fresh market—increasingly dominates domestic production. The proportion of sweet cherries produced to the overall U.S. crop has increased from slightly over 50 percent in the 1990s to around 75 percent in recent years. While the domestic market continues to be the main channel for U.S. fresh cherries, export volumes have generally risen. The United States is still competitive worldwide, but the U.S. role in the international cherry market has diminished slightly as other major exporters have gained ground over the past two decades. Meanwhile, U.S. imports, while significantly higher than in the 1990s, remain small and steady in recent years.

Approved by the World Agricultural Outlook Board.

### *United States Is World's Second-Largest Cherry Producer*

World cherry production averaged 3.5 million metric tons during 2010-14, up 27 percent from the 1995-99 average output, according to data from the Food and Agriculture Organization of the United Nations. The United States produced 12 percent of this average volume. With average per-acre yields well above the world average and harvested acreage ranking sixth largest globally, the United States is the world's second largest producer of cherries, closely following Turkey (fig. 1). Together, these top two producers make up one-third of global cherry output. Iran, the Russian Federation, and Ukraine complete the top five producers, with each accounting for 7-8 percent of global output. Sweet varieties make up a majority of production in Turkey, the United States, and Iran, while the Russian Federation and Ukraine produce mostly sour varieties.

Figure 1
**More than half of global cherry production comes from top five nations***




* Average share of 2010-14 world production.
Source: Food and Agriculture Organization of the United Nations.

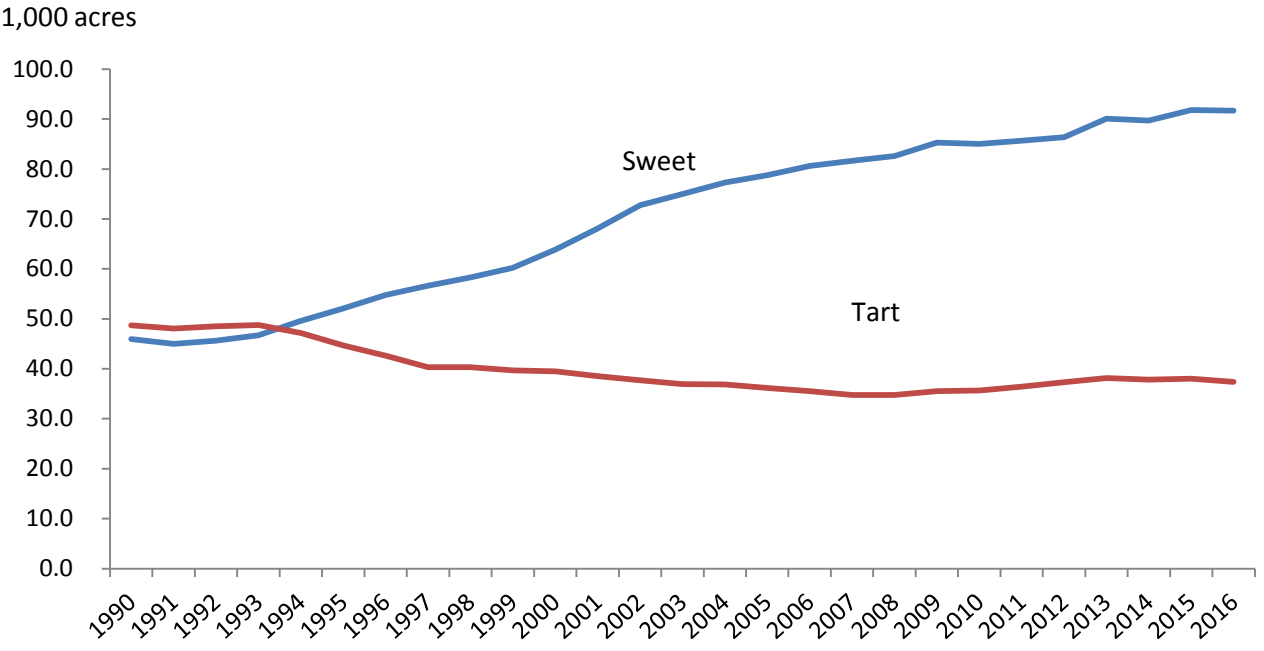
### *Sweet Cherries Dominate Production*

