In this report:
Price Outlook
Citrus Fruit Outlook
Noncitrus Fruit Outlook
Melons Outlook
Tree Nuts Outlook
Special Article: Evolving Trends in the U.S. Fresh Strawberry Market

## Fruit and Tree Nuts Outlook: March 2021

Jaclyn Kramer, coordinator Skyler Simnitt and Linda Calvin

## Supplies in U.S. Citrus Market Decline

The 2020/21 U.S. citrus crop is forecast to be 7.21 million tons, down 7.3 percent from the final output for the 2019/20 season. Declines in overall production can mostly be attributed to smaller orange crops in Florida and smaller lemon and navel orange crops in California. Navel orange production in California is expected to decrease 5 percent from last season. Citrus production in Florida decreased 16.5 percent from last year, with a 17.5 percent decline in orange production and a 5.4 percent decrease in grapefruit production. Decreased production of oranges and lemons is expected to result in increased imports and higher prices compared to last year. Forecast numbers for Texas are updated quarterly and losses due to Winter Storm Uri (February 2021) will likely be reflected in the forthcoming April 2021 USDA, National Agricultural Statistics Service (NASS) Citrus Forecast Report.
U.S citrus production declines by 7 percent from previous season

Million tons

$\mathrm{F}=$ forecast.
Source: USDA, National Agricultural Statistics Service, Crop Production, March 2021 issue, and Citrus Fruit Summary, various issues.

## Price Outlook

## Fresh Fruit Producer Price Index Begins Strong

At 151.7 (1982=100), the February 2021 fresh fruit producer price index was up 11 percent from the February 2020 index and above the February average for 2017-19 (figure 1). The February 2021 index was the highest since February 2016. Higher grower prices for citrus fruit as well as apples and strawberries drove up the index (table 1).

```
Figure 1
Index for prices received by producers for fresh fruit
```



Source: U.S. Department of Labor, Bureau of Labor Statistics.

Reduced domestic supply of citrus in the beginning of the year put upward pressure on prices. The January 2021 price of all grapefruit increased 67 percent from the year before, and all oranges and oranges for the fresh market are up by 14.4 and 37.1 percent respectively. The all lemon price was up 27.6 percent, and the fresh lemon price rose by 8.4 percent.

Table 1--Monthly fruit prices received by growers, United States

| Commodity | December |  | January |  | Year-to-year change |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2019 | 2020 | 2020 | 2021 | December | January |
|  | ---------------------Dollars per box------------- |  |  |  | Percent |  |
| Citrus fruit: ${ }^{1}$ |  |  |  |  |  |  |
| Grapefruit, all | 12.81 | 17.22 | 10.23 | 17.09 | 34.4 | 67.1 |
| Grapefruit, fresh | 19.91 | 24.89 | 18.35 | 22.44 | 25.0 | 22.3 |
| Lemons, all | 22.43 | 23.20 | 16.14 | 20.60 | 3.4 | 27.6 |
| Lemons, fresh | 28.64 | 29.20 | 25.57 | 27.71 | 2.0 | 8.4 |
| Oranges, all | 10.20 | 11.03 | 9.40 | 10.75 | 8.1 | 14.4 |
| Oranges, fresh | 16.75 | 21.47 | 14.51 | 19.90 | 28.2 | 37.1 |
|  | ----------------Dollars per pound ------------- |  |  |  | Percent |  |
| Noncitrus fruit: |  |  |  |  |  |  |
| Apples, fresh ${ }^{2}$ | 0.582 | 0.702 | 0.573 | 0.722 | 20.5 | 26.0 |
| Grapes, fresh ${ }^{2}$ | 1.403 | 1.221 | 1.429 | 1.207 | -13.0 | -15.6 |
| Peaches, fresh ${ }^{2}$ | -- | -- | -- | -- | -- | -- |
| Pears, fresh ${ }^{2}$ | -- | -- | -- | -- | -- | -- |
| Strawberries, fresh | -- | -- | 1.709 | 2.221 | -- | 30.0 |

-- Insufficient number of reports to establish an estimate.
${ }^{1}$ Equivalent on-tree price.
${ }^{2}$ Equivalent packinghouse-door returns for CA, MI, NY, and PA (apples only), OR (pears only), and WA (apples, peaches, and pears). Prices as sold for other States.
Note: The noncitrus fruits are derived exclusively from data provided by USDA's Agricultural Marketing Service (AMS) and reflect on board shipping point basis. Previously these estimates were based on a combination of survey data and information from AMS.
Source: USDA, National Agricultural Statistics Service, Agricultural Prices and USDA, Agricultural Marketing Service, Market News, Shipping Point Prices.

Apple prices were up 26 percent in January 2021 from the year before as supply is down compared with last season. Average strawberry prices were strong in January 2021 given reduced domestic production, while seasonal increases in supplies from California, Florida, and Mexico will likely soften prices.

## Consumer Price Index for Fresh Fruit Starts the Year High

The Consumer Price Index (CPI) for fresh fruit was reported at 369.4 (1982-84=100) in February 2021, up 5.4 percent from last February and higher than the 2017-19 February average (figure 2). Based on data from the U.S. Department of Labor, Bureau of Labor Statistics (BLS), consumers paid higher prices in January and February this year compared with 2020 for navel oranges, bananas, and strawberries. USDA's Agricultural Marketing Service (AMS) data shows grape shipments from Peru are up from last season, likely decreasing Thompson seedless grapes prices in 2021 from 2020. The BLS has not reported prices for Red Delicious apples since November 2017. Providing an indication of apple retail prices in general, the CPI
for apples was 322.1 in January 2021 and 330.7 in February 2020, both up from the previous year.

Figure 2
Consumer Price Index for fresh fruit


Source: U.S. Department of Labor, Bureau of Labor Statistics.

Higher retail prices for citrus fruit reflect the higher grower prices this year compared to the same time last year (table 2). The BLS retail strawberry prices are higher than a year ago reflecting the lower supply in the U.S. market and higher grower prices.

Table 2--U.S. monthly retail prices for selected fruit, 2020-21

| Commodity | Unit | 2020 |  | 2021 |  | 2020-21 change |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | January | February | January | February | January | February |
|  |  | -------------------1982-84 = 100 ----------------- |  |  |  | --- Percent ---- |  |
| Fresh fruit |  | 352.185 | 350.446 | 364.882 | 369.444 | 3.6 | 5.4 |
| Apples |  | 317.302 | 315.191 | 322.045 | 330.695 | 1.5 | 4.9 |
|  |  | --- Dollars --- |  | --- Dollars --- |  | --- Percent --- |  |
| Fresh: |  |  |  |  |  |  |  |
| Navel oranges | Pound | 1.244 | 1.218 | 1.303 | 1.321 | 4.7 | 8.5 |
| Grapefruit | Pound | 1.226 | 1.189 | -- | -- | -- | -- |
| Lemons | Pound | 1.949 | 1.959 | -- | -- | -- | -- |
| Red Delicious apples | Pound | na | na | na | na | na | na |
| Bananas | Pound | 0.570 | 0.574 | 0.597 | 0.590 | 4.7 | 2.8 |
| Peaches | Pound | -- | -- | -- | -- | -- | -- |
| Anjou pears | Pound | -- | -- | -- | -- | -- | -- |
| Strawberries ${ }^{1}$ | 12-oz. pint | 2.884 | 2.558 | 3.044 | 2.893 | 5.5 | 13.1 |
| Thompson seedless grapes | Pound | 2.751 | 2.572 | 2.501 | 2.503 | -9.1 | -2.7 |

