



# 2020 Industry Report: Walnut

November 2020

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**Market Intelligence Team**

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Part I

# Product Information

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# Product Information 080231 Fresh or Dried Walnuts, in shell, 080232 Fresh or Dried Walnuts, Shelled

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Walnuts are defined as the nut from the tree in the genus *Juglans*, where around harvest time, the green husks are split and the nuts are removed. The ripened seed, or the kernel from the shell, can be used for multiple purposes usually for edible usages, as a garnish on foods, snacks, and oil. With its perceived health benefits, from its antioxidants to omega-3 fatty acids, walnuts have become popular as a “superfood”, spurring high demand from consumers around the world, particularly in the European market.

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## Production and Export Trends

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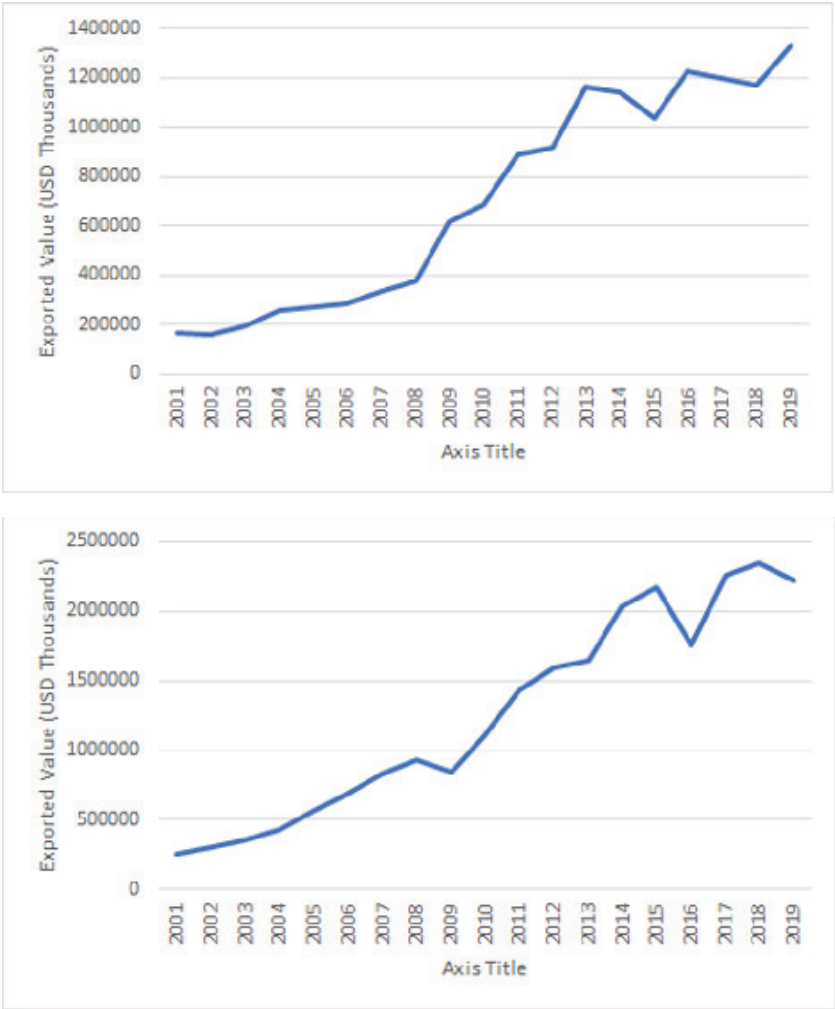
- China and the US are major producers for walnuts, where China dominated 43.4% of in-shell walnut production in the world in 2018, and the US took up 16.7%.
  - Production for walnuts have grown exponentially since 2005 with the increased domestic consumption from China as a result of better living standards. Imports increased for a while until they dropped as domestic production thrived. Exports will likely increase again in China as prices have been lowered with the supply increase and the weakened yuan.
  - The European market is one of the largest import destinations, including countries such as Germany, Italy, and Spain. Imports have grown on an average of 11% during the past five years, according to the Center for the Promotion of Imports (CBI).
  - Chile has been rising as a popular sourcing destination, especially as it is benefiting from the US-China trade war as imports of walnuts to the European market were added with more tariffs. Chile also directly competes with Californian walnuts in the European market, as it is the biggest producer of walnuts in the Southern Hemisphere.
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## Recent Developments