U.S. cherry production can fluctuate substantially from year to year, due mostly to weather factors and, to some extent, the alternate-bearing tendency of the trees. Overall production, however, has generally trended upward, reaching an average 497,453 tons (994.9 million pounds) during 2014-16, nearly double the average volume produced during the 1990s and climbing from around 395,000 tons during 2000-09. Record production of 1.24 billion pounds was achieved in 2009, attributable to the largest sweet cherry harvest by far and a fairly large tart cherry crop produced that year. Since then, production at the 1.0 billion-pound mark was again achieved in 2014 and 2016 and is expected to have a repeat in 2017 as the sweet cherry crop is forecast to be the second largest on record at 865.5 million pounds. With bearing acreage mostly increasing year-after-year, production of sweet cherries has risen in the past 10 years, while tart cherry output has remained fairly erratic (fig. 2 and fig. 3). Unlike sweet cherries, tart cherry production in 2017 is forecast to decline by 28 percent from the previous year to 238.2 million pounds due to freeze-reduced crops in major producing States. In recent years, sweet cherries made up nearly 75 percent of the volume produced, while tart cherries, also known as sour cherries, make up the remainder.

Cherries rank as the eighth most valuable crop in the U.S. fruit and tree nut industry, with production valued at $862.4 million during crop year 2016, up sharply from $327.5 million in 2000. Sweet cherries, which are marketed mostly for the fresh market, accounted for 90 percent of this value.

Figure 2

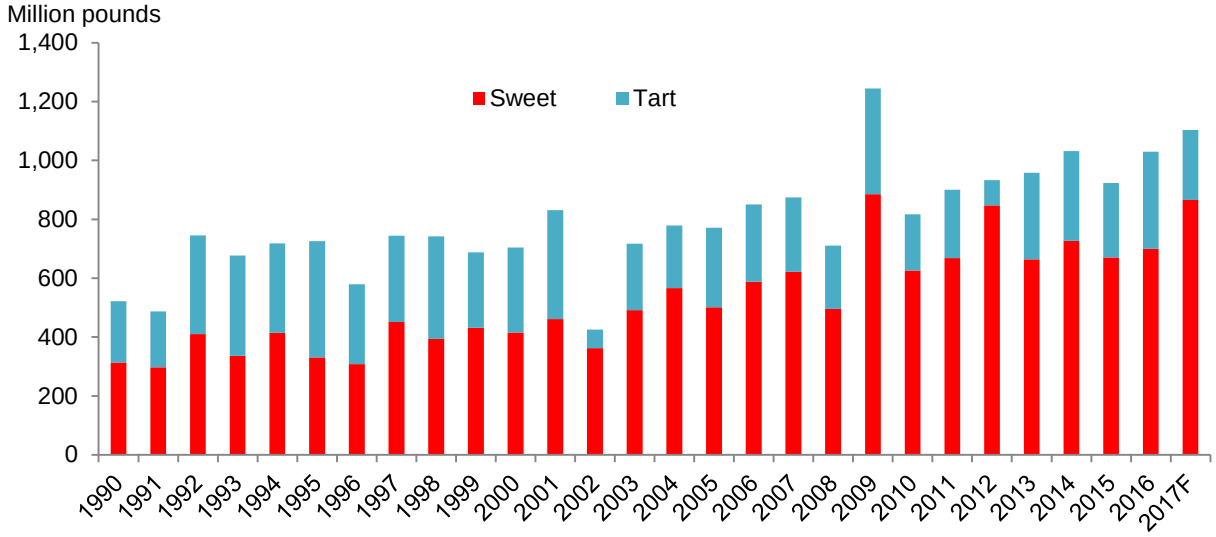
**Sweet cherry bearing acres increased over the last two decades**




Source: USDA, National Agricultural Statistics Service, *Noncitrus Fruits and Nuts Summary*, various issues.

