



PGIM REAL ESTATE

AGRICULTURAL FINANCE & INVESTMENTS

U.S. AGRICULTURE & TIMBER MARKET UPDATE

2021





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EXECUTIVE SUMMARY

- The National Council of Real Estate Investment Fiduciaries, or NCREIF, Farmland Index (NFI) ended 2020 with a total market value of \$12.3 billion — an increase of 7.9% over year-end 2019. The farm properties comprise 904 row crop properties with a market value of \$7.4 billion and 280 permanent planting properties with a market value of \$4.9 billion.
- Total NFI returns for 2020 were 3.08% — down 173 basis points from last year, comprising 3.29% income and minus 0.20% appreciation returns. That total NFI performance for 2020 yielded the lowest annual return since 2001 based on impacts caused by the COVID-19 global pandemic and low commodity prices. In the permanent cropland category, total returns for 2020 were 1.27% — down 421 basis points from the previous year and comprising 3.01% income and minus 1.70% appreciation. In the row crop category, total returns for 2020 were 4.20% — down 20 basis points from 2019 and comprising 3.39% income and 0.79% appreciation returns. From a commodity perspective, the NFI's performance for annual row crops and pistachios had positive total returns — at 3.53% and 15.28%, respectively, and almonds (minus 0.88%), apples (minus 7.47%) and wine grapes (minus 2.75%) experienced negative total returns.
- The COVID-19 pandemic greatly affected the agriculture economy in 2020. There were labor shortages, disruptions in the logistics supply chain and, perhaps most significant, the impact on pricings of crops destined primarily for the U.S. food service and hospitality sectors such as lemons and avocados. The overall share of consumer spending on food at home (food obtained at grocery stores, supercenters and other retailers) as a share of total U.S. food spending rose in 2020 to levels as high as 66% of overall spending as the pandemic altered food-spending patterns.
- Tariffs and trade agreements continue to affect farm income. However, there does appear to be some optimism because commitments based on the Phase One agreement with China are being implemented. The U.S. Department of Agriculture (USDA) said in October 2020 that China had purchased 71% of the target under the agreement. According to the Office of the U.S. Trade Representative, President Biden is expected to keep tariffs in place for now with China.
- U.S. agricultural exports in fiscal year 2021 are projected to be a record \$157.0 billion — up \$21.3 billion from fiscal year 2020 — which will be driven primarily by expected higher exports of soybeans, corn, wheat and cotton, according to recent USDA projections. U.S. agricultural exports to China are forecast to be a record \$31.5 billion, and China is expected to remain the largest U.S. agricultural market, followed by Canada and Mexico.
- In the Midwest, farmers experienced an overall good growing season, with the exception of rare windstorms in mid-August 2020 that damaged 14 million acres of corn and soybean fields primarily in Iowa. Because of tight global supplies and strong export demand from China, corn and soybean prices are projected to reach seven-year highs. The USDA is projecting a record 180.3 million corn and soybean planted acres in 2021.

EXECUTIVE SUMMARY (CONTINUED)

- According to the USDA, total Florida processed orange production for the 2020/21 crop season is now projected at 54 million boxes — down 6% from the initial forecast in October 2020 and down 20% from the 2019/20 crop season. Most of the decline is being observed in early-season oranges, which have continued to have significant fruit drop throughout most of the state’s citrus groves, as reported by several growers. Because of lower domestic production and less imports from Brazil and Mexico, pricing is expected to be up from last year, with the pricing of early- and midseason varieties forecast at \$1.69 per pound solid, and Valencias forecast at \$2.31 per pound solid for the 2020/21 season.
- For the 2020/21 marketing year, the USDA estimates U.S. tree nut production of almonds, walnuts and hazelnuts will be up from last year because of increased bearing acreage.
- Green initiatives are driving organizations to find more-efficient, sustainable and ecofriendly ways of producing their products with a view to reducing greenhouse gas emissions in order to help offset the impact of climate change. Agriculture production is a natural place to start implementing carbon sequestration because healthy soils are made up of organic matter (carbon), and the plants grown in the soil pull carbon dioxide from the atmosphere. Carbon-trading platforms are evolving that enable growers to sell carbon credits for every ton of carbon sequestered.
- Farmland has the potential for alternative uses that would generate higher investment returns. Renewable-energy opportunities continue to interest companies focused on enhancing their clean energy strategies. PGIM Real Estate has learned of interest in solar easements, leases, or outright purchases of the row crop land it manages.



EASTERN REGION

Our Overview of the Agricultural Real Estate Market

The COVID-19 pandemic has affected Florida agriculture — primarily vegetable growers who were major sellers to the food service industry. The pandemic caused many of the producers that were selling to food service companies to market their crops to grocery stores instead in order to capture the increased demand from the work-from-home environment. Florida agriculture experienced a quiet year with regard to severe weather events. Four storms (Isaias, Laura, Sally and Eta) made close encounters with the state but did not affect citrus or other agricultural production. The 2020/21 citrus production outlook was positive, with the USDA confident that production was stabilizing; but expected yields are down 20% from the 2019/20 season, driven primarily by weather conditions that promoted fruit drop and loss of crop — especially for the early-season oranges.

The sugarcane industry was able to conclude its harvest for the 2019/20 season before the shutdowns caused by the pandemic became able to affect any of the crop's harvesting efforts. Because farming has been deemed essential business, operations for the 2020/21 season could continue, and the crop is expected to increase from the previous season. Domestic sugar policy continues to prevent massive dumping of foreign sugar into the United States, thereby enabling producers to operate in a better pricing environment for both raw and refined sugar.

Georgia pecan production was able to rebound from the hurricane years of 2018/19, and pecan production quantity and quality increased for the 2020 harvest. Initial concerns arose around Chinese demand for U.S. exports with regard to Chinese New Year, ongoing social restrictions and continued tariffs. But those concerns have been mostly put to rest because China's appetite for U.S. pecan exports increased 76% to 27 million pounds season to date (September 2020 – February 2021) from the prior year.

Because of the pandemic's shifting many Americans to spend more time at home, consumers have become more health conscious in an effort to stay free of illness from COVID-19. There has been an increased awareness of the benefits of vitamin C and its direct contribution to a healthy immune system. The consumer trend toward healthier foods coupled with food services' closings has driven consumers to spend more time at the grocery store. As a result, orange juice sales in the retail sector have increased. In fact, demand has increased for all varieties of juice such as orange juice, lemonade and other citrus juices on the market. The latest Nielsen reports for the 2020/21 season show that 35 million gallons of orange juice have been sold, which represents a 10% increase over the 2019/20 season.¹

Farmland values in Florida continue to hold steady. Few transactions of note occurred in 2020 because worries about the pandemic and the 2020 presidential election created uncertainties about the land market.



CITRUS

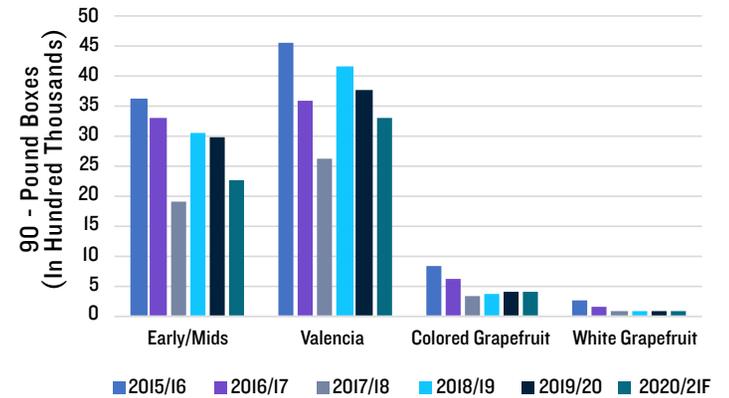
An Overview of the Eastern U.S. Orange Market

Florida orange production for the 2020/21 season is forecast at 54 million boxes — down 20% from the 2019/20 season (67 million boxes) and down 6% from the initial forecast. The decline in yields stems from the fact that early- and midseason varieties of oranges have experienced significant fruit drop and lower quality. The fruit drop is driven by warmer temperatures, is caused by above-average rainy conditions in the fall of 2020 and is exacerbated by the greening disease affecting trees' health, which lowers trees' ability to hold fruit. Florida continues to be the top producer of juice oranges in the United States, with an estimated harvest of Valencia oranges of 33 million boxes — down 12.4% from the previous season. The harvest of non-Valencia oranges for the 2020/21 crop is estimated at 22.5 million boxes — down 24.1% from the previous season because of heavy fruit drop that occurred in early varieties of oranges.²

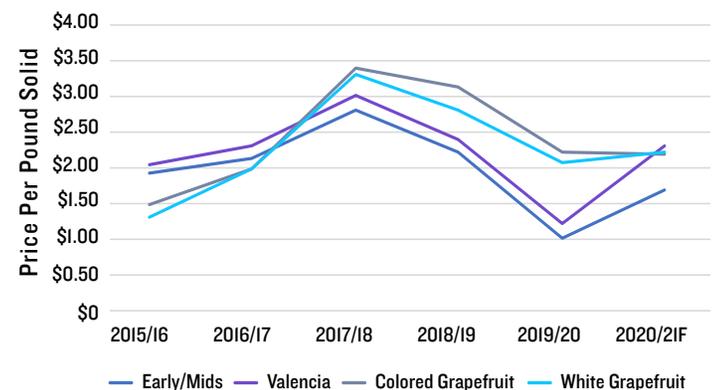
The 2019/20 pricing of juice oranges fell below the 10-year average price of \$1.85 per pound solid for early and mids and below \$2.11 per pound solid for Valencias. The 2019/20 season end pricings were \$1.02 for early and mids and \$1.23 for Valencias. The large price decrease was attributed to large juice inventory held in storage by processors, who carried it over from the aftermath of Hurricane Irma in 2017. With a reduced domestic crop during the year after the hurricane, juice processors bought juice from Brazil and Mexico so they would have a guaranteed supply. With the orange crop's recovery in 2019/20, many farmers who did not have long-term committed contracts were unable to enjoy prices above the 10-year average price, receiving prices not seen since 2008/09. For the upcoming 2020/21 season, foreign juice inventory is expected to be lower, coupled with a slight increase in consumption based on perceived health benefits of orange juice propagated by the pandemic. For the 2020/21 season, early and mids pricing is forecast at \$1.69 per pound solid, and Valencias are forecast at \$2.31.³

The USDA projects 2020/21 grapefruit production will be 4.60 million boxes, resulting in a 5% decline from the 2019/20 season of 4.85 million boxes. Production is expected to increase as the season progresses during the first quarter of 2021, and growers expect prices of around \$2.20 per pound solid.