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- The US is dealing with a large supply glut for its nuts including walnuts, which has driven down prices, also affected by the tariff restrictions from China and India, as well as logistical complications from the coronavirus.

Exported value of Walnuts, 2001-2018. (Top: in-shell, Bottom: shelled).



Graph 1. Source: ITC Trade Map.

Part II

# Major Varieties

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# Major Varieties

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Most of the walnuts which are commercially available in the world are English walnuts which originated from Persia, and the Black walnut. Black walnuts are not widely available for the average consumer, but mostly for industrial usages such as in the creation of flavorings, extracts, or timber. Black walnuts are native to Eastern North America, which was widely used for its wood in earlier times. Due to its industrial use, the Black walnut has a much harder shell than the English walnut, and the kernel (nut) is more difficult to remove as well.

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## English Walnut

There are known to be more than 50 cultivars derived from the English walnut, including popular varieties such as the Chandler and the Hartley. The English walnut has a flavor that is most commonly recognized and is less strong and earthier in taste than the Black walnut.

### Cultivars

#### Chandler

The Chandler walnut variety is one of the most popular as well as the most marketed walnut in the industry. Due to its light color (kernel) it has been a favorite for its use in the baking industry. The variety is also known to be more resistant to diseases and has the highest yield.

**Color:** Light

**Shell:** Thin

**Yield:** 48-51%

**Flavor:** Mild

**Halves Yield:** High Percentage

#### Hartley

**Color:** Light

**Shell:** Hard

**Yield:** 41-44%

**Halves Yield:** Low

The Hartley nut is on the large side with light kernels. It has a thin shell and is easy to open.

**Howard**

The Howard cultivar has light kernels but is not as light as the Chandler. Its shell is also thicker than the Chandler and has a smooth, round exterior.

**Color:** Light, less than Chandler

**Shell:** Somewhat, but thicker than Chandler

**Yield:** 48-52%

**Flavor:** More natural flavor than Chandler

**Halves Yield:** Relatively high, but not as high as the Chandler due to thick shell

**Tulare**

The Tulare variety is relatively new, bred in California in the late 60s. The variety has much potential and already has a significant share in world exports.

**Color:** Light when shelled, which eventually turns light amber

**Shell:** Thin, but thicker than Chandler

**Yield:** High, from 50-53%

**Flavor:** More natural flavor than Chandler

**Halves Yield:** Decent, not higher than Chandler or Howard

**Source:** GoldRiver Orchards

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## Forms of Acceptable Kernels (Provided by the UNECE)

According to the UNECE, there are five types of acceptable forms of walnut kernels, the following being:

1. Halves, which are kernels broken apart into two more or less equal and intact parts
2. Quarters, where the Kernels are separated from its longest side into four more or less equal pieces
3. Large pieces, where the portions are smaller than a chipper kernel but larger than a broken piece
4. Broken pieces, of which portions of the kernels are able to pass through the 8 mm sizing screen but not through a 3 mm sizing screen
5. Large pieces & halves, where there is a mix of the large pieces and halves, and the proportion of the halves can be specified in the marking



## Walnut Color Classification



### 1. Extra light

No more than 15% shall be darker than "extra light" of which only 2% (included in the 15%) may be darker than "light".

### 2. Light

No more than 15% shall be darker than "light" of which only 2% (included in the 15%) may be darker than "light amber".

### 3. Light amber

No more than 15% shall be darker than "light amber" of which only 2% (included in the 15%) may be darker than "amber".