Figure 3

**Total cherry production in the United States**




F = forecast.
Source: USDA, National Agricultural Statistics Service, *Noncitrus Fruits and Nuts Summary*, various issues and *Cherry Production*, June 2017 issue.

### *Mainland Pacific States and Michigan Are Leaders in U.S. Cherry Production*

Requiring a winter dormant period for proper development and fruit production, cherries are not well adapted to most areas of the United States. Commercial production is concentrated in the northern portion of the country, where there is sufficient winter cold to get the cherry buds to open properly in the spring. Also, because summers in the southern and central United States are typically long and hot, cherry growers face more difficulties in controlling for pests and diseases.

Over 90 percent of commercial U.S. sweet cherry production is harvested from orchards in the Pacific States—Washington, California, and Oregon, according to data from USDA's National Agricultural Statistics Service (NASS). Much of the remaining volume of production comes from Michigan, which is better known for being the country's dominant producer of tart cherries, producing about two-thirds of the U.S. tart cherry crop in recent years.

The 2012 Census of Agriculture reports that 52 percent of the 7,663 U.S. farms growing sweet cherries and 87 percent of sweet cherry acreage were in the three leading Pacific States. Washington alone accounted for 26 percent of U.S. sweet cherry farms and 27 percent of sweet cherry acreage. NASS also reported annual sweet cherry production in Idaho, Montana, New York, Pennsylvania, and Utah, which together represented less than 1 percent of the U.S. sweet cherry crop. Annual reporting of production for these five States, however, has been discontinued (in 2005 for Pennsylvania; in 2016 for the rest). Meanwhile, census data showed that Michigan housed 22 percent of U.S. tart cherry farms and 74 percent of tart cherry acreage during 2012. In addition to Michigan, NASS also reported annual tart cherry production in six other States: Washington, Oregon, Utah, Colorado, Wisconsin, and New York. Annual reporting was discontinued for Colorado in 2005 and for Oregon and Pennsylvania in 2016.

### *Cherries Available in Many Product Forms*

In the United States, cherries are consumed in many forms—fresh, frozen, canned, juice, wine, brined, and dried. About 76 percent of the U.S. sweet cherry crop is typically used fresh (table 1). Cherries that cannot be effectively marketed during the short harvest season, or those that do not meet fresh-grade standards (usually those that are undersized and/or blemished) are processed. Maraschino cherries—the kind most often used in drinks or ice cream sundaes—are made from sweet cherries. Unlike other processed cherries, maraschino cherries also require preservation of good fruit appearance and shape in their final form. Brining is the first step in the maraschino process. About 57 percent of the sweet cherries processed in 2014-16 were brined and used in candies, ice cream, and fruit cakes, as examples; about 4 percent were canned; and the remainder were likely destined for other processed utilization (frozen, dried, or used for juice).

A majority of sweet cherry production among major producing States is intended for the fresh market. Ninety-nine percent of U.S.-grown fresh-market sweet cherries were from Washington (nearly 70 percent), California (16 percent), and Oregon (14 percent) in 2014-16. Michigan, also an important producer of sweet cherries, produced mainly for the processing market. Very seasonal in nature, fresh-market sweet cherries are marketed from mid-April through August. California opens the market each year, with the bulk of its shipments running from May through June. Shipments from Washington, on the other hand, often begin in June.

The principal market for tart cherries is processing (table 2). Similar to sweet cherries, the harvesting of tart cherries is also highly seasonal and runs from June through mid-August. However, because most of these cherries are processed, supplies are available throughout the year. Only less than 1 percent of the U.S. tart cherry crop is for fresh use; processed products are primarily used in baking and cooking. The frozen product market continues to be the primary outlet for processed U.S. tart cherries. Over 70 percent of the processed tart cherries in 2014-16 were frozen, and more than one-tenth were canned; together they had a combined share of 83 percent. NASS did not report any other processed product category during the same period, so the remaining processed production is assumed to have been destined for other processed uses (e.g. juice, wine, brined, and dried).