## na = Not available.

-- Insufficient marketing to establish a price.
${ }^{1}$ Dry pint.
${ }^{2}$ Data converted from 12-fluid-ounce containers.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

## Citrus Fruit Outlook

## Smaller 2020/21 Harvest for Oranges and Lemons

The current U.S. citrus crop forecast for 2020/21 is 7.21 million tons, down 7.3 percent from the 2019/20 final utilized total of 7.78 million tons (table 3 ). This forecast is 1.7 percent above the initial USDA's National Agricultural Statistics Service (NASS) forecast of 7.09 million tons in October 2020. As of the March 2021 NASS Crop Production report, U.S. all-orange production is forecast at 4.6 million tons in 2020/21, down 11 percent from 2019/20. Tangerines (a commodity group including tangerines, mandarins, and tangelos) rebounded somewhat in 2020/21 with production expected to increase 4.6 percent; to 970,000 tons compared to 928,000 tons in 2019/20. Production is expected to decrease this season for lemons, down 6 percent to 1.04 million tons. A decline in overall citrus production can largely be attributed to lower production of all oranges in Florida, and navel oranges and lemons in California. The forecasted drop in citrus production in 2020/21 is larger than declines observed in the previous season (2019/20).

## Orange Production Down 11 Percent

All orange production in the United States for 2020/21 (November 2020-October 2021) is forecast down from last year including a 2 percent decrease in California production. The navel orange crop in California is forecast at 1.68 million tons ( 5 percent below last season). This places navel orange production in California on par with 2018/19 levels and about 10,000 tons below the preceding 10-year average for the State. Valencia orange production levels in California are up from last year by 1,000 boxes (11 percent).

Orange production in Florida is down this season by 17.5 percent at 2.5 million tons. The early/mid-season non-Valencia crops are down by 7.15 million boxes or 322,000 tons. At the same time, Valencia orange production is now projected to be down by 4.65 million boxes or 209,000 tons from last year. These revised estimates for Florida production can be attributed to higher than average fruit drop for early/mid-season non-Valencia crop, and lower than average fruit size and higher than average fruit drop for the Valencia crop.

Texas generally accounts for only 2 percent of U.S. commercial orange production. As of the January 2021 forecast orange production was up by 12 percent compared to last year. This increase is largely due to a 6,000 ton increase in the early/midseason and navel crop. Valencia
oranges were also forecast up by 1,000 tons in January 2021; however given that virtually none of that fruit was harvested as of February 2021, it is likely Winter Storm Uri drastically reduced the quantity this season.

Table 3--Citrus: Utilized production, 2018/19, 2019/20, and forecast for $2020 / 21$

| Crop and State | Utilized |  | $\begin{gathered} \hline \text { Forecast for } \\ 2020 / 21 \\ \hline \end{gathered}$ | Utilized |  | $\begin{gathered} \hline \text { Forecast for } \\ 2020 / 21 \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2018/19 | 2019/20 | as of 03-2021 | 2018/19 | 2019/20 | as of 03-2021 |
|  | ---- 1,000 boxes ${ }^{2}$---- |  |  |  | ----1,000 tons ---- |  |
| Oranges: |  |  |  |  |  |  |
| Early/midseason and navel: |  |  |  |  |  |  |
| California | 42,000 | 44,300 | 42,000 | 1,680 | 1,772 | 1,680 |
| Florida | 30,400 | 29,650 | 22,500 | 1,368 | 1,334 | 1,013 |
| Texas | 2,210 | 1,150 | 1,300 | 94 | 49 | 55 |
| Total ${ }^{3}$ | 74,610 | 75,100 | 65,800 | 3,142 | 3,155 | 2,748 |
| Valencia: |  |  |  |  |  |  |
| California | 10,200 | 9,000 | 10,000 | 408 | 360 | 400 |
| Florida | 41,450 | 37,650 | 33,000 | 1,865 | 1,694 | 1,485 |
| Texas | 290 | 190 | 200 | 12 | 8 | 9 |
| Total | 51,940 | 46,840 | 43,200 | 2,286 | 2,062 | 1,894 |
| All oranges | 126,550 | 121,940 | 109,000 | 5,428 | 5,217 | 4,641 |
| Grapefruit: |  |  |  |  |  |  |
| California | 3,200 | 3,800 | 4,200 | 128 | 152 | 168 |
| Florida | 4,510 | 4,850 | 4,600 | 192 | 206 | 196 |
| Texas | 6,100 | 4,400 | 5,000 | 244 | 176 | 200 |
| All grapefruit | 13,810 | 13,050 | 13,800 | 564 | 534 | 564 |
|  |  |  |  | 0.433 | 0.330 |  |
| Tangerines, mandarins, and tangelos: |  |  |  |  |  |  |
| California | 26,500 | 22,000 | 23,000 | 1,060 | 880 | 920 |
| Florida | 990 | 1,020 | 1,050 | 47 | 48 | 50 |
| All tangerines, mandarins, and tangelos | 27,490 | 23,020 | 24,050 | 1,107 | 928 | 970 |
| Lemons: |  |  |  |  |  |  |
| Arizona | 1,350 | 1,800 | 1,900 | 54 | 72 | 76 |
| California | 23,700 | 25,700 | 24,000 | 948 | 1,028 | 960 |
| All lemons | 25,050 | 27,500 | 25,900 | 1,002 | 1,100 | 1,036 |
| All citrus ${ }^{3}$ | 192,900 | 185,510 | 172,750 | 8,100 | 7,780 | 7,211 |

${ }^{1}$ The crop year begins with bloom of the first year shown and ends with completion of harvest the following year.
${ }^{2}$ Net pounds per box: oranges in California (CA)-80, Florida (FL)-90, Texas (TX)-85; grapefruit in CA-80, FL-85, TX-80; lemons-80; tangelos-90; tangerines and mandarins in CA-80, FL-95.
${ }^{3}$ Totals may not be equivalent to the sum of the categories due to rounding.
Source: USDA, National Agricultural Statistics Service, Crop Production, March 2021, and Citrus Fruits 2020 Summary (August 2020).

Counter seasonal U.S. imports allows for year-round availability of fresh oranges for U.S. consumers. Domestic production of fresh oranges (which include navels) typically peaks in the second fiscal quarter (January-March) and decreases thereafter before bottoming out in September. Import levels of fresh oranges counter these trends, with volumes shooting up after June and peaking in July or August, then rapidly tapering down before bottoming out in November (figure 3).

Figure 3
Seasonal orange imports rise in August and September 2019/20


Source: U.S. Department of Commerce, Bureau of the Census.

Imports of fresh oranges for the 2020/21 season to date (November 2020-January 2021) are up 18 percent compared to the same time last year. November and December 2020 prices for fresh oranges ( $\$ 24.16$ and $\$ 21.47$ per box) are 31 percent and 28 percent above last year's prices. This increase in prices is reflective of lower domestic production levels.