### 4. Amber

No more than 10% shall be darker than "amber"

**Source: Calconut**

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## Harvesting/Processing

The harvesting process may differ by country, but in major producing countries, such as the US, the harvesting process is largely mechanized. Once the harvest season begins, the orchard floor must be cleaned up, after which mechanical shakers enter to shake each of the trees and let

the walnuts fall. The walnuts are then moved to the windrows, where they are cleaned by the mechanical harvesters. The green husk which surrounds the walnuts are discarded with a huller, and the nut inside is dehydrated mechanically to each country's standards. In the US, for example, Californian standards dictate that walnuts must have an 8% moisture level after drying.

The drying process will preserve the quality of the walnuts while they are stored. When the nuts are ready for packing, they are first categorized into two different market segments: in-shell and shelled. The in-shell nuts are sized and labeled for distribution, while the shelled nuts undergo a more complex process. The shelled nuts will be cracked mechanically and the kernels screened, with the excess shells removed and sorted manually as well as electronically.

## Part III

# Grades and Standards

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### 3.1 Trade Regulations

## Grades and Standards

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### In-Shell Walnuts Grades and Standards USDA

1. **U.S. No. 1** consists of walnuts in shells which are dry, practically clean, bright and free from splits, injury by discoloration, and free from damage caused by broken shells, perforated shells, adhering hulls or other means. The kernels are well dried, free from decay, dark discoloration, rancidity, and free from damage caused by mold, shriveling, insects or other means.
  - Kernel color shall be specified in connection with this grade in terms of "extra light," "light," "light amber," or "amber" from the USDA Walnut Color Chart or in terms of "red" color. The color classifications in the USDA Walnut Color Chart shall not apply to "red" color. Furthermore, "red" color shall not be mixed with "extra light," "light," "light amber," or "amber" colors. When kernel color is based on the color classifications from the USDA Walnut Color Chart, at least 70 percent, by count, of the walnuts have kernels which are not darker than "light amber," and which are free from grade defects: Provided, That at least four-sevenths of the above amount, or 40 percent of the walnuts have kernels which are not darker than "light." Higher percentages of nuts with kernels not darker than "light amber" which are free from grade defects and/or higher percentages with kernels not darker than "light" which are free from grade defects, may be specified in accordance with the facts.
  - Size shall be specified in connection with the grade.
2. **U.S. No. 2** consists of walnuts in shells which are dry, practically clean and free from splits, and free from damage caused by broken shells, perforated shells, adhering hulls, discoloration or other means. The kernels are well dried, free from decay, dark discoloration, rancidity, and free from damage caused by mold, shriveling, insects or other means.
  - Kernel color shall be specified in connection with this grade in terms of "extra light," "light," "light amber," or "amber" from the USDA Walnut Color Chart or in terms of "red" color. The color classifications in the USDA Walnut Color Chart shall not apply to "red" color. Furthermore, "red" color shall not be mixed with "extra light," "light," "light amber," or "amber" colors. When kernel color is based on the color classifications from the USDA Walnut Color Chart, at least 60

percent, by count, of the walnuts have kernels which are not darker than "light amber," and which are free from grade defects. Higher percentages of nuts with kernels not darker than "light amber" which are free from grade defects, and/or percentages with kernels not darker than "light" which are free from grade defects, may be specified in accordance with the facts.

- Size shall be specified in connection with the grade. Size shall be specified in connection with the grade.
- 3. U.S. No. 3** consists of walnuts in shells which are dry, fairly clean, free from splits, and free from damage caused by broken shells, and free from serious damage caused by discoloration, perforated shells, adhering hulls or other means. The kernels are well dried, free from decay, dark discoloration, rancidity, and free from damage caused by mold, shriveling, insects or other means.
- Kernel color may be specified in connection with this grade in terms of "light amber" or "light" from the USDA Walnut Color Chart or in terms of "red" color. The color classifications in the USDA Walnut Color Chart shall not apply to "red" color. Furthermore, "red" color shall not be mixed with "extra light," "light," "light amber," or "amber" colors. When kernel color is based on the color classifications from the USDA Walnut Color Chart, there is no requirement in this grade for the percentage of walnuts having kernels which are "light amber" or "light." However, the percentage, by count, of nuts with kernels not darker than "light amber" which are free from grade defects and/or the percentage with kernels not darker than "light" which are free from grade defects, may be specified in accordance with the facts.
  - Size shall be specified in connection with the grade.