Table 1--Cherries, sweet: Production, utilization, and season-average grower price, United States, 1980 to date

| Year | Production | | Utilization | | Grower price | | |
|---|---|---|---|---|---|---|---|
| | Total | Utilized | Fresh | Processed | Fresh | Processed | All |
| | --Million pounds-- | | | | --Cents/pound-- | | |
| 2000 | 415.8 | 410.8 | 241.5 | 169.3 | 95.0 | 26.8 | 67.0 |
| 2001 | 460.8 | 439.2 | 291.4 | 147.8 | 79.5 | 26.4 | 61.5 |
| 2002 | 362.7 | 354.6 | 253.2 | 101.4 | 97.0 | 28.1 | 77.5 |
| 2003 | 491.4 | 487.2 | 351.1 | 136.0 | 85.0 | 31.6 | 70.5 |
| 2004 | 566.1 | 558.3 | 370.1 | 188.2 | 103.0 | 29.9 | 78.5 |
| 2005 | 501.7 | 487.1 | 334.4 | 152.8 | 130.5 | 31.0 | 99.5 |
| 2006 | 588.3 | 575.0 | 381.5 | 193.5 | 106.5 | 30.8 | 81.0 |
| 2007 | 621.4 | 612.4 | 445.1 | 167.3 | 115.5 | 26.4 | 91.0 |
| 2008 | 496.1 | 481.4 | 350.6 | 130.8 | 154.0 | 25.9 | 119.5 |
| 2009 | 885.7 | 771.3 | 593.5 | 177.8 | 80.0 | 22.0 | 66.5 |
| 2010 | 626.4 | 615.3 | 488.7 | 126.6 | 140.0 | 24.3 | 116.5 |
| 2011 | 668.8 | 660.6 | 517.8 | 142.7 | 154.0 | 26.9 | 126.5 |
| 2012 | 848.0 | 836.8 | 665.1 | 171.7 | 117.0 | 38.1 | 101.0 |
| 2013 | 664.2 | 591.9 | 435.9 | 156.0 | 162.5 | 40.5 | 130.5 |
| 2014 | 727.3 | 717.8 | 536.0 | 181.8 | 131.5 | 33.8 | 107.0 |
| 2015 | 671.0 | 667.8 | 501.6 | 166.2 | 138.5 | 34.2 | 112.5 |
| 2016 | 700.5 | 686.2 | 515.7 | 170.5 | 140.5 | 28.5 | 112.5 |

Source: Data compiled from USDA, National Agricultural Statistics Service, *Noncitrus Fruits and Nuts Summary*, various issues.
Volume unit converted from tons to million pounds (1 ton = 2,000 lbs), and value unit converted from $/ton to cents/pound.

Table 2--Cherries, tart: Production, utilization, and season-average grower price, United States, 1980 to date