Export volumes of fresh oranges are down so far this season (November 2020-January 2021) compared to the same period last year. Season-to-date exports are down 9.6 percent as of January 2021. With the bulk of U.S. fresh orange exports occurring in the spring, it has yet to be seen how total exports fare this season. U.S. Census Bureau data show declines season-todate are most pronounced in Japan ( 40 percent), Hong Kong (14.3 percent), and Canada (6.3 percent). U.S. fresh orange exports are down for all top 10 purchasing countries, except for Malaysia and Peru, which are up 12.8 percent and 18.8 percent respectively. USDA's Economic Research Service (ERS) forecasts total U.S. fresh orange exports to reach 507,055 tons in 2020/21, down 10 percent from last season.

For the first three months of the season (November 2020 through January 2021), fresh orange imports were at 23,500 tons, 18 percent higher than the corresponding period last season. With orange production in Florida and California down so far this year, ERS predicts total U.S. fresh orange imports will reach 261,000 tons in 2020/21. The most active months for fresh orange imports generally occur from July to October when Chile and South Africa supplies are available. Chile and Mexico are estimated to remain the largest suppliers of fresh market oranges to the United States this season followed by South Africa, Australia, and Morocco.

Import shipments from Mexico are up 3 percent from this time last year (November 2020 through January 2021), while shipments from the Dominican Republic are about level with the same period last year.

## Florida Orange Juice Production Forecast Down

Based on current estimates, 61 percent of U.S.-grown oranges will go to processing in the 2020/21 season. Most oranges for the processing market are grown in Florida. As of midFebruary 2021, harvest of Valencia oranges in the State was still in early stages. The average processing orange price reported by NASS in January 2021 was $\$ 6.84$ per box, 75 cents (10 percent) lower than the same time last year. Prices are down despite beginning stocks of frozen concentrated orange juice below those of last season.

USDA's Economic Research Service (ERS) forecasts orange juice production in 2020/21 to be down from last year, with total production at 352 million single-strength equivalent (SSE) gallons (table 4). ERS forecasts orange juice imports to increase to 336 million gallons. Year-over-year increases in import volume have already been reported for 3 of the first 4 months of the current marketing year. Total orange juice imports are up 15 percent from the same period last season. Season-to-date shipments are up by 5.7 percent from Brazil and 45 percent from Mexico, while production has recovered from last year's levels affected by drought. Monthly exports of U.S. orange juice are up 3 percent the first 4 months of the season compared with the same period in 2019/20. Canada remains the primary destination market for U.S. orange juice accounting for 70 percent of market share season to date.

Table 4 --United States: Orange juice supply and utilization, 2010/11 to 2020/21F

| Season ${ }^{1}$ | Beginning stocks | Production | Imports | Supply | Exports | Domestic consumption | Ending stocks | Per capita availability |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | ------ | -- | ion SSE g | ons ${ }^{2}$ |  | -------- | Gallons |
| 2010/11 | 557 | 919 | 265 | 1,742 | 210 | 1,140 | 391 | 3.67 |
| 2011/12 | 391 | 959 | 223 | 1,574 | 154 | 971 | 449 | 3.10 |
| 2012/13 | 449 | 847 | 421 | 1,717 | 159 | 1,024 | 534 | 3.25 |
| 2013/14 | 534 | 663 | 418 | 1,615 | 158 | 974 | 483 | 3.06 |
| 2014/15 | 483 | 592 | 460 | 1,534 | 113 | 922 | 499 | 2.88 |
| 2015/16 | 499 | 503 | 390 | 1,392 | 92 | 880 | 420 | 2.73 |
| 2016/17 | 420 | 422 | 419 | 1,261 | 79 | 809 | 374 | 2.49 |
| 2017/18 | 374 | 261 | 576 | 1,211 | 48 | 798 | 365 | 2.45 |
| 2018/19 | 364 | 465 | 482 | 1,310 | 42 | 744 | 524 | 2.25 |
| 2019/20 | 524 | 415 | 292 | 1,231 | 48 | 766 | 418 | 2.32 |
| 2020/21 | 418 | 352 | 336 | 1,106 | 49 | 635 | 422 | 1.92 |
| $\mathrm{F}=$ forecast. ${ }^{1}$ Season begins in October of the first year shown. |  |  |  |  |  |  |  |  |
| ${ }^{2}$ SSE $=$ single-strength equivalent. |  |  |  |  |  |  |  |  |
| Source: USDA, Economic Research Service. |  |  |  |  |  |  |  |  |

## Grapefruit Production Still Too Early to Tell in 2020/21

Total U.S. grapefruit production is projected up 5.5 percent to 564,000 tons in 2020/21 from 534,000 tons in 2019/20 (figure 4). This volume is 4.5 percent higher than the initial NASS forecast released in October 2020. California is forecast to exceed last year's production levels, while production in Florida is expected to fall. Winter Storm Uri hit Texas on February 15, 2021, plunging temperatures into single digits. As such temperatures are well below those tolerated by commercial citrus trees, cold damage is expected to affect 2020/21 citrus production levels in the State. Texas is a major producer of U.S grapefruit accounting for 43 percent of total production in 2018/19 and 33 percent in 2019/20. An updated citrus forecast accounting for possible losses due to the freeze event will be released for Texas in April 2021. A preliminary look at Agricultural Marketing Service (AMS) movement data for fresh grapefruit in the State may provide some preliminary indication. AMS movement data for February 2021 shows a reduction of 53 percent in shipment volumes from Texas compared to the same month in 2020. This volume is also 31 percent below February 2018/19 and 47 percent below February 2017/18 volumes.

The Row Count Survey conducted by NASS in Florida groves in late February indicated that 81 percent of grapefruit rows were already harvested. Current fresh grapefruit grower prices are registering higher than the 5-year average. The October 2020 to January 2021 average price was $\$ 24.98$ per box, 22 percent above the average price from last season for the same period (table 5).


So far, U.S. fresh grapefruit import volumes for the current season (September 2020-January 2021), were up 7 percent compared with the same period in 2019/20. This increase includes higher volumes from Mexico, South Africa, and Colombia. Season-to-date fresh grapefruit exports were down nearly 11 percent, mostly because of 2,445 fewer tons sent to Japan, and 2,446 fewer tons sent to Canada season to date. Higher volumes were sent to the Netherlands compared to last season (186 percent) and Australia (26 percent).
U.S. grower prices for processed grapefruit (October 2020-January 2021) are higher than the same period last season. The Florida Department of Citrus February Sales report indicates retail grapefruit juice sales volume is up 7.5 percent season to date. This increase over the previous season indicates increased demand likely due to COVID-19. The same report indicates retail grapefruit juice prices are also up by 2.5 percent. If this trend continues higher grower prices may be observed in coming months.