### Shelled Walnuts Grades and Standards

1. U.S. No. 1 consists of portions of walnut kernels that are well dried, clean, free from shell, foreign material, insect injury, decay, rancidity, and free from damage caused by shriveling, mold, discoloration of the meat, or other means.
- The color shall be specified in connection with this grade in terms of "extra light," "light," "light amber," or "amber" from the USDA Walnut Color Chart or in terms of "red" color. The color classifications in the USDA Walnut Color Chart shall not apply to the "red" color. Furthermore, the "red" color shall not be mixed with "extra light," "light,"

“light amber,” or “amber” colors.

- Size shall be specified in connection with this grade in terms of one of the size classifications.
2. U.S. Commercial consists of portions of walnut kernels which meet the requirements of U.S. No. 1 grade, except for increased tolerances.
- Color of walnuts based on the USDA Walnut Color Chart shall be not darker than the “amber” classification. There are no color requirements for “red” color. Color may be specified in connection with the grade in terms of one of the color classifications in the USDA Walnut Color Chart or “red” color. “Red” color shall not be mixed with “extra light,” “light,” “light amber,” or “amber” colors.
  - Size shall be specified in connection with this grade in terms of one of the size classifications.

Source:USDA. For more size and color requirements, please refer to the official USDA document for shelled walnuts here: <https://www.goldriverorchards.com/sites/www.goldriverorchards.com/files/usda-grades-shelled-walnuts.pdf>)

European standards and classification for walnut kernels which are divided into the following three categories: Extra Class, Class I, and Class II are available under the United Nations Economic Commission for Europe (UNECE) with quality tolerances are available here: [https://www.unece.org/fileadmin/DAM/trade/agr/standard/dry/Standards/02\\_WalnutKernels\\_E2017.pdf](https://www.unece.org/fileadmin/DAM/trade/agr/standard/dry/Standards/02_WalnutKernels_E2017.pdf)

American walnuts are based primarily on the color and how much (%) of halves there are, while the European grading system usually depends on the UNECE system as there is no official classification system of walnuts set by the European Union. The UNECE classification is sorted by how many defects there are in the walnuts, which then can be further sorted according to the color of the kernel. Extra Class and Class I walnuts must be sized with a minimum of 26 mm for in-shell walnuts. Class II walnuts are not required to be sized, but usually a minimum of 24 mm.

## Trade Regulations

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### Price Determining Factors

Walnuts which are of a lighter color and of bigger sized kernels, such as the Chandler commands a higher price in the market. According to the University of California, these two quality-determining factors can be improved with effective irrigation management systems.

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### Europe

According to the Center for the Promotion of Imports (CBI) the most common certifications required by European buyers is of the following three: IFS, FSSC 22000, and BRC. Any credentials certifying that the product is organic can be a point of differentiation in the market. If any exporting countries, such as Australia or India, have the same standards for organic practices of walnuts as Europe, the product can be exported easily.

### Japan

Imports of nuts to Japan have to follow the Plant Protection Act, the Food Sanitation Act, and the Customs Business Act. The Plant Protection Act requires that inspections of received goods must be done with the Ministry of Agriculture and the Forestry and Fisheries Quarantine Station, and any bulk imports of nuts must be done at only certain air or seaports. Initial reviews and inspection may be conducted if it is thought to be necessary by the various food monitoring departments under the Food Sanitation Act. With the Customs Business Act, importers must make an import declaration to the appropriate Customs office for where the cargo is located.