| Year | Production | | Utilization | | Grower price | | |
|---|---|---|---|---|---|---|---|
| | Total | Utilized | Fresh | Processed | Fresh | Processed | All |
| | --Million pounds-- | | | | --Cents/pound-- | | |
| 2000 | 288.5 | 281.4 | 1.8 | 279.6 | 57.5 | 18.4 | 18.7 |
| 2001 | 370.1 | 307.9 | 1.9 | 306.0 | 53.8 | 18.3 | 18.6 |
| 2002 | 62.5 | 62.2 | 0.8 | 61.4 | 84.5 | 44.3 | 44.8 |
| 2003 | 226.3 | 226.3 | 1.0 | 225.3 | 74.4 | 35.3 | 35.4 |
| 2004 | 213.0 | 213.0 | 1.3 | 211.7 | 91.5 | 32.5 | 32.8 |
| 2005 | 269.9 | 267.9 | 1.2 | 266.7 | 89.3 | 23.5 | 23.8 |
| 2006 | 262.0 | 248.6 | 1.4 | 247.2 | 99.0 | 21.1 | 21.5 |
| 2007 | 253.2 | 248.7 | 1.6 | 247.1 | 105.0 | 26.8 | 27.3 |
| 2008 | 214.4 | 213.2 | 1.0 | 212.2 | 139.0 | 37.2 | 37.7 |
| 2009 | 359.2 | 320.8 | 1.3 | 319.5 | 104.0 | 18.9 | 19.2 |
| 2010 | 190.4 | 183.2 | 0.8 | 182.4 | 131.0 | 21.8 | 22.2 |
| 2011 | 231.8 | 230.3 | 0.5 | 229.8 | 118.0 | 29.8 | 30.0 |
| 2012 | 85.2 | 85.0 | 0.4 | 84.6 | 190.0 | 58.8 | 59.4 |
| 2013 | 294.2 | 291.1 | 1.2 | 289.9 | 163.0 | 35.3 | 35.9 |
| 2014 | 304.2 | 300.6 | 1.9 | 298.7 | 125.0 | 35.0 | 35.5 |
| 2015 | 252.5 | 251.1 | 1.2 | 249.9 | 123.0 | 34.2 | 34.7 |
| 2016 | 329.3 | 323.7 | 0.6 | 323.1 | 196.0 | 27.3 | 27.6 |

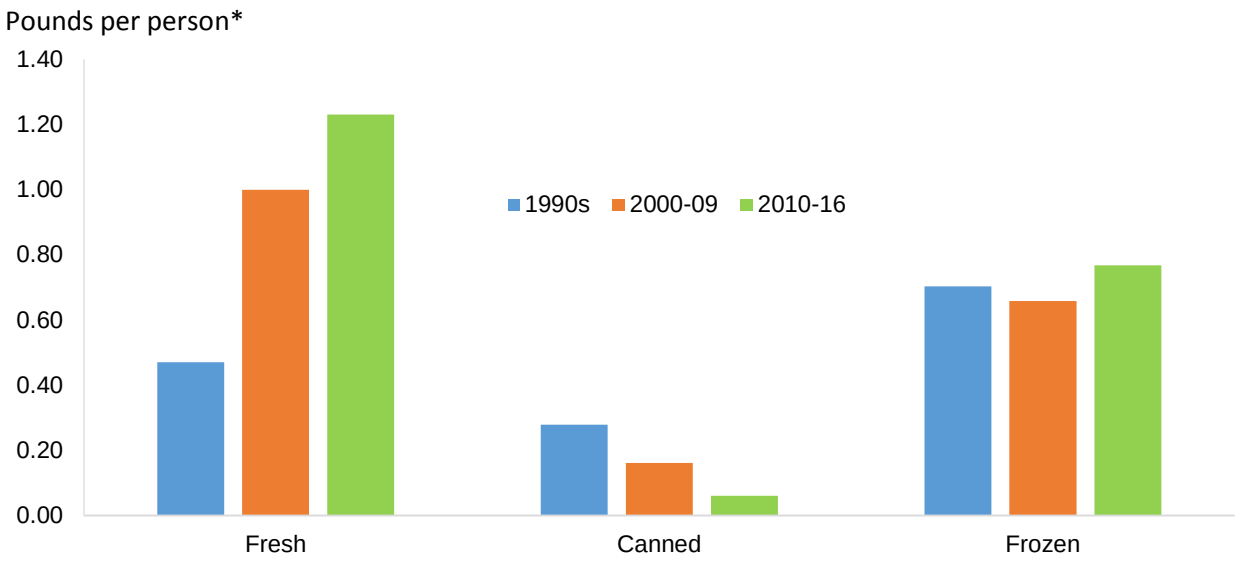
Source: USDA, National Agricultural Statistics Service, *Noncitrus Fruits and Nuts Summary*, various issues.

## *Fresh Use Accounts for Most of the Growth in U.S. Cherry Demand*

Cherries have traditionally been grown and consumed in the United States. Their popularity grew even more throughout the 1990s as more emphasis was given to research findings reporting on the health benefits of consuming specific fruit and vegetables—which has proved helpful in boosting overall fruit and vegetable consumption in the United States.