Table 5--Fresh grapefruit: Average equivalent on-tree prices received by U.S. growers, 2015/16-2020/21

| Month | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ------- Dollars/box ${ }^{1}$------- |  |  |  |  |  |
| October | 17.54 | 22.63 | 26.67 | 26.03 | 22.22 | 25.86 |
| November | 16.22 | 16.33 | 25.00 | 24.32 | 20.87 | 26.73 |
| December | 15.43 | 16.18 | 23.17 | 22.99 | 19.91 | 24.89 |
| January | 15.01 | 16.48 | 23.45 | 21.63 | 18.35 | 22.44 |
| February | 14.63 | 16.76 | 23.03 | 20.90 | 16.91 |  |
| March | 14.32 | 18.19 | 23.08 | 18.81 | 18.8 |  |
| April | -- | 20.90 | 22.46 | 18.4 | -- |  |
| May | -- | -- | -- |  | -- |  |
| Oct.-Jan. average | 16.05 | 17.91 | 24.57 | 21.87 | 20.34 | 24.98 |

${ }^{1}$ The net weight of a grapefruit box for Florida: 85 lb . for California: 80 lb . for Texas: 80 lb .
Source: USDA, National Agricultural Statistics Service, Agricultural Prices, various issues.

## Lemon Production Forecast Down in 2020/21

The U.S. lemon crop for the 2020/21 marketing season (August 2020-July 2021) is anticipated to be 1.04 million tons, down 5.1 percent from the 2019/20 final utilized production total. This overall lower volume is driven exclusively by a 6.6 percent reduction in California's production. Conversely, the Arizona lemon crop is forecast to grow 5.6 percent up to 76,000 tons. Fresh
lemon grower prices for this current season (August 2020-January 2021) averaged $\$ 29.03$ per box, compared to $\$ 31.64$ over the same period in 2019/20. Fresh lemon imports are up year to date (August-January) by 9.6 percent, compared to the same period from 2019/20. Imports from Mexico are down 9 percent while imports from Argentina are up 152.2 percent (August to January 2019/20). Despite lower domestic production levels this season, prices are down 8 percent from the same time last year. Fresh lemon exports are down 15.8 percent year to date ( 38,581 tons), with significant quantities going to Japan ( 26.8 percent), Canada ( 33.9 percent), and South Korea (13.7 percent).

## Partial Rebound for Tangerine, Mandarin, and Tangelo Crops for 2020/21

Total production of U.S. tangerines, a commodity group including tangerines, mandarins, and tangelos, is estimated at 970,000 tons in 2020/21 (October-September). While this level is up 4 percent from last year, it is still below 2018/19 levels suggesting only a partial rebound (figure 5). Production of tangerines, mandarins, and tangelos is up in both California and Florida. Imports for tangerines, mandarins, and tangelos are down by 5 percent from last season to date. If present trends continue, total imports will reach 409,197 tons. At the same time year-todate exports are steady with last year with Canada, Mexico, Australia, and Japan receiving 75.3, 10.5, 4.6, and 2.95 percent of U.S. tangerine exports respectively.

Figure 5
Total U.S. tangerine, mandarin, and tangelo production 2010/11-2020/21

$F=$ forecast.
Sources: USDA, National Agricultural Statistics Service, Crop Production, March 2021 issue, and Citrus Fruit Summary, various issues.

## Noncitrus Fruit Outlook

## Tight Early Season Strawberry Supplies in 2021

For the first two months of 2021, USDA Agricultural Marketing Service (AMS) data show total strawberry shipments down 21 percent from the same period in 2020 (figure 6). Heavy rains in California and lower than normal temperatures in Florida resulted in tight U.S. supplies. February 2021 fresh strawberry shipments compared to February 2020 were down: Florida (down 55 percent), Mexico (down 31 percent) and winter shipments from California (down 52 percent). USDA, National Agricultural Statistics Service (NASS) reported the January 2021 grower price up compared to December 2020 which reflects the lower supply. Consistent with grower prices, AMS strawberry shipping point prices and U.S. Department of Labor, Bureau of Labor Statistics (BLS) strawberry retail prices were up in January and February 2021 compared to a year ago.

Based on the annual acreage survey conducted by the California Strawberry Commission, total California strawberry acreage in 2021 is 36,487 . To keep up with demand, 2020 fall planted acres increased 5.7 percent. The increase in plantings, combined with higher yielding varieties, is predicted to increase California production in 2021 compared to the previous year.


Fresh and Processing Strawberry Supplies Up in 2020: Despite a decrease in shipments in mid-March 2020 when the U.S. lockdown began, U.S. shipments increased in 2020. The California Strawberry Commission reports that total State shipments in 2020 were 1,892 million pounds, up 4 percent from the previous year. Total shipments from Florida for calendar year 2020 were up 20 percent from the previous year. Fresh strawberry import volume in 2020 (almost all from Mexico) increased 6 percent over the previous year. The increase in U.S. supplies led to a slight increase in exports in 2020 from the previous year, and increased availability of fresh strawberries for the domestic market.

The Processing Strawberry Advisory Board of California reported the 2020 pack estimate for frozen strawberries in the United States at 359.7 million pounds, product-weight equivalent, down slightly from the previous year and below average levels of recent years. With a lower pack, below average beginning stocks, and a slight increase in demand, U.S. frozen strawberry imports rose 26 percent in 2020 compared to year before. Between 2010-12 and 2018-20, the import share of frozen strawberry consumption increased from 32 percent to 42 percent. Import volumes from Mexico, the largest supplier of U.S. frozen strawberry imports, increased 17 percent from 2019. Mexico's market share of imports declined slightly in the past two years to roughly 60 percent in 2020 from 79 percent in 2018 as imports from Chile increased 6 percent and imports from Peru increased 40 percent.

## High Blueberry Prices Start Off 2021

2021: The U.S. blueberry market started the year with high prices in January because of the tight supplies of imported blueberries in the market (figure 7). Total January 2021 imports were down 5 percent from January 2020. Peru and Chile are the two largest foreign suppliers to the U.S. market. January imports from Peru were down 32 percent from the previous January due to delays reported at the Los Angeles, California port in combination with the early tapering off of production in Peru. Imports from Chile were up 4.5 percent despite labor issues due to COVID-19 in Chile and heavy rains during the final weeks of the harvest in March.

Shipping point prices started high in January 2021 and increased through the week ending February 20 to $\$ 18$ per flat compared to $\$ 15$ per flat the same week in 2020. Early domestic blueberry production starts with the Florida crop (except for small volumes from California), with peak supplies from April through early May. USDA's Agricultural Marketing Service (AMS) reported the first shipments from Florida in 2021 for the week ending March 13. California produces blueberries year-round, with larger supplies from May to July.


Note: Flat is 12, 6 -ounce cups with lids.
Source: USDA, Agricultural Marketing Service, Market News, Shipping Point.

2020: The North American Blueberry Council (NABC) estimated the 2020 total U.S. blueberry crop at 627 million pounds down 6 percent from last year, with 340.8 million pounds for the fresh market and 286.3 million pounds for the processing market. Among the top blueberry-producing States, Oregon, Georgia, Michigan, New Jersey, North Carolina, and Florida were down from 2019, while California and Washington production increased.
U.S. fresh blueberry imports rose to a record 482 million pounds in 2020, a slight increase from the previous year's record volume (figure 8). Imports from Peru and Mexico grew 22 and 24 percent, increasing their share of the U.S. fresh blueberry import market. Total fresh blueberry imports decreased 13 percent from Chile in 2020, with conventional blueberries down 18 percent and organic blueberries up 11 percent. In 2020, U.S. blueberry exports decreased 26 percent from 2019 to 59 million pounds. U.S. exports were down to the top supplier, Canada, which accounted for 91 percent of U.S. fresh blueberry exports in 2020.