CITRUS Historical and Projected Production for Florida Citrus by Main Varieties, 2015/16 Through 2020/21F



CITRUS Historical Prices of Citrus by Fruit, 2015/16 Through 2020/21F



Source: USDA, NASS, Florida Citrus Mutual, PGIM Real Estate Research



SUGARCANE

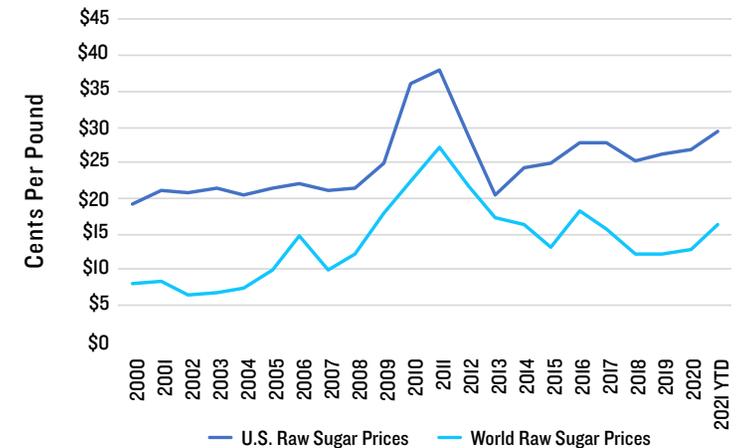
An Overview of the Eastern U.S. Sugarcane Market

The 2020/21 Florida harvest of sugarcane started in October 2020 and is expected to finalize by May 2021. Projected production for the season is 1.93 million metric tons raw value (MMTRV) based on favorable growing conditions in Florida, which are enabling producers to attain a higher yield of 48.1 tons per acre higher than the national average of 37.6 tons per acre. Because of domestic policy that implements marketing allotments, tariff-rate quotas and indirect price supports, the 2020 average price of raw sugar in the United States was 26 cents per pound versus the world price of 12 cents per pound. Projections for 2020/21 show that the price of raw sugar will see a small increase both domestically and worldwide driven by rising consumption.⁴

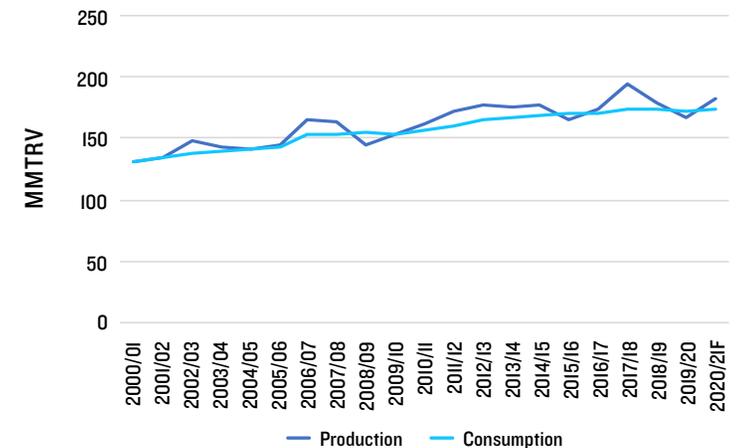
U.S. consumption continues to climb to 11.0 MMTRV for 2020 compared with 10.8 for 2019, which can be attributed to the diets of Americans who favor sugary foods. U.S. consumption overshadows U.S. production, leaving an average deficit of 2.8 MMTRV for 2019/20 of sugar that has to be imported into the country to meet demand (imports account for 26% of total domestic sugar supply). U.S. sugar consumption consists of 37% as packaged sugar, 23% in bakery and cereal products, 11% in confectionary goods, 15% in processed foods, 7% in dairy products and 7% in beverages.⁵

Global production for the 2020/21 marketing year is forecast at 182 MMTRV because of higher production in Brazil, India, the European Union (EU) and Thailand. Brazil's production is expected to be 42 MMTRV because of favorable weather conditions. Approximately 48% of the sugarcane harvested will be processed for sugar, with the remaining 52% allocated to ethanol processing. India and Thailand are also experiencing favorable growing conditions because of above-average water reservoir levels that are boosting yields and cane extraction rates. The EU is forecast to grow 2.5% more sugar at 17.7 MMTRV despite a reduction in overall growing areas. Consumption in those countries continues to grow as consumers demand more and more sugary foods.⁶

SUGARCANE Historical U.S. and Global Sugar Prices, 2000 Through 2021YTD



SUGARCANE Historical Global Sugar Production and Consumption 2000/01 Through 2020/21F



Source: USDA, ERS, PGIM Real Estate Research



PECANS

An Overview of the Eastern U.S. Pecan Market

Georgia pecan production was able to avoid catastrophic damage from hurricanes during the 2020 season. Georgia growers harvested 142 million pounds of pecans from 129,000 acres (32% of U.S. bearing acreage of 402,000 acres), which represented a 94% increase in production and a return to production levels observed before Hurricane Michael (2018) and Hurricane Irma (2017). Pecan trees undergo an alternate bearing cycle after a severe weather event, which is what occurred with a lighter crop in 2019 — the year after the storm — followed by a heavier crop in 2020. U.S.-utilized production in 2020 totaled 302 million pounds — an increase of 18% over 2019.⁷

Prices have been lower than anticipated because the Asian market has been relatively slow and the gift-fruit market has been affected by the pandemic.⁸

Prices in 2020 ranged from \$0.60 to \$2.40 per in-shell pound based on the variety and size of pecans, according to the University of Georgia Extension. The weak price environment raises challenges from a marketing standpoint, with growers preferring to store their production for a few more months to see whether prices rebound in the early part of the year. Shelled imports were down 63% from October 2020 to January 2021, caused mainly by a drought in Mexico that affected the supply. Meanwhile, the same period saw an 18% increase in in-shell pecan exports. China is still the top market for U.S. pecans, because it makes up over 70% of the in-shell export market — a 75% increase from the prior year.⁹

Total imports were 188 million in-shell pounds, which represents a 10% decrease from the prior season, most of which are coming from Mexico. In the case of exports, an estimated 31 million in-shell pounds have been shipped this season — up 1% from the same period during last season. The United States exported the most pecans to Mexico in the 2019/20 season, at 58 million pounds. Shipments to China accounted for 15% of all exports in terms of volume for the past season.

No major transactions in the real estate pecan industry occurred during 2020.

PECANS U.S. Price per Pound of Pecans In Shell, 2011/12 Through 2020/21F



GEORGIA PECAN PRODUCTION

142M

**POUNDS PRODUCED
IN 2020**

Production in Georgia is expected to see a 94% increase from 2019, which would be a return to production levels observed before Hurricane Michael and Hurricane Irma. Georgia production accounts for 47% of total U.S. production.

+2%

INCREASE FROM 2019

U.S. PECAN-BEARING ACREAGE

Bearing acreage of pecans in the United States reached 402,000 acres in 2020.



BLUEBERRIES

An Overview of the Eastern U.S. Blueberry Market

The estimated 2020 total U.S. blueberry production was 627 million pounds — down 6% from the 2019 record year for domestic production.⁹ Fully 93% of North American blueberry production comes from eight states: California, Florida, Georgia, Michigan, New Jersey, North Carolina, Oregon and Washington. The North American blueberry harvest season begins in early March and runs until mid-October. Florida blueberries arrive on the market first, starting in March and running through May, and Georgia blueberries enter in April followed by the rest of the states.¹⁰ Consumption of fresh blueberries has grown significantly, increasing by 510% from 0.33 pounds per capita in 2002 to 2.02 pounds per capita in 2019 based on the perceived health benefit of consuming fruits with higher antioxidant properties. According to Rabobank, U.S. per-capita consumption is expected to grow at a compound annual growth rate

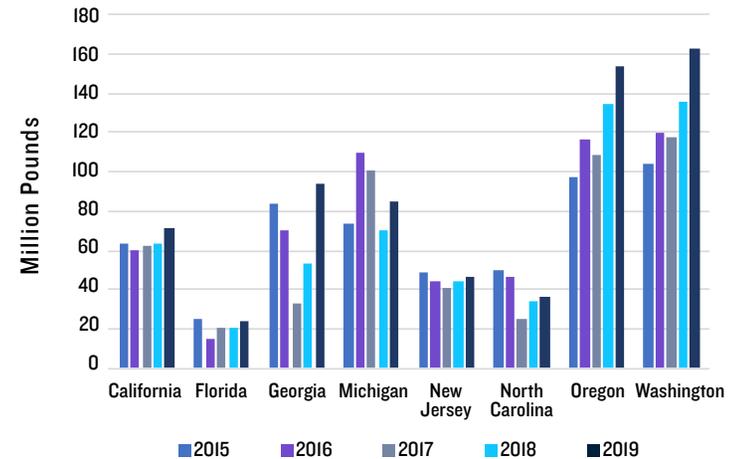
of about 5% to 6% during the 2021–25 period.¹¹

In 2020, U.S. fresh blueberry imports increased to a record 473 million pounds and has increased by 55% during the past four years. To meet the increased domestic demand, 80% of blueberry imports come from Peru, Mexico and Chile. The increase in production in those areas can be attributed to (1) new cultivars of berries that are acclimated to the regions and (2) foreign investors seeking new land to devote to blueberry production. Most of these berries are entering the market from January to March — during the off-season for U.S. blueberries.¹²

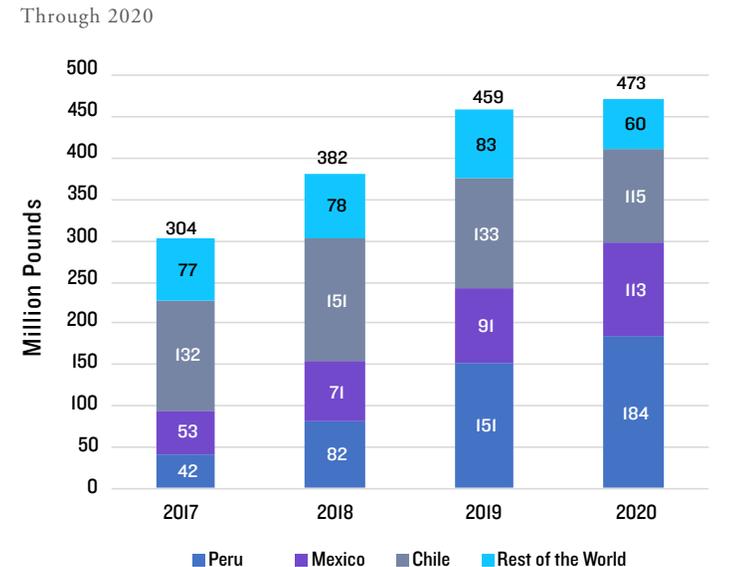
In 2020, U.S. fresh blueberry exports amounted to 59 million pounds — a decrease of 26% from 2019. Canada accounted for 91% of exports in 2020. U.S. blueberry prices have stayed consistent during the past 20 years, ranging from \$1 to \$2 per pound. New horticultural practices and improved varieties have increased the levels of competition. Florida’s prices were once more than \$6 per pound but dropped to around \$2.64 per pound in 2019 because Georgia, Chile and Mexico began overlapping harvests with Florida. Florida blueberry producers are seeking new horticultural practices to peak earlier in the season with higher yields.¹³

BLUEBERRIES Top U.S. Producers of Blueberries, 2015 Through 2019*

*2020 data not available



BLUEBERRIES U.S. Fresh Blueberry Imports by Country, 2017 Through 2020



Source: USDA NASS, ERS



CENTRAL REGION

Our Overview of the Agricultural Real Estate Market

Across the corn belt, land values changed very little in 2020. Illinois saw the largest value increase: 1.6% to \$7,400 per acre. Iowa saw a decline of 1.7% to \$7,070 per acre. Overall, cropland value in the corn belt averaged \$6,350 per acre in 2020. The average cropland rental rate in the corn belt was \$202 per acre in 2020, representing a minus 0.5% decline from the previous year. Farmland in the mid-South was steady to slightly stronger, with Texas seeing the largest increase: 2.4% to \$2,170 per acre. Cropland value across the United

States averaged \$4,100 per acre in 2020, which matches all-time highs previously seen in 2015 and 2019.