Sweet cherries represent nearly all fresh cherries consumed in the United States, while tart cherries dominate frozen and canned cherry per capita use. In recent years, combined fresh, canned, and frozen cherry per capita use in the United States averaged 2.1 pounds (fresh-weight equivalent), up from 1.5 pounds in the 1990s and 1.8 pounds during 2000-09. Imports, in general, do little to help stabilize supplies as their volumes continue to be dwarfed by domestic production. In the fresh cherry market, however, a majority of the imports come from the Southern

Figure 4
**U.S. average fresh cherry per capita use surpasses frozen per capita use**




* = fresh weight quivalent.
Source: USDA, Economic Research Service calculations.

Hemisphere (primarily Chile). Hence, except for the imports from Canada, most fresh imported cherries are available to U.S. consumers from November through February, an off-season for domestic production. Meanwhile, in the canned cherry market, imports are playing a greater role in domestic availability due to declines in domestic production as a result of reduced demand.

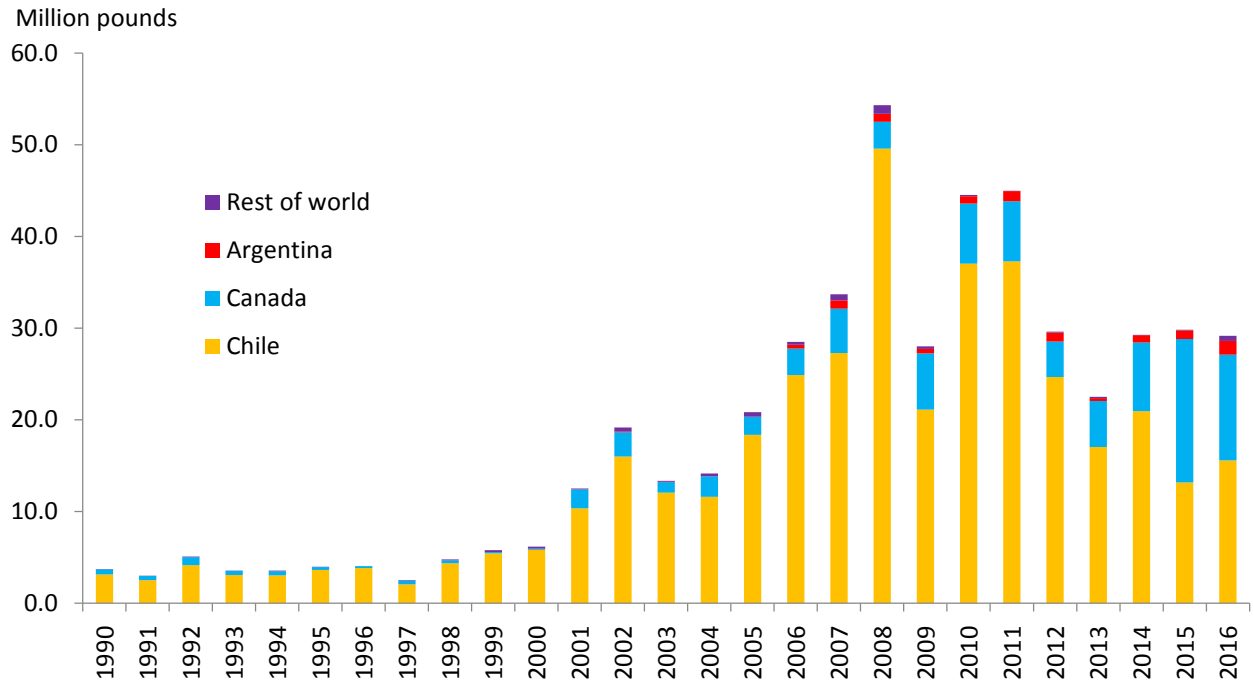
Much of the growth in domestic cherry demand is in fresh use (fig. 4). Average per capita use of fresh cherries rose 23 percent during 2010-16 relative to 2000-09. For the same period, average per capita use of frozen cherries increased at a slower pace (up 17 percent), while average canned cherry per capita use declined 63 percent. The upward trend in fresh cherry demand has been made possible by significant increases in domestic supplies, the result of expanding U.S. production and imports (particularly during the first decade of the new millennium). As average fresh-market sweet cherry production increased over the past two decades, about one-third of this volume has been channeled to growing export markets—a mitigating force in domestic fresh cherry per capita use. Unlike fresh-market cherries, frozen cherries are storable and, therefore, inventories help to smooth out wide swings in production. In addition, frozen cherry exports are small in volume relative to domestic supplies.