Figure 8
Peru is the top supplier to the United States for the second consective year, Chile loses share in U.S. fresh blueberry import market


Source: U.S. Department of Commerce, Bureau of the Census.

## 2020/21 Average Avocado Crop Expected

The California Avocado Commission (CAC) projects 2020/21 season production at 292 million pounds. An earlier forecast was reduced in February in response to heavy fall and winter winds. This relatively normal crop follows last year's larger crop. Because of the alternative-bearing nature of the tree, a year of higher production tends to be followed by a year of lower production.

For the 2019/20 season, the NASS Noncitrus Fruits and Nuts Summary released May 2020 (which was early in the season) estimated total U.S. fresh-market avocado production at 266.9 million pounds, less than the CAC's utilized production for the full season of 383.6 million pounds. NASS data for the 2019/20 season for all U.S. avocado production will not be available until May 2021. Until then, an estimate of last year's U.S. production of 440.1 million pounds is based on the CAC 2019/20 production and the historic relationship between California and U.S. avocado production. Using this estimated U.S. production number for 2019/20, production increased 21.1 percent, imports increased 1 percent, exports increased 69.1 percent, and per capita availability increased 2.7 percent to 8.71 pounds per person over the previous season.

Mexico is the largest supplier of avocados to the United States with 90 percent of U.S. imports in 2020, and Peru with 7 percent. In September 2020, USDA's Foreign Agricultural Service forecast Mexican 2020/21 (July-June) avocado production to be 2.41 million metric tons, up 4 percent from the previous year.

In the first 9 weeks of 2021 (through March 7), the Hass Avocado Board, which tallies statistics for Hass avocados, the dominant variety in California, reported avocado imports from Mexico were up 41.2 percent and sales of California avocados were down 68.4 percent from the same time a year ago. California shipped small amounts of avocados in January and February, but no avocados the first two weeks of the year because of the large volume of imports. In week 1 (ending January 10) Mexican imports were up 100 percent compared to the previous year and in week 2 they were up 21 percent. With larger imports came lower prices. January 2021 shipping point prices for Hass avocados, all sizes, ranged from a mostly low of $\$ 24.24$ per 2layer carton to a mostly high of $\$ 25.32$, both down 25 percent from the previous year. When imports declined, U.S. sales increased a bit. Since avocados can mature on the tree for an extended period, U.S. growers look for opportunities when fruit quality is at its peak and market conditions are optimal. This year the CAC estimates peak harvesting will be April through August when there is less pressure from Mexican avocados. Figure 9 shows how California shippers position their sales during the period with the fewest Mexican imports.

Figure 9
California shipments and imports of Hass avocados, 2020, by month


Source: USDA, Agricultural Marketing Service, Market News, Movement data.

## Typical Tropical Fruit Imports in January 2021

Bananas: The impact of Hurricanes Eta and lota that both came ashore in Nicaragua in November 2020 created concern. Total banana supplies in January 2021, however, were only 2.2 percent lower than last January. In 2020, the largest banana imports in January were from, in declining order, Guatemala, Ecuador, Costa Rica, Honduras, and Mexico. In January 2021, U.S. imports were down from Guatemala (17.4 percent), and Honduras ( 55.2 percent) from the previous January; imports were up for Costa Rica ( 35.4 percent), Ecuador (14.1 percent), and Mexico ( 6.7 percent). The U.S. Bureau of Labor Statistics report that retail banana prices were up 4.7 percent in January 2021 and 2.8 percent in February 2021, compared to the same months in the previous year.

Pineapples: Costa Rica was the largest pineapple supplier in 2020, accounting for 85.2 percent of all pineapple imports. Pineapple imports in 2020 were down 4 percent from 2019 with Costa Rica imports down 5 percent. Importers report that production wasn't harmed by the November 2020 hurricanes but noted some quality issues here and there. Pineapple imports were up 0.94 percent in January 2021 with respect to the previous January. AMS shipping point data for January 2021 report pineapple prices, all sizes, ranged from mostly low of $\$ 9.93$ to mostly high of $\$ 10.60$ per 1-layer carton, down from January 2020 with a mostly low of $\$ 12.30$ to a mostly high of $\$ 12.96$. The lower January 2021 prices may be due to the reduced market for food service during the pandemic. In March 2021, importers report good weather in most major pineapple exporting countries and good volume of pineapples.

Mangoes: Mango imports in 2020 were 3 percent above the previous year (U.S. Census Bureau data). In January 2020, imports of mangoes were very large-up 27.2 percent from the 2015-19 average. The big suppliers in January 2020 were (in declining order) Peru, Ecuador, and Mexico. January 2021 saw a return to more typical volumes- down 24.7 percent from a year ago and down 2.9 percent from the 2015-19 average. Imports from Peru were down 50 percent due to weather problems, imports from Ecuador down 31 percent because the season ended early, while imports from Mexico were up 90 percent because the season started early. Freight on board shipping prices in January 2021 for 1-layer flats of Kent mangoes ranged from a mostly low of $\$ 7.02$ to a mostly high of $\$ 7.92$, up 53 and 51 percent from the year before.

Papayas: Papaya imports increased 1.2 percent from 2019 to 2000. In 2020, Mexico accounted for 79 percent of total U.S. papaya imports, followed by Guatemala with 19 percent. In January 2021 U.S. Census Bureau data show that imports increased 6.6 percent from the previous January. Mexican imports were up 17.5 percent and Guatemalan imports were down 27.9
percent. USDA AMS shipping point prices for a flat of Maradol papayas in January 2021 ranged from a mostly low of $\$ 20.86$ per flat to a mostly high price of $\$ 21.86$, up from $\$ 18.74$ to $\$ 20.37$ in January 2020. Papaya imports from Mexico in 2020 were lower quantity and quality due to rain; in 2021 quantity and quality were both better. Papaya imports from Guatemala in 2021 were lower quantity and quality due to disease and scarring; good quality papayas had higher prices.

Per capita availability: Bananas continue to outrank all tropical fruit in U.S. fresh import volume and fresh per capita use. Banana per capita use is estimated at 27.6 pounds annually in 2018-20, while fresh pineapple, mango, and papaya consumption average less than 8.0 pounds each (figure 10). Between 2012-14 and 2018-20, average banana per capita availability increased less than 1 percent, while pineapple, mango, and papaya per capita availability increased 11.8 percent, 27.5 percent, and 19.4 percent respectively.

Figure 10
Average banana per capita use in the United States continues to lead other major tropical fruit


Source: USDA, Economic Research Service calculations.

## Melons Outlook

## Melon Imports Down in January 2021

Watermelon: Domestic fresh-market watermelon production totaled $3,419.9$ million pounds in 2020, down 4.4 percent from the previous year. Florida and Georgia experienced production decreases with increases in North Carolina. USDA NASS average price per pound for the covered States was $\$ 0.17$ per pound in 2020, up 10 percent from the previous year. Watermelon imports fell 4.1 percent in 2020 from the previous year. Mexico supplied 85 percent of watermelon imports in 2020. Exports increased 11.5 percent in 2020, leaving domestic availability down 5.4 percent and per capita availability down 5.8 percent (table 6). Watermelon is not a mainstay of the foodservice market, so the curtailing of that industry during the COVID19 pandemic had relatively little impact on watermelons. After the initial shock in March, retail demand picked up.