Land values in the Delta states of Arkansas, Louisiana and Mississippi held fairly constant from 2019 to 2020, increasing only 1%. Average land value in 2020 was \$3,130 per acre across those Delta states. The highest value per acre is in Arkansas, at \$3,350, followed by Louisiana at \$3,160 per acre and Mississippi at \$2,820 per acre. From 2019 to 2020, Louisiana saw the highest increase in land value — 1.3%; and Arkansas and Mississippi saw increases of only 0.9% and 0.7%, respectively. Along with an increase in land values, average cropland rental rates in 2020 increased by 2.8% to \$115 per acre.¹⁴

Land sales in the central regions have remained strong, with land values supported by recent rises in crop prices coupled with a favorable interest rate environment. Looking ahead, a rise in rental rates can be expected because of the strong prices.



CORN

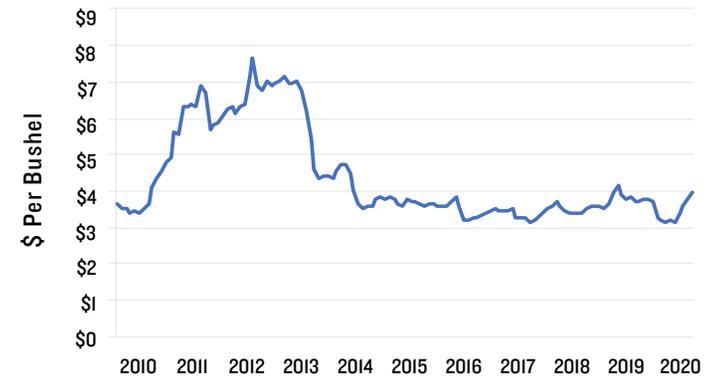
An Overview of the Central U.S. Corn Market

In 2020, corn harvest yields saw an increase of 4.5 bushels per harvested acre compared with 2019. Average corn yield was estimated at 172.0 bushels per acre — up from 167.5 in 2019 but below 2017’s record yield of 176.4. Slightly increased planted acreage in 2020 of 90.8 million acres contributed to total production of an estimated 14.18 billion bushels, which was higher than the 13.62 billion bushels produced in 2019. Ending stocks, because of increased exports and lower beginning stocks, are expected to decrease to 1.55 billion bushels for 2020/21 — down from the 1.92 billion bushels that began the 2020 marketing year. Exports in 2020 increased an estimated 772 million bushels from 2019 to 2.55 billion bushels. The season-average farm price received for corn is projected to be \$4.20

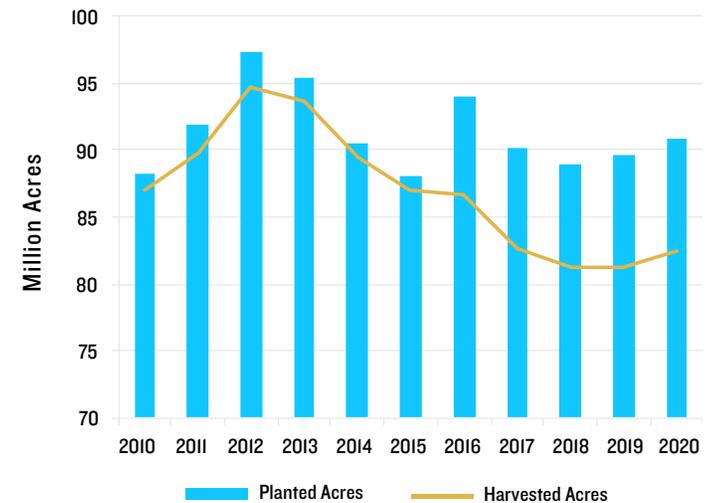
per bushel — an increase of \$0.64 above the average price in 2019. The 18% increase in projected farm price received is due to tight global supplies and strong export demand from China.¹⁵

Global competition from major exporters is a continuing trend. Exports from major competitors Argentina and Brazil increased slightly — from 2.78 billion bushels in 2019/20 to an estimated 2.87 billion bushels in 2020/21. Production in both countries increased in 2019, resulting in the increased exports in 2020. The 2019 production is estimated to have increased by 40 million bushels, from a previous record of 5.98 billion bushels in 2018, to 6.02 billion bushels in 2019. Projected production for Argentina and Brazil in 2020/21 is expected to increase even further to 6.16 billion bushels. This is anticipated to cause continued competition with the U.S., as exports from Argentina and Brazil are projected to be 2.87 billion bushels in the year ahead. China is projected to increase imports by 390 million bushels, to 689 million bushels in 2020.¹⁵

CORN Average Monthly Price Received by U.S. Farmers for Corn, January 2010 Through December 2020



CORN Historical Planted and Harvested Corn Acres in the United States, 2010 Through 2020



Source: USDA, NASS, PGIM Real Estate Research



SOYBEAN

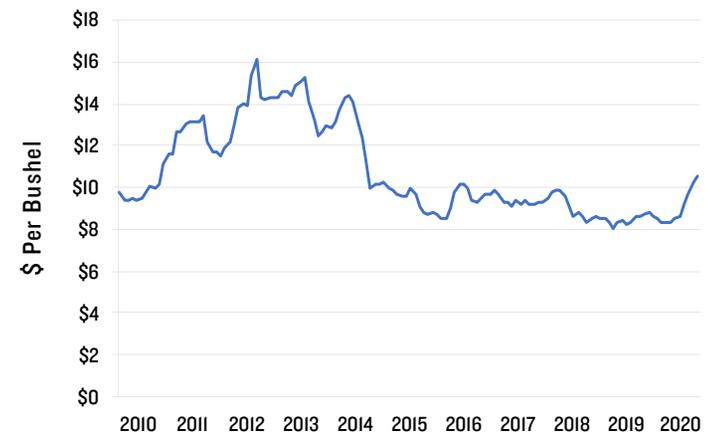
An Overview of the Central U.S. Soybean Market

The 2020 soybean crop is estimated to finalize at 4.14 billion bushels, reflecting a 17% increase over the 2019 crop. Soybean acreage rebounded from 76.1 million acres in 2019 to 83.1 million acres in 2020 partly as a result of better weather during the planting season compared with 2019. Yield per harvested acre is projected at a near-record 50.2 bushels per acre — slightly below the 2018 record of 50.6 bushels per acre but above the 47.4 bushels per acre achieved in 2019. Ending stocks decreased to an estimated 140 million bushels in 2020 from 525 million bushels in 2019. Despite near-record yields, an increase in export demand caused a decrease in projected ending stocks — well below 2018’s near-record high of 909 million bushels.¹⁵

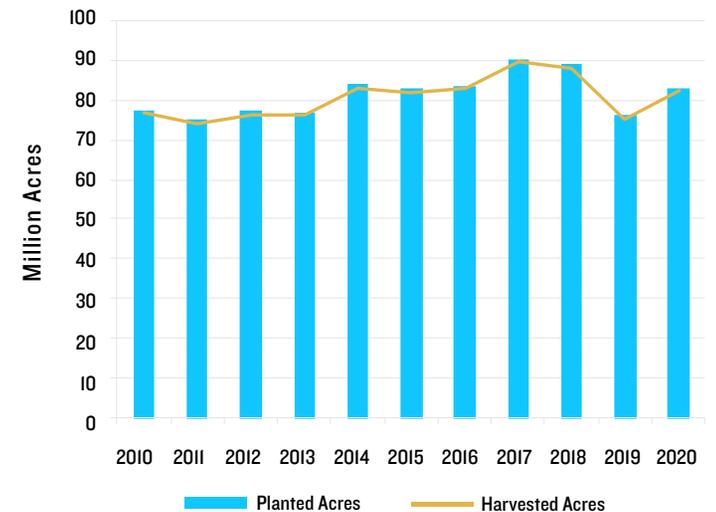
U.S. prices have strengthened significantly with the help of increased export demand. The 2020/21 season average farm price for soybeans was projected at \$11.15 per bushel — an increase of \$2.58 from the 2019/20 average farm price of \$8.57 per bushel. In 2020/21, the domestic stocks-to-use ratio is projected to decrease to 3.1% — down significantly from 13.3% in 2019/20. This was caused mainly by an increase in projected exports in 2020/21, rising from 1.68 billion bushels in 2019/20 to 2.23 billion bushels in 2020/21.¹⁵

Domestic demand has remained active, with U.S. soybean crushing for oil and meal projected to set a record at 2.2 billion bushels — up 35.0 million bushels from last year’s record.¹⁵ Planted acreage for soybeans will be watched closely by the market because prices hinge on projected supply and anticipated export demand.

SOYBEANS Historical Average Monthly Price Received by U.S. Farmers for Soybeans, January 2010 Through December 2020



SOYBEANS Historical Planted and Harvested Soybean Acres in the United States, 2010 Through 2020



Source: USDA, NASS, PGIM Real Estate Research



WHEAT

An Overview of the Central U.S. Wheat Market

Production for the 2020/21 crop year is projected at 1.83 billion bushels — a 5.5% decrease from the estimated 2019/20 production of 1.93 billion bushels as a result of lower average yields and lower planted acres. Wheat acreage is projected to decrease by 2.6% — from 45.5 million acres estimated in 2019/20 to 44.3 million acres in 2020/21. Average yields are projected to decrease by 4% to 49.7 bushels per acre. Lower production estimates are resulting in higher prices, with a projected average farm price of \$4.85 per bushel for the 2020/21 crop, which reflects a 6% increase over last year’s average farm price of \$4.58 per bushel.¹⁶ U.S. winter wheat acres are projected to be 31.9 million acres in 2021 — an increase of 4% over the 2019/20 acres

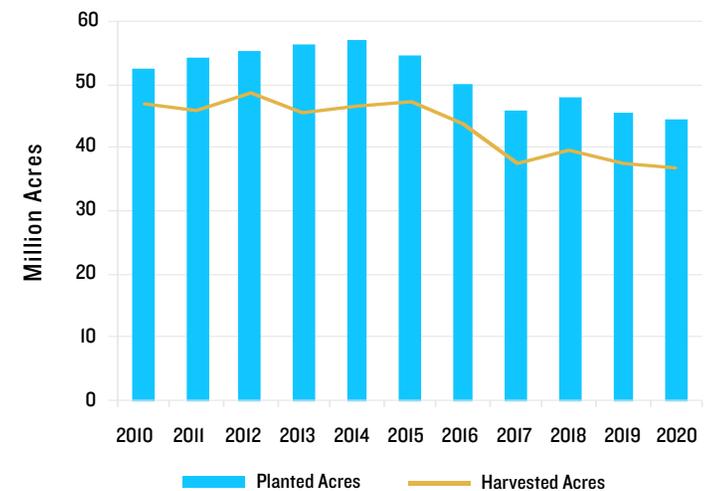
planted, which was the lowest number of acres in 110 years.¹⁵

Wheat production globally is projected to be 28.4 billion bushels in 2020/21 — an increase of 0.3 billion bushels over the 2019/20 estimate. The United States is projected to increase exports in 2020/21 by 20 million bushels. Projected production in China and Argentina is reduced but is offset by increased production in Russia. Demand for wheat continues to remain strong in China and the United States for feed and residual use, supporting competitive prices. Higher wheat prices also support a projected increase in consumption in China. Global ending stocks are projected to increase to 602 million bushels in 2020/21 from the estimated 2019/20 ending stocks of 11 billion bushels with increased production.¹⁵

WHEAT Historical Average Monthly Price Received by U.S. Farmers for Wheat, January 2010 Through December 2020



WHEAT Historical Planted and Harvested Wheat Acres in the United States, 2010 Through 2020