For the full document of the requirements for imports of nuts to Japan, please refer to this link here: [https://www.jetro.go.jp/ext\\_images/mexico/mercadeo/3Enuts.pdf](https://www.jetro.go.jp/ext_images/mexico/mercadeo/3Enuts.pdf)

### China

China requires several specifications for imports of walnuts, among them being that microbiological tests should be done to detect salmonella, yeast, mold, etc., and varieties or sizes should not be blended. Aflatoxins

of each kind should be less than 1 ppb, and moisture levels should be less than 4% on the meat-basis to avoid mold during transportation. The Certificate of Origin is required in order to begin imports to China, along with the Phytosanitary Certificate.

Specific import regulations provided by the UNECE presentation here:  
[https://www.unece.org/fileadmin/DAM/trade/agr/meetings/ge.02/2016/Workshop\\_June2016-Tashkent/S4\\_01\\_ChineseWalnut\\_\\_Cheng.pdf](https://www.unece.org/fileadmin/DAM/trade/agr/meetings/ge.02/2016/Workshop_June2016-Tashkent/S4_01_ChineseWalnut__Cheng.pdf)



## Part IV

# Global Market Dynamics

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4.1 Production

4.2 Export

4.3 Import

4.4 Consumption

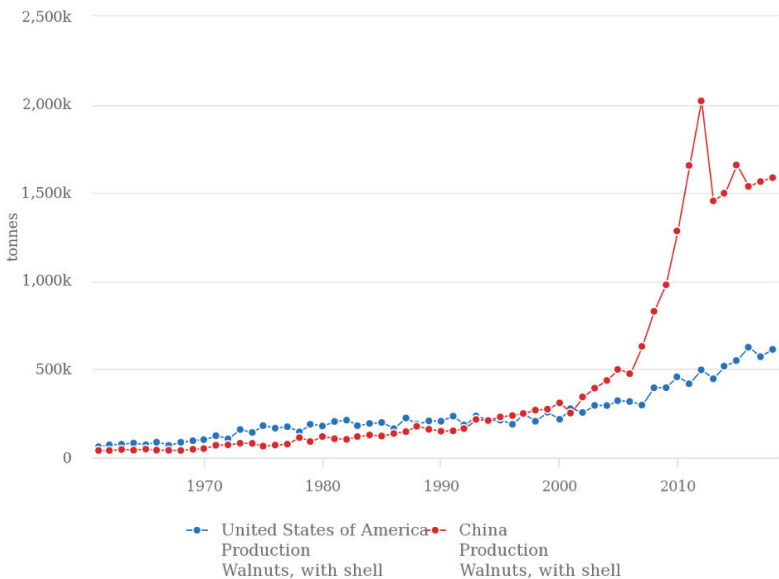
# Global Market Dynamics

Shelled walnuts take up around two-thirds of the global walnut trade, while in-shell walnuts take up the remaining one-third. Walnut demand has been driven by health-conscious consumers in its use in snacks baked goods.

## Production

The largest producers of walnuts, in-shell, are China and the United States. Production since 1994 has shown steady growth, reaching its peak in 2012 before dropping to pre-peak levels. World production of in-shell walnuts in 2018 recorded 3.66 million MT. China is the world's biggest producer, significantly larger than the US, resulting in Asia taking over a staggering 64.1% of the production share in the world, followed by the Americas with 24.1%. China's dominance in walnut production is a relatively new trend, where the two countries saw similar production levels until the gap grew enormously after 2005. Domestic consumption in China grew with increased quality of living standards, and imports have outweighed exports over time.