January 2021 watermelon imports were down 6.9 percent from the previous January. Mexico was the largest supplier of watermelon to the U.S. market in January 2020 and shipments in January 2021 were 8.4 percent lower. Shipments from Guatemala were up 4.8 percent and imports from Honduras, a much smaller supplier to the United States, were down 40.1 percent. For the first three weeks of January 2021, mostly low and mostly high shipping point prices for 24-inch bins of red flesh seedless watermelon were up slightly from a year ago and then down for the fourth week. The February 2021 freeze in Texas may affect domestic watermelon supplies in future months.

Table 6--U.S. melons: Supply and utilization, by type and all, 2016-20

| Year | Supply |  |  | Utilization |  |  | Trade shares of: |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Production ${ }^{1}$ | Imports ${ }^{2}$ | Total | Exports ${ }^{2}$ | Domestic | Per capita use | Use imported | Supply exported |
|  | ------------- | ---- | ion poun | ---- | ---------- | ---- Pounds ---- | -------- Per | -------- |
| Cantaloupe |  |  |  |  |  |  |  |  |
| 2016 | 1,512.5 | 1,041.4 | 2,554.0 | 115.3 | 2,438.6 | 7.5 | 42.7 | 4.5 |
| 2017 | 1,539.2 | 1,026.3 | 2,565.5 | 179.1 | 2,386.3 | 7.3 | 43.0 | 7.0 |
| 2018 | 1,460.3 | 992.6 | 2,452.8 | 147.2 | 2,305.7 | 7.1 | 43.0 | 6.0 |
| 2019 | 1,129.5 | 873.4 | 2,002.9 | 130.7 | 1,872.2 | 5.7 | 46.7 | 6.5 |
| 2020 | 1,134.6 | 753.2 | 1,887.8 | 104.3 | 1,783.5 | 5.4 | 42.2 | 5.5 |
| Honeydew ${ }^{3}$ |  |  |  |  |  |  |  |  |
| 2016 | 393.3 | 262.5 | 655.8 | 56.9 | 598.9 | 1.9 | 43.8 | 8.7 |
| 2017 | 336.4 | 256.9 | 593.3 | 54.8 | 538.4 | 1.7 | 47.7 | 9.2 |
| 2018 | 384.4 | 235.9 | 620.3 | 56.3 | 564.0 | 1.7 | 41.8 | 9.1 |
| 2019 | 260.1 | 211.7 | 471.8 | 37.6 | 434.3 | 1.3 | 48.8 | 8.0 |
| 2020 | 235.6 | 230.6 | 466.2 | 45.1 | 421.1 | 1.3 | 54.8 | 9.7 |
| Watermelon |  |  |  |  |  |  |  |  |
| 2016 | 3,987.8 | 1,709.6 | 5,697.4 | 350.0 | 5,347.4 | 16.5 | 32.0 | 6.1 |
| 2017 | 4,003.3 | 1,595.3 | 5,598.7 | 340.1 | 5,258.5 | 16.2 | 30.3 | 6.1 |
| 2018 | 3,914.9 | 1,594.7 | 5,509.6 | 326.0 | 5,183.6 | 15.9 | 30.8 | 5.9 |
| 2019 | 3,579.2 | 1,729.2 | 5,308.4 | 321.9 | 4,986.5 | 15.2 | 34.7 | 6.1 |
| 2020 | 3,419.9 | 1,658.2 | 5,078.1 | 358.8 | 4,719.3 | 14.3 | 35.1 | 7.1 |
| All melons |  |  |  |  |  |  |  |  |
| 2016 | 5,893.5 | 3,239.9 | 9,133.4 | 570.8 | 8,562.6 | 26.5 | 37.8 | 6.2 |
| 2017 | 5,878.9 | 3,076.7 | 8,955.6 | 615.9 | 8,340.1 | 25.6 | 36.9 | 6.9 |
| 2018 | 5,759.6 | 3,038.0 | 8,797.6 | 579.4 | 8,218.1 | 25.1 | 37.0 | 6.6 |
| 2019 | 4,968.8 | 3,032.1 | 8,000.9 | 527.7 | 7,473.2 | 22.8 | 40.6 | 6.6 |
| 2020 | 4,904.7 | 2,788.5 | 7,693.2 | 536.1 | 7,157.0 | 21.7 | 39.0 | 7.0 |

${ }^{1}$ Source: USDA, National Agricultural Statistics Service. Production data were estimated by ERS for 1982-91 based on available State data adjusted to the national level. Includes all uses.
${ }^{2}$ Source: U.S. Dept. of Commerce, Bureau of the Census.
${ }^{3}$ Honeydews do not have a separate tariff code. From 1970-79, trade was estimated as 50 percent of the category called "other melons." Since 1980, shipment data were used to estimate the distribution of the "other melon" category (ranged from 42-97 percent). From 2001-15, trade was kept at 44 percent of "other melon" because the Mexican market share was not captured by shipment data. Since 2016, shipment data were used to estimate distribution of the "other melon" category (ranged from 54-60 percent).
Source: USDA, Economic Research Service (ERS).

Cantaloupe: Total U.S. planted acres were down 15 percent in 2020 from the previous year but utilized production was up less than 1 percent, the first increase since 2017. California is the largest producer of cantaloupe; planted acres declined 21 percent in 2020 but because of excellent growing conditions, utilized production increased 6 percent. Arizona and Florida also had declines in planted acres but had good growing conditions, therefore production declined much less than acreage. Imports of cantaloupe in 2020 were down 13.8 percent from the previous year and were the lowest since 1996. In 2020, 54.5 percent of U.S. cantaloupe imports came from Guatemala, 30 percent came from Honduras, 7.9 percent from Mexico, and 7.5 percent from Costa Rica. Exports of cantaloupe in 2020, 140.3 million pounds, were down 20.2 percent from 2019. Total availability was down in 2020 and per capita availability fell 5 percent. NASS reported annual 2020 grower prices to be $\$ 26.10$ per hundredweight, up 24 percent from the previous year.

In January 2020, Honduras and Guatemala were the biggest cantaloupe suppliers to the U.S. market. Overall imports in January 2021 were down 44.3 percent from the previous year. Imports from Honduras and Guatemala were down 58 percent and 8 percent, respectively. The fall season for both countries was hurt by Hurricanes Eta and lota that hit Central America in November 2020. With such a large decline in imports, prices were very high in January; depending on the type of carton and size, mostly low prices ranged from 61.8 to 108.9 percent higher than the previous year; the mostly high prices ranged from 75.8 to 206.6 percent higher. Growers in Honduras and Guatemala replanted for the spring season so that production is unaffected by the hurricanes.

Honeydew: In 2020, U.S. honeydew production totaled 235.6 million pounds, down 9.4 percent from the previous year, and the lowest honeydew production since 1976. Acres planted and harvested were both down 25 percent in 2020 compared to the year before but good weather in California prevented production from falling an equal amount. Imports were up 8 percent and exports were up 20 percent. Per capita availability was 1.3 pounds per person, down 4 percent from the previous year.