Source: USDA, NASS, PGIM Real Estate Research



COTTON

An Overview of the Central U.S. Cotton Market

The USDA projects that the United States will produce 14.4 million bales of cotton in 2021, which is down 25.1% from the 2020 crop season estimation. It is estimated that in 2020, 13.7 million acres of cotton were planted, with only 11.61 million acres harvested. Planted acres are projected to decrease in 2021 to 12.1 million — the lowest in four years because of strong competition from soybeans, corn, peanuts and grain sorghum. In 2020, 8.7 million acres are projected to be harvested; the abandonment rate climbed to 28% in 2020 because of weather conditions. Yields in 2021 are projected to be 825 pounds per acre and relatively flat from the 2020 estimated yield of 823 pounds per acre.¹⁵

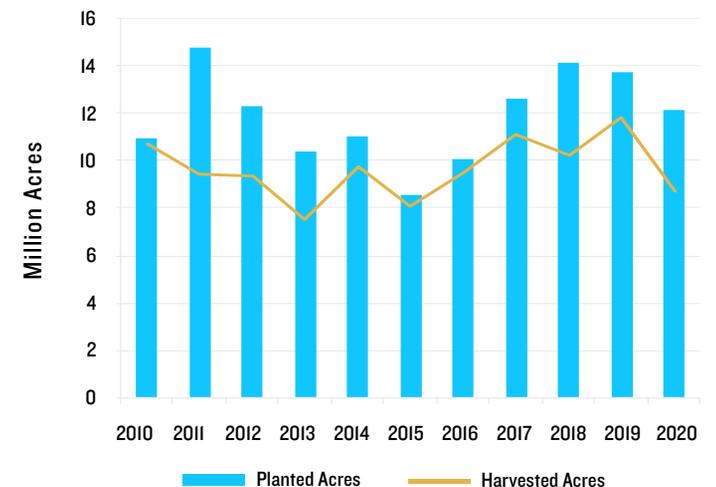
The year-end estimate for the 2020 upland cotton price is 59.6 cents per pound and projected to increase 8.4 cents per pound in 2021 based on a projected decline in production.¹⁵

The latest 2020 U.S. balance sheet for cotton shows a beginning stock projection of 7.25 million bales, which is up 49.5% from 2020's beginning cotton stocks estimation as a result of higher production in 2019. The 2021 stocks-to-use ratio for cotton is projected at 26.2%, which is down from 40% in 2020. U.S. cotton exports of 15.25 million bales projected for 2021 are down 1.8% from 2020. Global cotton ending stocks are projected to be 97.52 million bales in 2021, which is lower than the projected 99.28 million bales at year-end 2020.¹⁷

COTTON Historical Average Monthly Price Received by U.S. Farmers for Cotton, January 2010 Through December 2020



COTTON Historical Planted and Harvested Cotton Acres in the United States, 2010 Through 2020



Source: USDA, NASS, PGIM Real Estate Research



RICE

An Overview of the Central U.S. Rice Market

Planted rice acres in 2020 are estimated at 3.04 million, which is up 19.7% from 2019. Harvested rice acres are estimated at 2.99 million for 2020 — up 21% from 2019's 2.47 million. Total U.S. rice production forecast for 2020 is 227.6 million hundredweight (cwt) — up 23% from 2019. Average rice yields across the United States were up 2.0% in 2020 compared with average U.S. rice yields in 2019.¹⁸

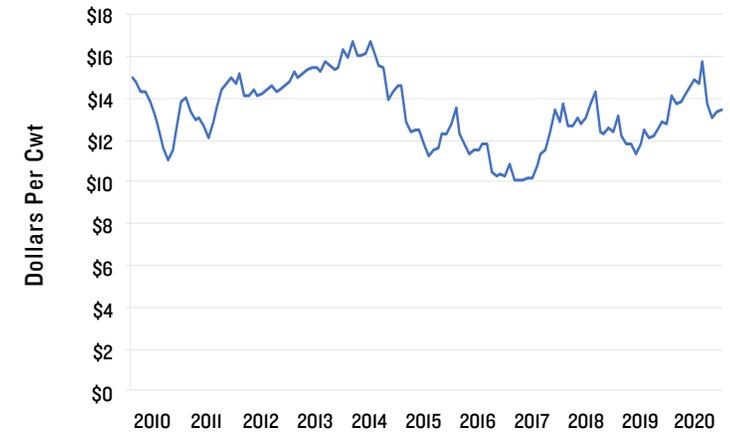
U.S. ending stocks for all rice are projected at 38.4 million cwt for 2020/21, which is an increase of 9.8 million cwt, or 34.3%, from 2019 ending rice stocks. Long-grain-rice ending stocks are projected at 26.3 million cwt for 2020/21, which is up 92% from 2019 and marks the highest ending stocks

for long-grain rice for the past five marketing years. In contrast, 2019's ending stocks were at the lowest level in the same time frame. The drastic increase in long-grain-rice ending stocks is caused by a combination of the 9.4% increase in U.S. long-grain-rice supply in 2020/21 from 2019/18 and the 5.3% decline in total rice use from 2019/20 to 2020/21. Total rice use in 2020/21 actually declined from 169 million cwt in 2019/20 to 160 million cwt in 2020/21.¹⁸

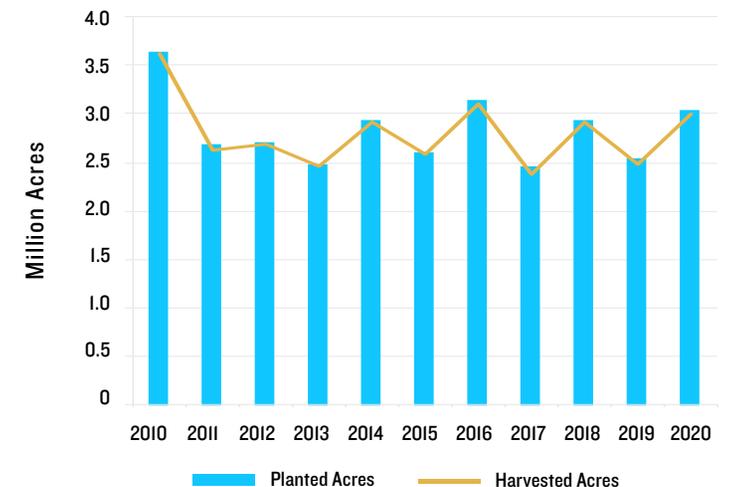
The 2020/21 U.S. all-rice marketing-year average price is estimated at \$13.20 per cwt — down 2% from the 2019/20 all-rice marketing price at \$13.50 per cwt. U.S. long-grain-rice price is projected at \$12.00 per cwt for 2019/20 compared with \$10.80 per cwt in 2018/19, which is an increase of 13%. U.S. medium-grain and short-grain-rice prices are projected at \$16.30 per cwt compared with \$17.60 per cwt in 2018/19.¹⁵

Because rice was exported to China in 2020 for the first time, 2020 was a breakthrough year for U.S. rice exports. Going forward into 2020/21, total exports are expected to decrease to 94 million cwt. Imports are projected to decrease 3% from 2019/20 to 36.2 million cwt because domestic use is projected to be higher.¹⁵

RICE Historical Average Monthly Price Received by U.S. Farmers for Rice, January 2010 Through December 2020



RICE Historical Planted and Harvested-Rice Acres in the United States, 2010 Through 2020



Source: USDA, NASS, PGIM Real Estate Research



WESTERN REGION

Our Overview of the Agricultural Real Estate Market

In most respects, 2020 started out as a “normal” year, including an anticipated uptick in real estate activity that pivoted significantly in the last part of the first quarter and most of the second quarter as the magnitude of the worldwide health pandemic became evident. It was not until the third quarter that some semblance of actual normalcy returned to the marketplace, albeit still subdued in most areas. Pent-up institutional demand coupled with the usual lag time between commodity pricing and underlying land values helped steady most of the permanent crop values with good water profiles.

Even though demand for most commodities has been strong, pricing trended downward in 2020 attributable mainly to ongoing trade uncertainties

and impacts of the health pandemic. Buoyed by strong shipments, logistics notwithstanding, nut commodity pricing has firmed up through some recent recovery. Lemon pricing was hit particularly hard when demand plummeted because the food service industry effectively closed due to COVID-19 lockdowns throughout the country.

In California, a divergence in land values that began in 2019 accelerated in 2020 as the market gained more clarity on the impacts of the Sustainable Groundwater Management Act. Real estate values for plantable land in good water areas rose dramatically in 2020. Land with surface water has been noted to trade up to 40% more than land without adequate water—especially in Fresno and Madera Counties. Permanent crop properties trading in a fairly narrow bandwidth coupled with an increase in underlying land values created an inverted development curve for many commodities.

In Washington and Oregon, overall real estate activity was a little slower, with values generally static compared with the prior year—with one exception. Cherry orchard prices strengthened in 2020 from a sharper institutional focus. High-density apple orchards with consumer-favored varieties are not widely traded, which has resulted in increased redevelopment activity.

The theme for the wine grape market in 2021 is “uncertain.” Although that’s not what investors want to see, it’s an improvement from the 2020 theme of “pivot,” which proved to be a frustrating and costly experience. Bearing acreage is in flux, and pricing is beholden to a seller’s outlook on the market. Much of the uncertainty will be put to rest by termination of the second quarter once further insights can be gleaned on crop load, which will create greater confidence in the wine grape vineyard market.



WINE GRAPES

An Overview of the Western U.S. Wine Grape Market

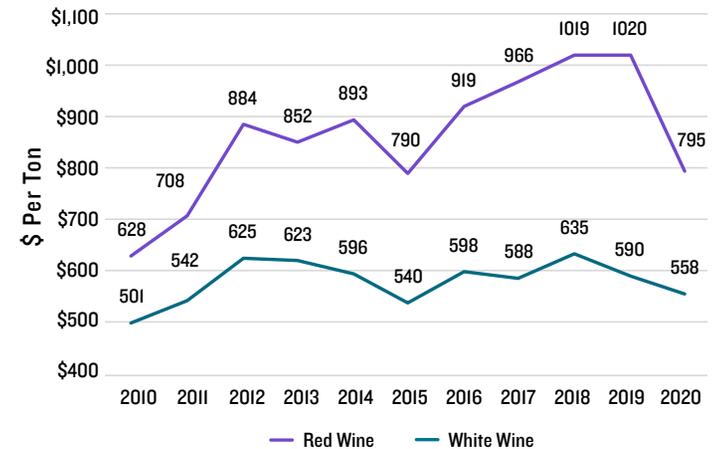
The 2020 California grape crush totaled 3.54 million tons — a 14% decline from the 4.1-million-ton harvest in 2019 and one of smallest harvests in 10 years.²⁰ Harvests in Oregon and Washington are also expected to have been smaller than usual. Going into the harvest, the California crop was expected to be at least 12% to 17% lower than 2019 levels because of adverse weather conditions in the early season.²¹ Additional grapes were lost because of smoke taint from wildfires that ravaged California during the late season. Wine industry financial losses from the fires are currently estimated at \$3.7 billion, which includes losses of property, wine inventory, grapes and future wine sales.²¹

The lower crush is expected to bring supply and demand back into balance after an acute oversupply fueled by oversize grape crushes from 2016–19 challenged the market.