### *Fresh Cherry Imports Fairly Steady in Recent Years*

While domestic production still constitutes the majority of supplies sold in the U.S. market, fresh-cherry import volume in this market averaged 32.7 million pounds from 2010-16, up from the average 23 million pounds during 2000-09 and more than an eightfold bump from the 1990s. However, after record-high imports in 2008 (at 54.3 million pounds), imports have remained mostly flat in recent years at around 29 million pounds, except for the relatively high volumes in 2010 and 2011 at 44-45 million pounds. Chile, Canada, and Argentina continue as the top three international suppliers of fresh cherries to the United States (fig.5). Though Chile remains the primary source, the country's share of U.S. import volume has diminished from over 80 percent during 2000-09 to an average 72 percent annually during the past 7 years, partly as China became the top destination for the country's cherry exports. Canada supplies about 25 percent total import volume and Argentina about 3 percent. During the 1990s, there were no imports from Argentina. Vastly increased import volume during this domestic off-season period relative to the 1990s has contributed to the growth in domestic fresh-cherry per capita use. The average import share of total domestic fresh-cherry utilization has risen from 3 percent in the 1990s to 8 percent throughout the 2000s.

Figure 5

**U.S. fresh cherry imports flat in recent years**



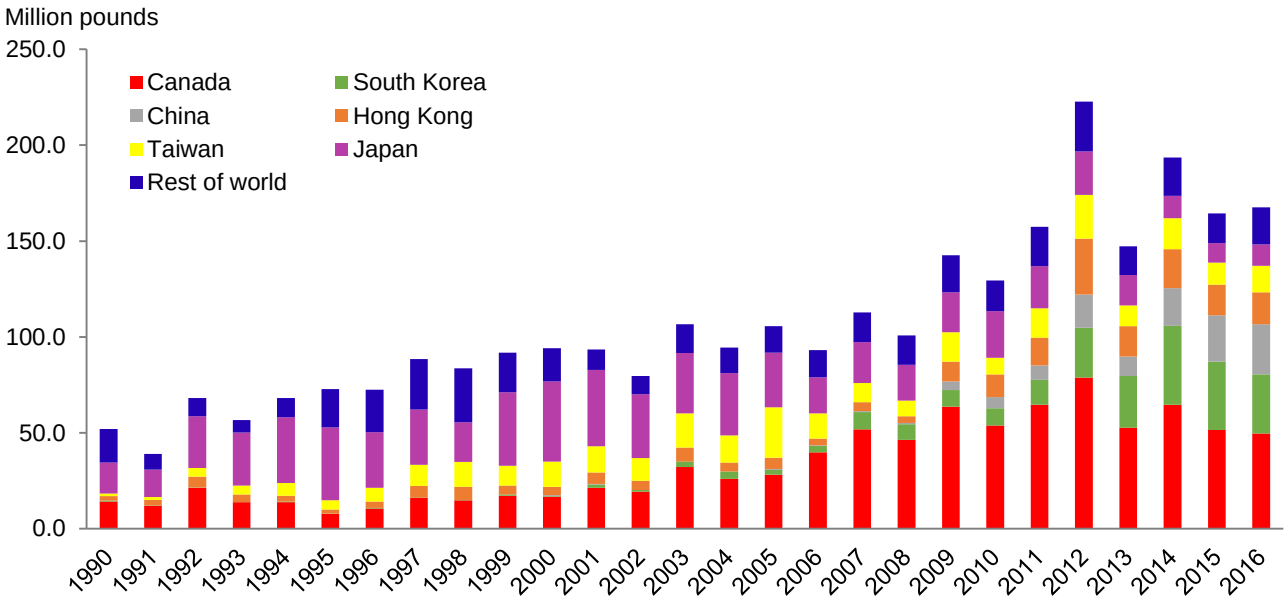

Source: Trade data generated from U.S. Department of Commerce, U.S. Census Bureau.