In January 2020, honeydew imports came from, in declining order, Guatemala, Honduras, Mexico, and Costa Rica (based on AMS shipment data). In January 2021 total imports were up less than 1 percent. Imports were up 2 percent from Guatemala, down 22 percent from Honduras, up 59 percent from Mexico, and down 90 percent from Costa Rica. USDA AMS shipping point prices in January 2021 for honeydews in two-thirds cartons, all sizes, ranged from a mostly low of $\$ 9.35$ to a mostly high of $\$ 10.20$, down from the previous year's prices of a mostly low of $\$ 17.34$ to a mostly high of $\$ 18.28$. The decline in prices may be partly due to food service demand falling with the COVID-19 pandemic.

## Tree Nuts Outlook

## U.S. Pecan Production Totals Strong in 2020/21

In January 2021, USDA's National Agricultural Statistic Service (NASS) reported U.S. pecan production for the 2020/21 marketing season (October-September) at 302 million pounds utilized in-shell basis. This is 18 percent above the previous year, and 4 percent higher than the October 2020 forecast of 292 million pounds. The change in production reflects increases in domestic production in pecan-producing States, including Georgia and Texas. NASS reported most pecan trees having little to no limb breakage from the February 2021 freeze in the Southern High Plains in Texas.

In 2020/21, Georgia became the largest pecan producer after being outranked by New Mexico for the past 2 years (figure 11). Georgia's orchards are finally recovering from Hurricane Michael in November 2018. Estimated at 142 million pounds, production in Georgia in 2020/21 rose 95 percent from the previous year. Statewide bearing acreage remains steady at 129,000 acres in 2020 from the previous year while yield per acre is estimated at 1,100 pounds per acre (up 534 pounds from 2019/20). Pecan production is in the "off-year" of the crop's alternate-bearing cycle, which partly contributed to the decline in production in New Mexico, (down 12 percent from 2019/20) as well as other producing States.

The U.S. average grower price for pecans declined from $\$ 1.84$ per pound in 2019 to $\$ 1.32$ per pound in 2020 likely due to the increase in supply and high beginning stocks compared to last year. Overall lower grower prices drove down the value of production from $\$ 471$ million in 2019/20 to an estimated $\$ 398.8$ million in 2020/21.

Import demand for shelled pecans is down slightly, while shelled imports-mostly from Mexico—are down 63 percent in October 2020 to January 2021 compared with the same period the previous season. Drought in Chihuahua in November may have affected the supply. The value of imports declined to $\$ 38$ million compared to $\$ 110$ million during that same time period. With the larger domestic crop in 2020/21, an 18 percent increase in the cumulative volume of inshell pecan exports occurred in 2020/21 (October 2020-January 2021) compared with same period the previous season, and a 5 percent increase in shelled pecan exports. China remains one of the top markets for U.S. pecans in 2020 with over a 70 percent share of U.S. in-shell pecan exports from October 2020 to January 2021, a 75 percent increase from the same period last year.

Figure 11
U.S. pecan production up while crop value declines in $2020 / 21$


Source: USDA, National Agricultural Statistics Service, Pecan Production, January 2021.

## U.S. Pistachio Production Shows Record On-Year High

Based on data from the Administrative Committee for Pistachios (ACP), the U.S. pistachio crop for the 2020/21 season (September-August) is forecast to reach over 1 billion pounds in-shell basis, equivalent to 507.3 million pounds shelled basis, up 42 percent from the previous season. Yields increased as it is an "on-year" for the alternate-bearing crop cycle for pistachios. ACP reports average per acre yields are up 30 percent in 2020 to 2,806 pounds from the previous year. Over 31,600 bearing acres were added in 2020 from the previous year.

The USDA Foreign Agricultural Service forecasts Iran's pistachio production to decrease slightly in 2020/21 due to the off-year of the crop cycle. Iran, a major producer, is expected to increase exports of pistachios from last year's inventory; however the pace is expected to slow as supplies dwindle. U.S. imports are predicted up 40 percent from the previous season. Increased demand is expected as many consumers are likely continuing to stock up. The United States is forecast to have an increase in exports-nearly 20 percent higher on strong shipments to top markets China and the European Union, despite trade issues with China (table 7).

Table 7--Pistachios: Supply and utilization (shelled basis), 2000/01 to 2020/21 ${ }^{1}$

| Season ${ }^{2}$ | Utilized production | Loss and exempt 3 | Marketable production | Imports | Beginning <br> stocks | Total <br> supply | Ending stocks | Exports | Utilization |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  | Domestic | Per <br> capita |
|  |  |  |  | ---------- 1,00 | ,000 pounds | -------- |  |  |  | Pounds |
| 2000/01 | 114,164 | 0 | 114,164 | 920 | 10,462 | 125,547 | 33,329 | 32,641 | 59,577 | 0.21 |
| 2001/02 | 80,733 | 0 | 80,733 | 532 | 33,329 | 114,594 | 12,425 | 44,744 | 57,426 | 0.20 |
| 2002/03 | 149,513 | 0 | 149,513 | 764 | 12,425 | 162,702 | 56,180 | 44,449 | 62,073 | 0.21 |
| 2003/04 | 56,217 | 0 | 56,217 | 1,459 | 56,180 | 113,857 | 22,941 | 35,551 | 55,365 | 0.19 |
| 2004/05 | 170,515 | 0 | 170,515 | 798 | 22,941 | 194,254 | 42,317 | 74,550 | 77,387 | 0.26 |
| 2005/06 | 139,003 | 0 | 139,003 | 912 | 42,317 | 182,233 | 56,066 | 69,332 | 56,834 | 0.19 |
| 2006/07 | 119,000 | 0 | 119,000 | 1,388 | 56,066 | 176,454 | 56,629 | 80,061 | 39,764 | 0.13 |
| 2007/08 | 206,998 | 0 | 206,998 | 943 | 56,629 | 264,569 | 67,304 | 128,494 | 68,771 | 0.23 |
| 2008/09 | 135,392 | 0 | 135,392 | 941 | 67,304 | 203,637 | 32,922 | 139,797 | 30,918 | 0.10 |
| 2009/10 | 174,769 | 0 | 174,769 | 1,294 | 32,922 | 208,986 | 21,213 | 133,177 | 54,596 | 0.18 |
| 2010/11 | 250,125 | 0 | 250,125 | 550 | 21,213 | 271,887 | 72,472 | 145,884 | 53,531 | 0.17 |
| 2011/12 | 222,000 | 0 | 222,000 | 920 | 72,472 | 295,392 | 45,331 | 172,788 | 77,273 | 0.25 |
| 2012/13 | 278,255 | 0 | 278,255 | 1,198 | 45,331 | 324,784 | 55,102 | 185,858 | 83,824 | 0.27 |
| 201314 | 234,484 | 0 | 234,484 | 542 | 55,102 | 290,128 | 38,471 | 194,980 | 56,677 | 0.18 |
| 2014/15 | 246,332 | 0 | 246,332 | 910 | 38,471 | 285,714 | 79,032 | 139,538 | 67,144 | 0.21 |
| 2015/16 | 134,593 | 0 | 134,593 | 1,151 | 79,032 | 214,776 | 51,133 | 90,456 | 73,188 | 0.23 |
| 2016/17 | 446,299 | 0 | 446,299 | 1,363 | 51,133 | 498,795 | 126,769 | 231,847 | 140,179 | 0.43 |
| 2017/18 | 226,915 | 0 | 226,915 | 1,585 | 126,769 | 355,269 | 39,548 | 179,090 | 136,631 | 0.42 |
| 2018/19 | 487,457 | 0 | 487,457 | 1,284 | 39,548 | 528,289 | 65,247 | 303,577 | 159,465 | 0.49 |
| 2019/20 | 370,000 | 0 | 370,000 | 1,628 | 65,247 | 436,875 | 72,034 | 207,883 | 156,958 | 0.48 |
| 2020/21F | 507,267 | 0 | 507,267 | 2,270 | 72,034 | 581,572 | 148,345 | 239,640 | 193,587 | 0.58 |