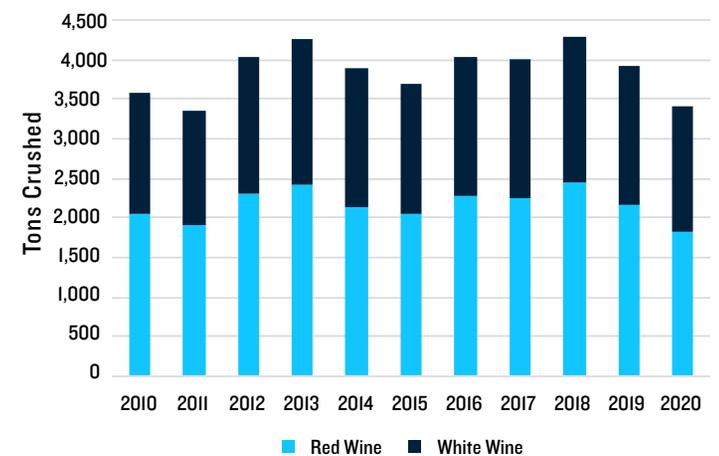
Previously, industry experts had anticipated that it would take three to six years to bring the wine grape market back into balance. Even with the market back in balance, the industry could be looking at oversupply situations in coming years if the industry consistently experiences grape crushes of over 4 million tons.²² Industry consultants have recommended that the industry either achieve higher sales growth or further remove underperforming grape acreage. Wine sales growth has been flat and is expected to remain so with the closings of restaurants and tasting rooms because of the coronavirus. The industry currently anticipates that 25% of accounts selling wine on premises will discontinue.²² Wineries have tried to pivot their direct-to-consumer strategies so as to incorporate more e-commerce because e-commerce on all domestic transactions climbed from an all-time high of 12% of total transactions in 2019 to new highs of over 35% of total transactions in the first quarter of 2020 alone.²³

Grape prices were lower in 2020: the average price of all varieties was \$678.89 — down 17% from 2019. Red wine grape prices were down 22% from 2019 levels, and white wine grape prices were down 6% from 2019.²⁰ Meanwhile, the bulk wine market has seen a dramatic increase in activity since August 2020. Bulk wine inventories have decreased substantially, leading to price increases in virtually all varieties and across nearly every region.²⁴

WINE GRAPES California Wine Grape Prices by Type, 2010 Through 2020



WINE GRAPES California Wine Grape Production, 2010 Through 2020



Sources: Wine Institute, Allied Grape Growers, PGIM Real Estate Research



TABLE GRAPES

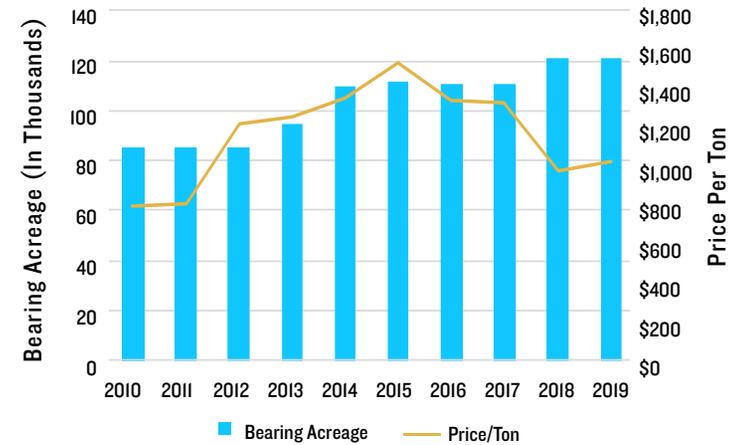
An Overview of the Western U.S. Table Grape Market

The 2020 California table grape crop is projected to be 102 million boxes — down 18% from 2019. Although difficult to confirm at this time, industry sentiment says the drop in production will likely have been caused by the replanting of acreage to more-popular varieties as a result of a shift in consumer demand. Because of the current COVID-19 pandemic, most product for 2020 was shipped to retailers and not the food service industry.²⁵ California bearing and nonbearing acreage remained stable in 2019 (most-recent USDA data available), at 121,000 acres and 9,000 acres, respectively. During the same time frame, average table grape prices increased 5% from \$9.29 per box to \$9.79 per box. California average yield per acre for 2019 was 1,027 boxes per acre, which was down 9% from 2018's yield of 1,131 boxes per acre.

China still remains the top producer of table grapes globally — accounting for approximately 43% of total global production in 2020 — followed by India and Turkey at 12% and 8%, respectively. The United States is ranked sixth globally and accounted for approximately 4% of total global production for 2020, with California constituting about 99% of total U.S. table grape production.

Chile remains America's largest importer of table grapes, but shipments were down 50% year to date in December 2020 because of the combined impacts of the pandemic and a labor shortage of fruit pickers and packers. In addition, the 2021 Chilean table grape crop has been negatively affected by unusually heavy rainfall in January that destroyed an estimated 40% of Chile's crop, which will likely lead to higher prices in the United States.²⁶

TABLE GRAPES Historical Bearing Acreage and Price per Ton, 2010 Through 2019



-18%
FROM 2019

CALIFORNIA TABLE GRAPE PRODUCTION

The 2020 California table grape crop is projected at 102 million boxes.

\$9.79
PER BOX
FOR 2019

CALIFORNIA TABLE GRAPE PRICES

Prices of table grapes saw an increase of 5% over the prior year.



AVOCADOS

An Overview of the Western U.S. Avocado Market

The 2020/21 California avocado crop year is considered an off year and is estimated to be 292 million pounds. That estimate is considered to be in line with an average crop year. The 2019/20 crop finalized at 375.5 million pounds and was reflective of an on-year cycle. This represents an increase of 73% over the 2018/19 crop and an 11% increase over the 2017/18 crop (the previous on year). The 2019/20 growing season was considered average and quality was good, contributing to the large crop. Wind events early in the 2020/21 harvest have affected harvestable supply, with a range of sizes and quality expected to be in the market in April.²⁷

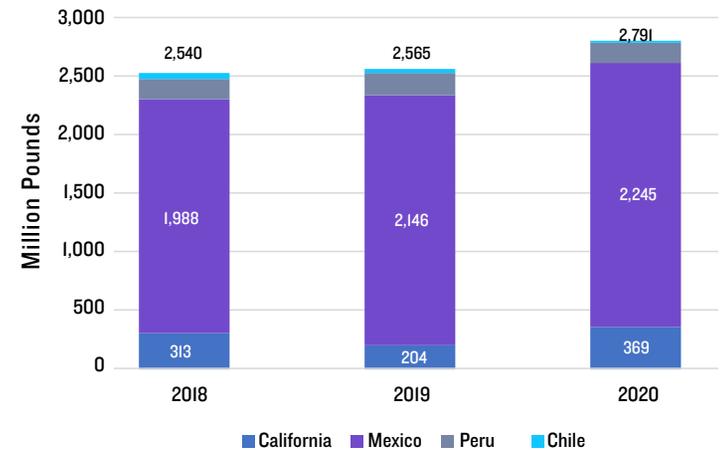
Marketers faced many unfavorable outside factors during the year, with the most major

being COVID-19 and a shift in consumption from food service to grocery stores. It is expected that that dynamic will continue well into 2021 with targeted marketing campaigns for brands and reaching consumers at home.

For the 2020 calendar year, avocados grown in California represented 13% (369 million pounds) of the U.S. avocado volume (2.79 billion pounds). Mexico represented roughly 80% (2.24 billion pounds) of volume in the United States. California growers typically enter the market in July and August, when Mexico is unable to keep up with U.S. demand. In 2020, avocados from Peru entered the domestic market in July and August, for a total-year import of 171 million pounds. And even though only a small percentage of total demand, it is worth monitoring the volume over time because it competes directly with California avocados.²⁸

U.S. consumers continue to show strong demand for avocados by absorbing large supplies. However, the large crop contributed to average pricing for the year to be \$1.10 per pound, which was significantly lower than the \$1.72 per pound for the prior year but not out of line for a typical on-year crop.

AVOCADOS Historical Avocado Production by Country, 2018 Through 2020



292M

POUNDS EXPECTED FOR 2020/21 CROP YEAR

CALIFORNIA AVOCADO PRODUCTION

California avocado production in California is expected to decline 22% because of the alternate bearing cycle for this commodity.

\$1.10

FOR 2020

CALIFORNIA AVOCADO PRICE

Prices of avocados saw a decrease of 36% less than in 2019 because of the larger supply.



CITRUS

An Overview of the Western U.S. Citrus Market

Lemons

The 2020/21 U.S. lemon crop is projected to be 23.3 million 80-pound boxes — down 15% from last season. The 2019/20 lemon crop finalized greater than initial estimates, at 27.5 million 80-pound boxes. California is expected to produce 94%, or 22.0 million pounds, of the U.S. lemon crop, with Arizona producing the remainder. The COVID-19 pandemic affected pricing because food service demand for lemons has been low for several months. Early in the season, prices were very soft but strengthened some as businesses continue to reopen.

Valencia Oranges

The 2020/21 U.S. Valencia crop is projected to be down 7% from the prior season, at 43.2 million 80-pound boxes. Florida continues to be the leading Valencia producer, expecting to account for 79% of total output, with California making up the 21% remainder. The majority of the Valencia crop grown in California is used for fresh consumption, whereas Florida's crop is generally used for juice. California Valencia

harvest concluded at the end of October 2020 with prices stronger than the prior year.²⁹

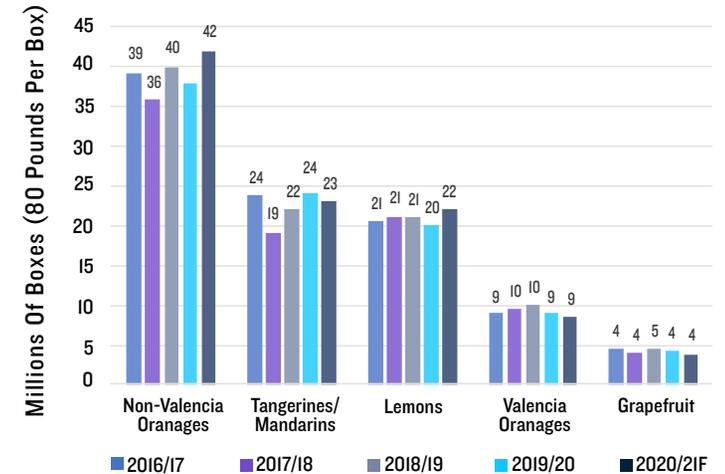
Navel Oranges

The 2020/21 California navel crop harvest began mid-October. Current estimates suggest that U.S. production should be 66.3 million 80-pound boxes — down roughly 12% in volume from last season. The California crop is anticipated to be 42 million 80-pound boxes — down 7% year over year.³⁰ California fruit sizing this year is trending favorably, and quality looks to be rather strong, with utilization around 80% for the season. Domestic pricing is averaging \$32 per box — decently higher than last season and with larger sizes capturing an \$8-to-\$10 premium.

Mandarins

The 2020/21 U.S. mandarin crop is estimated at 24.1 million 80-pound boxes — an increase of 30% over the prior season because of a significant increase in acreage. About 95% of the crop is produced in California, with the balance grown in Florida. Overall, sizing has been smaller and quality has been average — with utilization around 70% — but is expected to improve in the early part of the 2021 calendar year. Early in the season, it was reported that there was more offshore product in the market than in the previous year. This manifested in import volumes' being up 15% over last year, causing California mandarins to face this competition early in the season. California shipments did increase toward the end of the calendar year, helping make up for some but not all of the missed sales earlier.

CITRUS Historical and Projected Production for California Citrus, 2016/17 Through 2020/21F



+30%
FROM 2019/20

U.S. MANDARIN PRODUCTION

The estimated production for mandarins in 2020/21 is expected to be 24.1 million 80-pound boxes.