## *United States Continues To Be Among Leading Exporters of Fresh Cherries*

U.S. sweet cherries continue to be competitive in the international market, although the U.S. role in the global cherry export market has diminished slightly during the past two decades as other major exporters have gained ground. Once the world's leading exporter of fresh cherries, the United States now ranks second, next to Chile, accounting for nearly 20 percent of the world's average export volume during 2014-16 and around one-quarter of the average of world cherry export value, based on data from Global Trade Information Services, *Global Trade Atlas*. During this 3-year period, the United States exported an average 175.2 million pounds, valued at an average $261.4 million. Chile, on the other hand, exported an average of 211.0 million pounds, valued at an average $451.0 million, during the same period. However, while export ranking was based on the 3-year average period (2014-16), annual fresh-cherry export value in the United States ranked highest in the world in 2014 and 2015, surpassing that of Chile. Rounding out the top five global exporters of fresh cherries among producing nations in terms of average value are Turkey, Spain, and Austria. Together with the United States, these leading exporters supply almost 60 percent of the world's cherry export volume, generating 70 percent of total export value, based on data from the *Global Trade Atlas*. Chile, partly with the aid of expanding production, has seen gains in world cherry export share at the expense of the United States during the past decade. Export shares have also risen for other exporting countries such as Hong Kong, Austria, and Canada, while those for Turkey and Spain were relatively steady to slightly lower.

Technological advances in U.S. production and marketing helped fulfill export demand over time. Due to strong demand overseas and higher export prices relative to domestic prices, U.S. cherry growers, mainly in Washington and California, have relied on foreign markets to absorb around 25 to 35 percent of domestic fresh-market cherry production over the last two decades. U.S. fresh cherry exports have continued to trend up from the 1990s, reaching a record 223.3 million pounds in 2012, the year when domestic fresh-market production was at the highest level by far (fig. 6). Succeeding-year exports remained at above-average levels. The average per-unit export value of U.S. sweet cherries during 2014-16 was consistently higher than the average for the rest of the world, including other

Figure 6
**Canada is largest export market for U.S. fresh cherries**




Source: Trade data generated from U.S. Department of Commerce, U.S. Census Bureau.

leading exporters Turkey and Austria, reflecting the premium prices U.S. growers received for the high-quality cherries they marketed internationally.

Canada is now the largest export destination for U.S. fresh cherries, outranking Japan, which dominated this market during the 1990s and most years from 2000-05. More than one-third of total annual U.S. cherry export volume went to Canada during the period 2010-16 and 10 percent to Japan, which received slightly over one-quarter of total export volume during 2000-09. South Korea, China, Hong Kong, and Taiwan are also key markets for U.S. fresh cherries and together receive over 40 percent of total export volume annually.

## *Summary*

Despite mostly weather-induced fluctuations, U.S. cherry production has trended upward since the 1990s in response to growing demand for fresh cherries in the domestic and international markets. Sweet cherries continue to constitute a majority of domestic production as their primary use is in the fresh market. The United States continues to be among the leaders in the global fresh cherry market, although it lost its position as the number one exporter in the world to Chile. U.S. export volumes are up substantially from the 1990s and continue to account for about one-third of domestic fresh-market cherry production, a mitigating force in domestic fresh-cherry demand growth. And while domestic production still provides a majority of the supplies available for domestic consumption, imports continue to aid domestic fresh cherry demand. As they are sourced primarily from the Southern Hemisphere, the bulk of imports are available in the U.S. market counter seasonal to domestic production.

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