$\mathrm{F}=$ Forecast.
${ }^{1}$ Conversion factor from in-shell to shelled basis varies year to year for production, stocks, and exports. For imports, the conversion factor is a constant 0.40 .
${ }^{2}$ Season begins in September.
${ }^{3}$ Utilized production minus marketable production.
Source: USDA, Economic Research Service calculations.

## Special Article

## Evolving Trends in the U.S. Fresh Strawberry Market

## Jaclyn Kramer

U.S. consumers continue to enjoy more strawberries. Average per capita availability of fresh strawberries for 2017-19 was estimated at 6.8 pounds, more than double the average during 2000-02. To keep up with demand, both domestic and foreign supplies increased over time. Since 2000 there have been shifts in relative market shares from sources delivering product to the U.S. fresh strawberry market (table SA1). In 2000-02 domestic sources supplied 94 percent of fresh strawberries to U.S. consumers. Approximately 20 years later (2017-19) over 86 percent of annual shipments originated domestically with 13.4 percent imported.

Table SA1. Average monthly and annual share of domestic and import shipment volumes of fresh strawberries

|  | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | Average annual share of total volume |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Percent |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Domestic |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2000-02 | 83.69 | 84.97 | 88.61 | 91.18 | 95.30 | 96.14 | 98.36 | 99.93 | 99.90 | 99.74 | 92.73 | 89.53 | 94.06 |
| 2010-12 | 62.14 | 70.63 | 82.43 | 87.70 | 97.04 | 99.85 | 99.99 | 99.99 | 99.99 | 96.68 | 80.82 | 69.63 | 90.85 |
| 2017-19 | 46.76 | 56.83 | 66.47 | 88.80 | 99.29 | 99.95 | 99.96 | 99.97 | 99.97 | 96.89 | 83.57 | 58.21 | 86.51 |
| Imports from Mexico |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2000-02 | 16.31 | 15.03 | 11.39 | 8.82 | 4.70 | 3.86 | 1.64 | 0.07 | 0.10 | 0.25 | 5.46 | 9.22 | 5.89 |
| 2010-12 | 37.79 | 29.37 | 17.57 | 12.30 | 2.95 | 0.15 | 0.00 | 0.00 | 0.00 | 3.32 | 19.13 | 30.30 | 9.14 |
| 2017-19 | 53.21 | 43.10 | 33.40 | 11.18 | 0.68 | 0.01 | 0.00 | 0.00 | 0.00 | 2.98 | 16.15 | 41.14 | 13.40 |

Fresh strawberry shipments from all sources are seasonal and these patterns have changed. In the United States, fresh strawberries are primarily grown in California, (roughly 90 percent annually), followed by Florida. California produces strawberries year-round, however the majority of the State's volume is harvested between March and October (figure SA1). Florida's strawberry season typically begins in December and goes through March.


Source: USDA, Agricultural Marketing Service, Market News, Movement Data.

With the use of newer varieties, the U.S. strawberry season in both States expanded. Higheryielding varieties have been in widespread use in California since 2014. Production increased primarily from July to October. In Florida, one of the more popular varieties is Florida Radiance, producing strawberries in the winter and early spring. Recently, the University of Florida Breeding and Genetic program developed the Florida Brilliance, known for its glossy look, which yields strawberries earlier. With this variety, the Florida strawberry season now begins in November—albeit with relatively small volumes.

Only one U.S. strawberry production area declined from 2000 to 2019 (figure SA2). In the early 2000s, production in California typically began in the southern region (Orange, San Diego, Coachella) and moved up to Central California (Santa Maria and Salinas-Watsonville) as temperatures increased. At that time, Oxnard was a very small production area with shipments of less than half a million pounds. By 2019, production increased in the Oxnard district while it declined in the southern district. Many growers reduced plantings in the southern district due to factors including rising land costs, new commercial developments, and increased early season competition. In 2019, Oxnard strawberry shipments reached 273 million pounds and in the southern district production declined from over 300 million pounds in 2000 to 5 million pounds in 2019. Oxnard and Southern California regions have similar shipment patterns throughout the year in the winter/spring and fall season and therefore face the same competition from Mexico however land prices are much lower in the Oxnard area.


The United States augments domestic supplies of strawberries by imports, primarily in the winter months. Virtually all U.S. fresh strawberry imports are from Mexico (99 percent) during the winter and early spring. Strawberries are produced in two regions of Mexico: Baja California and Central Mexico (including the states of Michoacán, Guanajuato, Jalisco, and Mexico). Historically, fresh imports from Mexico came from Baja California. Demand for strawberries in the winter months led to the increase in production in Central Mexico. In early 2010s, plantings increased in Michoacán due to labor availability and good climate. The introduction of high tunnel structures allowed production to expand rapidly there.

In 2019, U.S. fresh strawberry imports from Mexico were a record high (406 million pounds) increasing steadily since 2000, and up 15 percent from the previous year (figure SA3). Central Mexico, the major strawberry production area in Mexico, produces mainly in the winter, the same production window as Florida. Therefore, Mexico and Florida directly compete in the winter strawberry market. These shipments also compete with early season California production.

Figure SA3
Fresh strawberry import volume and import share of availability, 2000-2019


Source: USDA, Economic Research Service calculations using U.S. Department of Commerce, Bureau of the Census data.

Fresh strawberries have a short shelf life and strong seasonal prices. Grower and consumer prices follow similar price patterns. High demand for fresh strawberries for holidays and social events also influence price patterns. On average, prices are higher in the winter/early spring and lower as more supplies enters in the U.S. market (figure SA4). High prices in these months will continue to encourage growers who can grow during these seasons to increase production, likely further shifting supply and price patterns.


[^0]
## Suggested Citation

Kramer, Jaclyn, Skyler Simnitt, and Linda Calvin, Fruit and Tree Nuts Outlook: March 2021, FTS-372, U.S. Department of Agriculture, Economic Research Service, March 30, 2021.

Use of commercial and trade names does not imply approval or constitute endorsement by USDA.
In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.
To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at How to File a Program Discrimination Complaint and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.


[^0]:    Source: U.S. Department of Labor, Bureau of Labor Statistics