-7%
FROM 2019/20

NAVEL PRODUCTION IN CALIFORNIA

The estimated production for navel oranges in 2020/21 is expected to be 42 million 80-pound boxes. California fruit sizing this year is trending large, and quality looks to be strong, with utilization averaging 90%.



ALMONDS

An Overview of the Western U.S. Almond Market

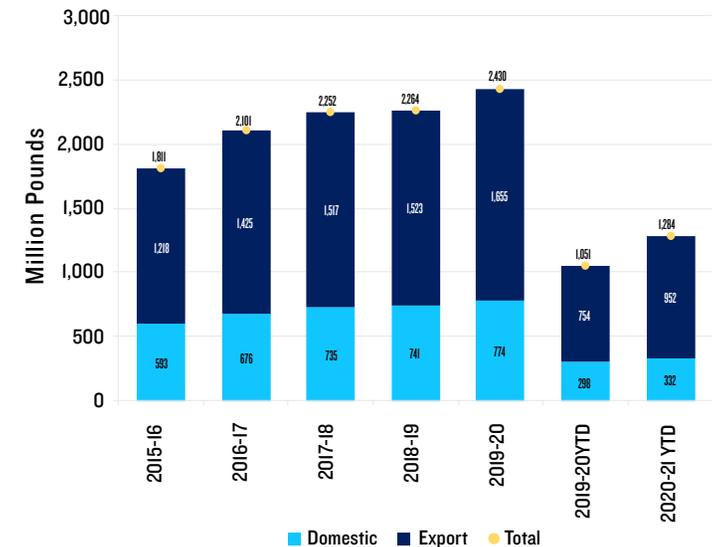
The 2020 almond crop finalized at 3.09 billion pounds — slightly higher than the National Agricultural Statistics Service’s objective estimate of 3.00 billion pounds. This represents an increase of more than 20% from the prior year.³¹ The increase is, at least in part, a result of 80,000 additional acres’ coming into production, as well as increases in average yields per acre by 130 pounds to 2,380 pounds.

Season-to-date shipments (August through December 2020) reached 1.28 billion pounds — up 22.1% from the prior season. Commitments (inventory not shipped) have reached 921 million pounds — up 51% from the previous year. With the California crop finalizing at 3.09 billion pounds, the industry was approximately 65% sold through December 2019.

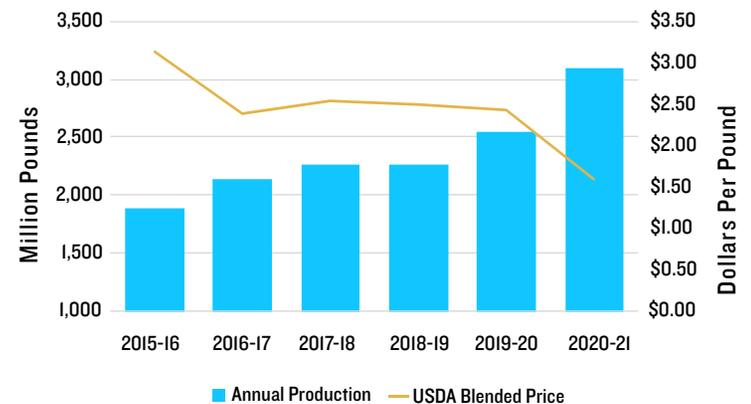
Export markets experienced growth for the year, with season-to-date shipments (August through December 2020) up 26% compared with the same time last year. Continued growth in export markets is expected because prices have been affected by the current health pandemic and the substantial increase in supply. Season-to-date shipments to India nearly doubled, and shipments to China are recovering to more-historically-normal levels.

For the California almond industry, 2019 production for the Nonpareil crop was the largest to date, exceeding 1 billion pounds. There has been a considerable compression in variety value during the past several years, but the good-size and high-quality Nonpareil variety continues to hold the highest value. Current price levels are ranging from \$1.65 to \$2.30 per pound, which is significantly lower than last year’s range of \$2.40 to \$2.80 per pound. Pandemic-related labor shortages at the port, combined with a global deficit of shipping containers, have stymied shipments, which has contributed to the downward pressure on price.

ALMONDS Domestic and Export Shipments for California Almonds, 2015/16 Through 2020/21 Season to Date (August–December)



ALMONDS Annual Production and USDA Blended Price, 2015/16 Through 2020/21



Source: USDA, NASS, Almond Board of California, PGIM Real Estate Research



WALNUTS

An Overview of the Western U.S. Walnut Market

The 2020/21 walnut crop finalized at 783,754 tons — up 20.0% from last year’s realized production of 653,000 tons.³² Overall quality and size were lower than expectations, causing prices to firm on larger halves. Season-to-date shipments (September through December 2020) were 336,000 tons — 14.6%, or nearly 43,000, tons higher than the same period last year.³³ In-shell and shelled shipments to India and the Middle East are the primary drivers of increased volumes. India and the Middle Eastern countries account for 67% of total exports of in-shell shipments and 19% of total exports of shelled shipments. Shipments to Europe are down from the same period last year. The Middle East surpassed Europe, becoming the largest destination for California walnuts.

Domestic shipments in 2018/19 were nearly indistinguishable from the prior year, at 242,000 tons. Domestic shipments through December 2020 were up 5,000 tons, or 5%.

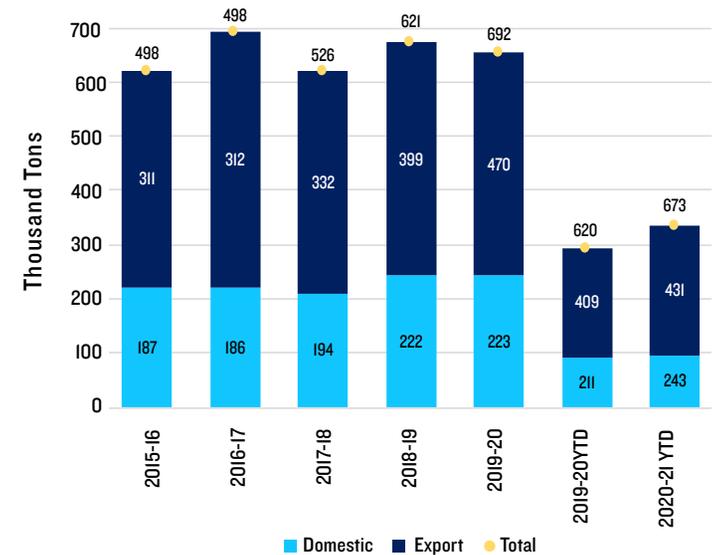
In 2019/20, export shipments totaled 413,000 tons. Exports of in-shell shipments were down

15%, and shelled shipments were down flat. In-shell shipments to China and Hong Kong are down 85% year over year because of trade wars, tariffs, and China’s and Hong Kong’s own increasing production. However, a 27% increase in in-shell shipments to India helped offset the reduction in total shipments.

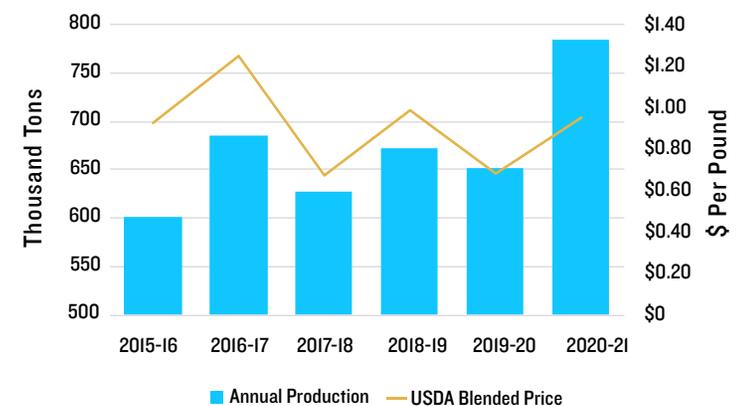
Globally, China is the largest producer of walnuts, followed by the United States, Chile and Ukraine. U.S. and Chilean producers are respectively responsible for approximately 50% and 20% of total global exports. China’s 2020/21 production is expected to reach nearly 1 million metric tons and will continue to grow for the next five to seven years as new trees come into maturity. Chinese production consists primarily of local varieties, which are dark and more bitter despite consumer preferences for lighter and less-bitter nuts. However, because of lower prices and a weakened yuan, Chinese exports could increase, creating more global competition. In addition, Chilean producers are anticipating a good harvest because producers have experienced optimal weather during their growing season.

Walnuts are currently trading at \$0.80 to \$1.05 per pound depending on size, color and variety. Given the large domestic crop and anticipated large Chinese crop, prices have softened \$0.10 to \$0.15 in the past 12 months.

WALNUTS Domestic and Export Shipments for California Almonds, 2015/16 Through 2020/21 Season to Date (August – December 2020)



WALNUTS Annual Production and USDA Blended Price, 2015/16 Through 2020/21



Source: California Walnuts, USDA, PGIM Real Estate Research



PISTACHIOS

An Overview of the Western U.S. Pistachio Market

The 2020 U.S. pistachio crop harvested 1.05 billion pounds, which equates to increases of 40% and 6% from the 2019 off year and 2018 on year, respectively.³⁴ Overall supply is up 77% from a larger crop and higher carryover of 144 million pounds from the 2019/20 crop year, which adds to the total gross inventory of 1.19 billion pounds. Marketers have shipped through season-to-date (September 2020 – February 2021) 394 million pounds. As a result, the estimated total marketable inventory was 650 million pounds at February 28, 2021.³⁵

Season-to-date (September 2020 – February 2021) shipments were up more than 13%, and the global pistachio market looks to break new records. Record shipments to Asia and Europe were reported at the beginning of the season and could have been even stronger if it had not been for a shortage of container capacity at the ports. Chinese importers have reported slower sales, which resulted from multiple factors such as higher carryover than

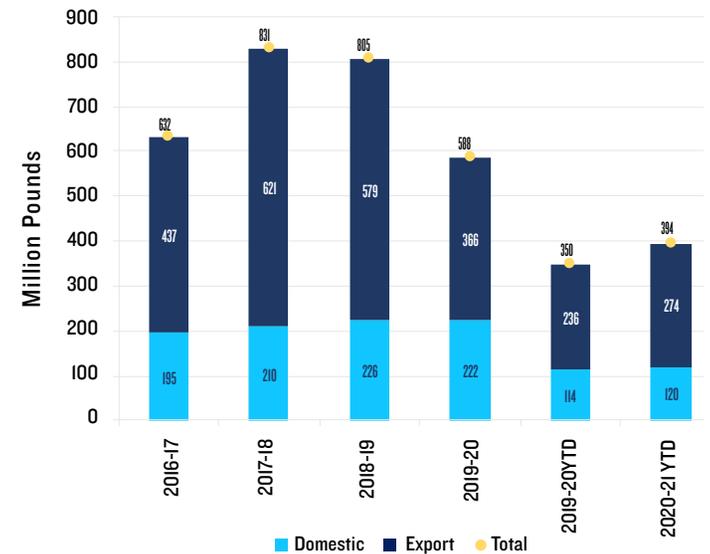
planned because of delayed arrivals caused by problems at the ports, overpurchasing and slower consumption. Another major factor is the pricing of Iranian pistachios, because they are around \$0.50 per pound lower than U.S. pistachios. However, Iranian prices are expected to firm up as the season progresses, which should be a catalyst for U.S. demand.

As of the end of February 2021, season-to-date domestic shipments totaled more than 120 million pounds, and export shipments 274 million pounds — both of them increases over the same period last year. The November through December 2020 period tends to be the most active for exports. Asia has accounted for the majority of total U.S. exports, with other major export markets being Europe, the Middle East and Africa.

The 2020 estimated California bearing acreage increased 9% — from 339,745 acres to 371,386 acres — with an estimated 114,000 of nonbearing acres. New plantings are also up 9%, with around 16,500 acres of pistachios planted in 2020.

Current price levels have trended very slightly higher during the past few months, ranging from \$3.15 to \$2.95 per pound.

PISTACHIOS Domestic and Export Shipments for California Pistachios, 2016/17 Through 2020/21 Season to Date (September 2020 – February 2021)



PISTACHIOS Production and Acreage History for California Pistachios, 2015 Through 2020



Source: Administrative Committee for Pistachios, PGIM Real Estate Research



APPLES

An Overview of the Western U.S. Apple Market

The 2020 U.S. apple crop is forecast at 244.6 million bushels of fresh and processing apples — down 7% from the 2019 crop. The figure includes a 159-million-bushel fresh-apple crop — down from the 2019 fresh apple crop of 186 million bushels, according to sources at the USDA and Washington State University.³⁶

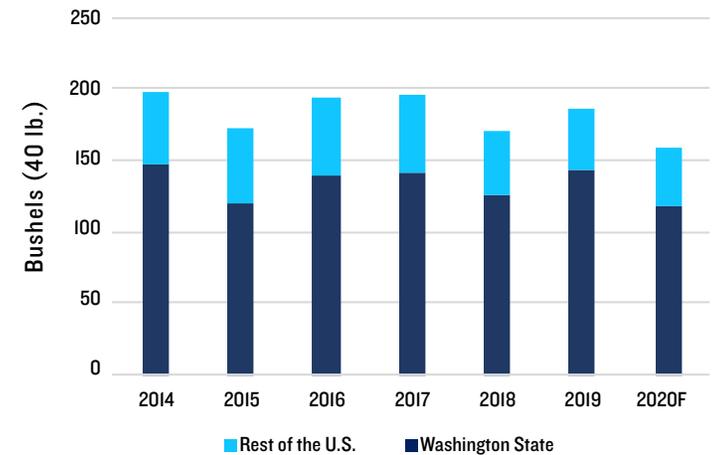
Washington State, which accounts for approximately 70% of total U.S. fresh-apple production, is estimating 2020 production of roughly 118 million bushels — a 17% decline from 2019.³⁷ The decline is expected because of weather events such as wind, spring frost damage and wildfire smoke that affected production levels and fruit coloring. Overall U.S. production is expected to be approximately 3% lower; world production is forecast to decline by 4% because of severe spring frost in China.³⁶

According to the USDA's report on December 1, 2020, percentage of crop shipment was

slightly ahead of pace compared with the three previous years. Despite restaurant closures and stay-at-home orders based on the global pandemic, retail demand was strong throughout 2020 because fewer trips to the grocery store meant consumers were buying larger quantities. Spot pricing rebounded from lower prices for the 2019 crop, and prices are expected to improve as crop supply diminishes, according to USDA fresh-market data.³⁸ The season-end average free-on-board price could be higher than \$28 per bushel for all sizes and grades of main and proprietary varieties, excluding Honeycrisp, compared with average prices slightly below last season's \$20 per bushel.³⁷ The Cosmic Crisp variety, which made its debut on store shelves just over a year ago, is expected to benefit from the smaller overall crop. Cosmic Crisp production is estimated at 1.7 million bushels — up from 346,000 bushels last year — and is expected to command a higher price than the \$75 per bushel average of last season.³⁹

Despite strong domestic demand, the export market is down 20% and is expected to remain difficult because of high prices and continued trade issues. Exports to Mexico, the largest importer of U.S. apples, were down in early 2020 based on devaluation of Mexico's currency against the U.S. dollar but they nearly recovered to 2019 levels. Exports were also negatively affected by the smaller crop and logistical issues caused by the coronavirus.³⁷ The United States–Mexico–Canada Agreement, signed into force on July 1, 2020, is expected to alleviate some of the issues for U.S. apple exporters.

APPLES Historical Production of U.S. Fresh Apples, 2014 Through 2020F



-17%

PRODUCTION FROM 2019

WASHINGTON STATE PRODUCTION

Fresh-apple production was expected to reach 118 million bushels in 2020 and short of 2019's production level of 186 million bushels because of weather-related events.

\$28

PER-BUSHEL EXPECTED PRICE IN 2020

2020 USDA FRESH-APPLE PRICES

The average apple price for all varieties, excluding Honeycrisp, was expected to be 40% higher compared with the previous year's price because of the smaller crop.



HAZELNUTS

An Overview of the Western U.S. Hazelnut Market

The 2020 hazelnut yield in Oregon is projected to be 71,000 tons — a 61% increase from 2019’s crop of 44,000 tons — and 39% higher than the 2018’s recent record-setting crop of 51,000 tons.^{40,41} Turkey, the world’s largest supplier, was expected to have had a smaller crop, but in addition to the state of Oregon, the countries of Georgia and Azerbaijan were expected to have increased production. Global supply was expected to be in line with the previous year.⁴²

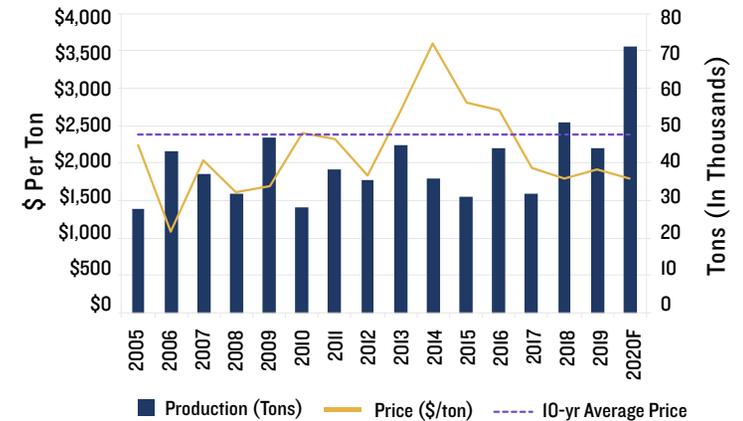
New varieties resistant to eastern filbert blight, a fungus that has infected hazelnut orchards throughout the Pacific Northwest, have encouraged farmers to convert from other crops to hazelnuts.⁴³ In 2020, another 5,000 acres of hazelnuts were planted, increasing total acreage to nearly 85,000 acres.⁴⁴

The coronavirus pandemic and high retaliatory tariffs have affected demand in China, the primary destination for in-shell hazelnuts. In 2020, total import value was only \$17.0

million compared with \$69.3 million in 2019.⁴⁵ Trade-marketing opportunities in China, such as trade shows and trade missions, have been canceled or postponed because of the pandemic. Those recent trade challenges have led industry leaders to narrow their focus on domestic sales of value-added/hazelnut-based products such as chocolates and milk alternatives. The goal of Hazelnut Growers of Oregon is to widen the value-added sales channel for hazelnuts so as to generate more net income for hazelnut farmers and improve the industry’s visibility.⁴⁶

Based on a tiered pricing system introduced in 2018, hazelnut prices in 2020 varied depending on whether the nuts were produced for kernels or were in shell. It is estimated that farmers were paid a minimum of \$0.90 per pound (\$1,800 per ton) for kernel varieties and \$0.65 per pound (\$1,300 per ton) for in-shell varieties. Hazelnuts commanded an initial minimum price of \$0.83 per pound (\$1,600 per ton) in 2019 regardless of variety.⁴⁷ Because the market is saturated with in-shell hazelnuts, the tiered pricing system aims to encourage growers to expand kernel acreage. Growers usually receive prices well in excess of the minimum price, but with large 2020 almond and walnut crops in California, it is more difficult to charge a premium for hazelnuts.⁴⁷

HAZELNUTS Historical Prices and Production of Hazelnuts in Oregon, 2005 Through 2020F



+61%
FROM 2019

OREGON HAZELNUT PRODUCTION

The 2020 Oregon Hazelnut production is projected to be 71,000 tons.

+6%
FROM 2019

OREGON HAZELNUT PLANTINGS

In 2020, 5,000 acres of hazelnuts were planted, increasing total acreage to nearly 85,000 acres.



DATES

An Overview of the Western U.S. Dates Market

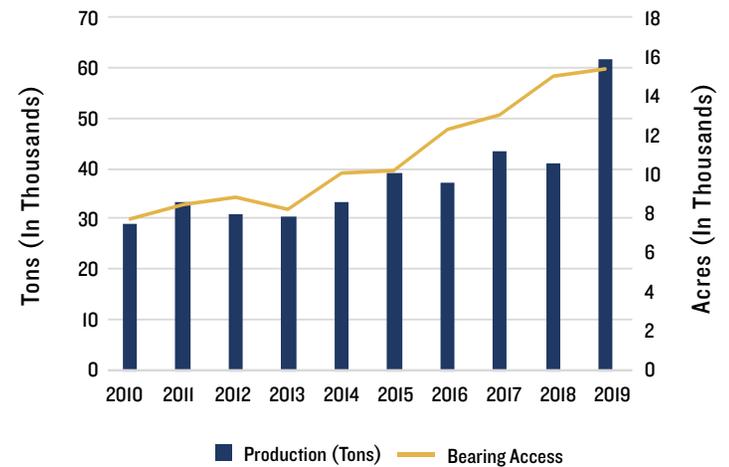
Virtually the entire U.S. date sector is cultivated in the Sonoran Desert region of Southern California (Riverside and Imperial Counties) and southwestern Arizona (Yuma County), which are currently the homes of 15,400 bearing acres of date palm trees. The region is characterized by an ideal climate for growing high-quality dates based on its high summer temperatures, low rainfall and abundant water from the Colorado River.

Year-end 2019 concluded with aggregate domestic production of 61,400 tons of dates. California continues to remain the dominant producer of dates in the United States, which was underscored in 2019 by a record 48,300 tons harvested on 11,500 bearing acres and an increase of 61% over 2018 production figures. Meanwhile, Arizona accounted for the smaller balance of domestic production; however, growers in the Arizona region continue to gain headwinds in the sector, which has nearly doubled production since 2016 because of an expansion of acreage in Yuma County.⁴⁸

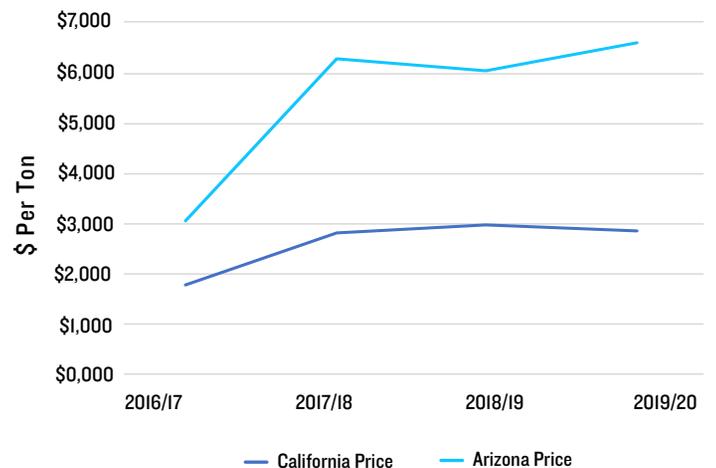
California date prices have increased by 56% over the previous decadal period (2010–19). Final grower prices for the 2020 marketing year are still pending, but the USDA’s parity price index gives an optimistic indication for dates based on the received average monthly price of \$5,834 per ton from January through November 2020 — up 13% above the same period last year.^{48,49}

Domestic production of dates constitutes only about 1% of the global market supply. Iraq remains the leading exporter of dates, followed by the United Arab Emirates, Pakistan, Iran and Tunisia. Together they account for 75% of exportable supplies. However, there is high demand for good-quality dates grown in the western United States because of high demand from developed nations that view U.S. fresh dates as a luxury product. That enables the United States to command the highest price by a wide margin — and to maintain its competitive advantage in the marketplace. Furthermore, the bearish production trend unfolding in the United States has led to elevated levels of competition in the imports and exports markets. Season to date, U.S. exports of 22.2 million pounds (September – November 2020) already exceeded 2017 and 2018 marketing years and were on pace to outperform the 32.5 million pounds exported in 2019.^{50,51}

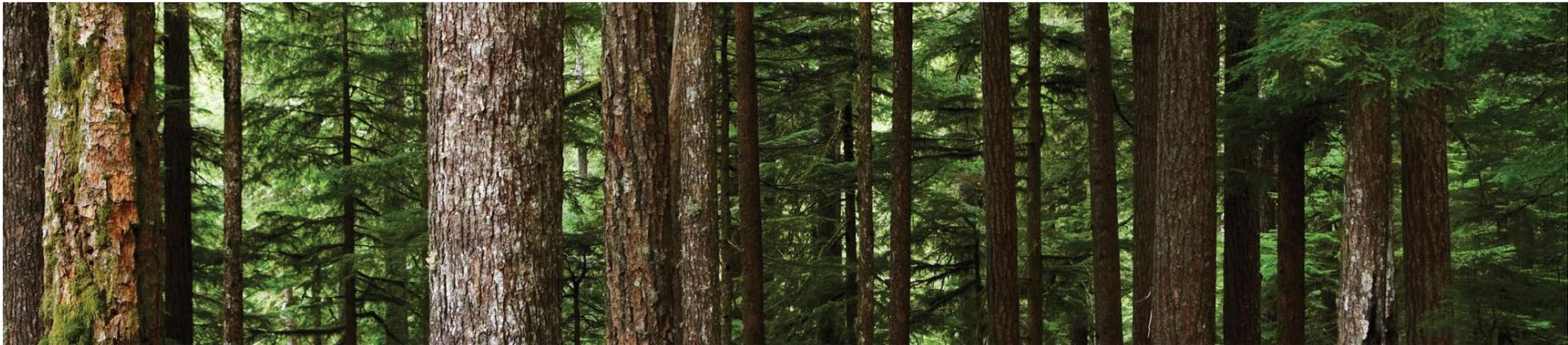
DATES Historical Date Production and Bearing Acres from 2010 Through 2019*



DATES California and Arizona Historical Prices From 2016/17 Through 2019/20*



*Date production, bearing acreage and prices for 2020 will become available in June 2020. Source: USDA, NASS, PGIM Real Estate Research



TIMBER

Our Overview of the Timber Real Estate Market

Characterized by frenzy, uncertainty and resilience, 2020 was a challenging year. In early 2020, large timberland packages were released, rescinded and ultimately put on hold until proper due diligence could be conducted in compliance with lockdown guidelines due to the COVID-19 outbreak. This brought to light the importance of ease of travel as well as collaboration between investment teams. However, as the drudgery wore on, most learned to make do with the limitations and press forward.

The largest transaction to close in 2020 took place when Rayonier acquired Pope Resources in a trade of 149,000 acres for \$525 million. Also notable was Green Diamond and Southern Pine Plantations deal, wherein total acres were 291,000 and terms were not disclosed. Other notable transactions included Hancock Natural Resource Group's acquisition of 149,000 acres for \$385 million. All

told — and without specific terms on the Green Diamond–Southern Pine transaction — \$1.6 billion in timberland traded hands in 2020, which was remarkably higher than the \$1.27 billion that transacted in 2019 but which was far outshone by the \$3.60 billion transacted in 2018.⁵²

The 2020 NCREIF Timberland Property Index had total returns of 0.81%, composed of a 2.5% EBITDDA return and a minus 1.66% appreciation return. On a regional basis, NCREIF returns were skewed across the board, with the Northwest (minus 0.69% total return, 2.76% EBITDDA return, minus 3.38% appreciation return) and the Northeast (minus 4.75% total return, 1.21 EBITDDA return, minus 5.90% appreciation return) bringing down the United States and the Lake States, respectively. The Lake States kept their 2019 momentum, with a 2.91% total return, a 2.12% EBITDDA return, and a 0.78 appreciation return. The U.S. South totaled 1.61%, with a 2.51% EBITDDA return and a minus 0.89% appreciation return.⁵³

The overall economy may be in questionable territory during the recovery from COVID-19, but with low interest rates, millennials reaching home-buying age and many people fleeing urban metropolises because of the new work-from-home status quo, single-family-home outlook is promising, with a target of 1.669 million starts in 2021 projected.⁵⁴

Demand for softwood lumber increased almost 9% in 2020, as many Americans focused on their dwellings based on the expanded hours they spent at home.⁵⁵

Exports in 2020 fell because of the coronavirus pandemic, trade disputes and an inexpensive supply of European timber, which resulted from insect infestation and foul weather and which led to inexpensive salvage harvests. North American log exports finished the year down 45%.⁵⁵



TIMBER

An Overview of the Eastern U.S. Timber Market

In 2020, the U.S. South’s pine sawtimber remained within a few cents of a 25-year low — and below \$25.00 per ton — for the fifth year in a row, at a \$23.34 South-wide average. All five product categories were down in 2020. Pine chip-n-saw was down \$0.67 South-wide to a \$16.11 average price per ton. Pine pulpwood was down \$0.74 from 2019 to \$8.44. Hardwood sawtimber was down \$1.21 per ton to a South-wide average of \$30.59 per ton. Finally, hardwood pulpwood was down \$2.88 from 2019, at \$8.13 per ton.⁵²

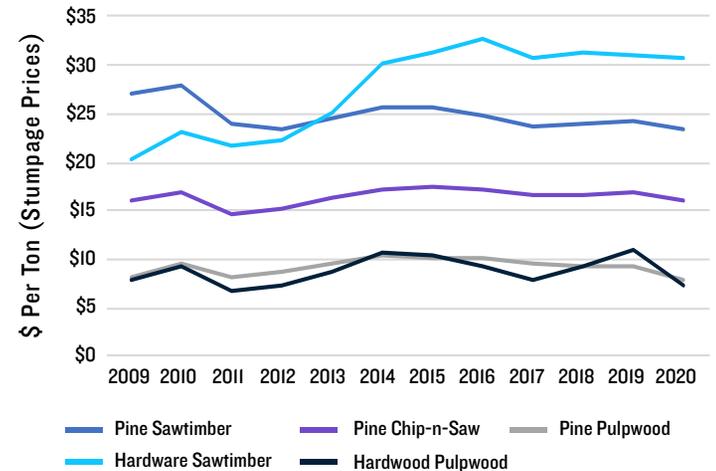
The supply overhang in the South continues to keep prices down. The combination of lack of mature harvest during the Great Recession and subsequent slow recovery, along with increased productivity resulting from improved

genetics and silvicultural practices has left the U.S. South with a tough road ahead when it comes to improving supply overhang and, thus, stumpage prices across the five primary categories.

So far in 2021, southern pine prices have improved because of seasonally wet conditions. This is a typical trend in the wetter months, and we should expect prices to level off in the drier months. Plus, plans are in place for a new mill to be built by Biewer Lumber in Winona, Mississippi, further improving the northern Mississippi wood basket. Also, Westervelt Lumber Co. announced the first shipment of lumber from its Aliceville, Alabama, mill on March 5, 2021. Last, in February, Weyerhaeuser acquired 69,200 acres in Alabama in a highly competitive bidding process.

There are some bright spots that will aid in overcoming the supply overhang: in the forms of six new sawmills, four new expansion projects and one mill start-up, totaling roughly 2 billion board feet of additional demand by year-end 2021. Those investments in sawmill facilities in the US South will result in inventory drawdowns, with consistent demand and, thus, reduced risk for institutional timberland investors considering regional diversification.

TIMBER Historical South-wide Average Timber Stumpage Prices (\$ per Ton) for Five Major Product Categories From 2009 to 2020



-27%
FROM 4Q 2020

U.S. HARDWOOD PULPWOOD

Stumpage prices for hardwood pulpwood ended at \$7.39 per ton — down \$2.69 from 2018.

+2B
BOARD FEET OF
ADDITIONAL DEMAND

U.S. SOUTH PRODUCTION

New sawmills will increase production by 2 billion board feet by year-end 2021.



TIMBER

An Overview of the Western U.S. Timber Market

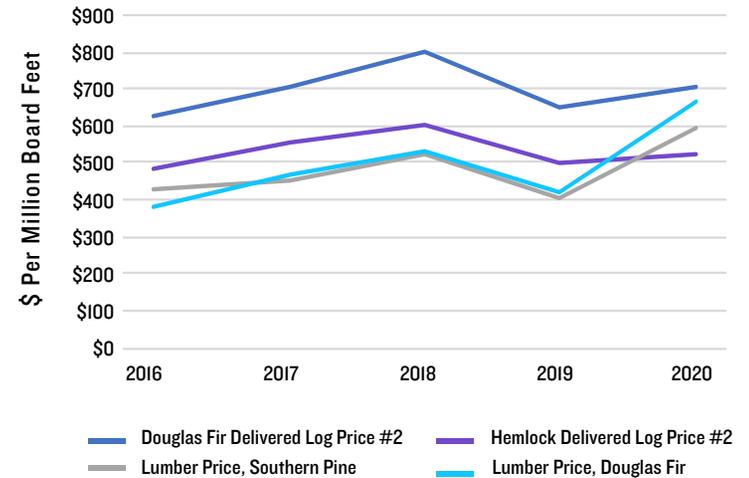
In 2020, Douglas fir delivered prices were at \$702 MBF (million board feet) — up 8% from the end of 2019. Similarly, Hemlock delivered prices were at \$521 MBF — up 5% from 2019.⁵⁵

Making headlines in 2020, western wildfires struck almost 6 million acres from Washington to California. In all, California had more than 4 million acres affected, Oregon had more than 1 million acres affected and Washington had 700,000 acres affected. The fires burned more than 300,000 private acres, for a total of 1.5 billion to 2.5 billion board feet.⁵⁶ The wildfires will result in a flood of salvage wood into the market in the meantime. An additional constraint in salvage harvest will involve the sourcing of new equipment and/or reductions

in loggers' operating capacities because of innumerable pieces of equipment that were burned in the fires.

Douglas fir and Western hemlock stumpage finished 2020 up 8% for the year, whereas Southern pine and Douglas fir lumber prices were up 47% and 60%, respectively, from 2019.⁵⁵ Looking forward, once the salvage operations are over, growth to drain levels are near equilibrium. Further, with decreased production in British Columbia, supply will be even tighter.

TIMBER Western Timber Prices From 2016 to 2020



6M

ACRES IN 2020

WEST COAST WILDFIRES

Total acres burned in Washington, Oregon and California.

**+47% &
+60%**

FROM 2019

LUMBER PRICES

Southern pine and Douglas fir prices ended at \$595 MBF and \$668 MBF, respectively, in 2020.

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