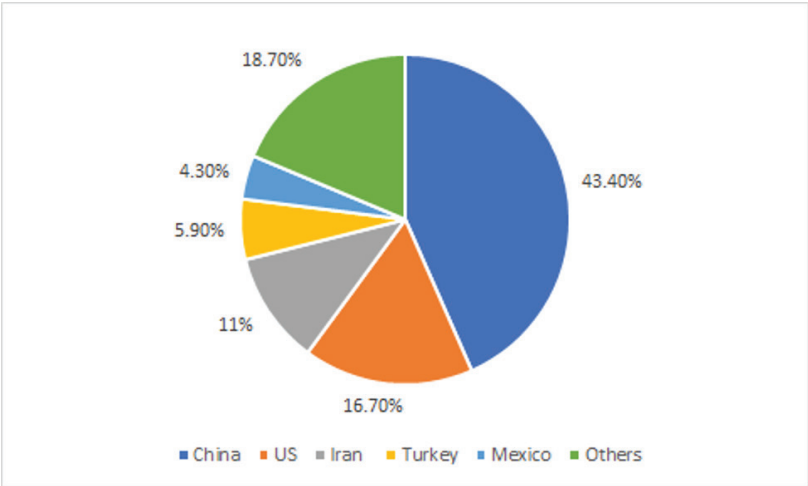
US Walnut (in-shell) Production vs. China Walnut (in-shell) Production



Graph 2. Source: FAOSTAT

Source: FAOSTAT (Sep 14, 2020)

Production for in-shell walnuts by country, 2018.



Graph 3. Source: FAOSTAT

Exports

The largest exporter for walnuts in-shell and shelled is the US. In the case of shelled walnuts, Mexico, Chile, and Germany were the top exporters in 2019 after the US. For in-shell nuts, the top countries were Mexico, Chile, and France ( 2019). The global export value for both in-shell and shelled walnuts was at its lowest in 2016 due to oversupply, but in-shell nuts regained its growth. Shelled nuts decreased in export value from 2018-19 by 6%, with decreases observed in the top exporters: the US and Mexico.

Imports

Imports for in-shell walnuts are led by Turkey, Mexico, and Italy, while imports for shelled walnuts are led by Germany, Spain, and Japan. Most of the imports are directed to European consumers, in which according to the CBI, consumption has grown due to walnut’s use as protein in place of meats, along with its use in baking. Worldwide imports have reportedly grown 11% on average in the past five years, for quantity as well as value. Most of the walnut imports to European countries are of kernels, nearly 73%, while the remaining 27% is of in-shell walnuts. Developing countries may have difficulty in penetrating marekts like the EU as the cultivars are often blended (heterogeneous), and the kernels inside the shells are not uniform in size.

## Consumption

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Within Europe, the Netherlands and France have one of the highest consumption per capita rates, each with 1.46 kg per capita per year and 1.02 kg respectively according to the CBI. During the past five years, European consumption has grown by 12% on average annually, with the biggest increase observed in the Netherlands. Consumption peaks the most during the wintertime during Christmas and New Year's, where walnuts are traditionally used in food in these celebrations. While consumption in Asian countries cannot be ignored as well, China has been moving towards a self-sufficient system, compared to European countries which have to rely on imports to meet the demand. High-end markets like Japan, however, are not major producers of walnuts like China, and consumption has been on the increase compared to other tree nut imports like chestnuts and pistachios.

## Part V

# Country Profile/Developments

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5.1 The US

5.2 China

5.3 US-China, India Trade Wars and Chile, a Rising Sourcing Destination

# Country Profile/Developements

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## The US

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- **Major Varieties Exported:** Chandler, Hartley, Howard, Tulare, Serr, and Vina
- **Main Regions Grown:** California
- **Harvest Season:** Early September – Mid-November

### Production and Export Trends

Nearly 99% of all the walnut production in the US comes from the state of California, mainly in the San Joaquin and Sacramento Valley regions. Production for in-shell walnuts has been steadily growing over time, and the growth rate has been increasing since 2008. Following consumer preferences, the Chandler variety has been the most produced variety in the US, followed by the Howard and the Tulare. According to the recent USDA reports, the 2020 crop is expected to be 19% higher than the previous year, with 780K tons.

For in-shell walnuts, the US exports the most to Turkey, the United Arab Emirates, Italy, and Mexico, with Turkey and the UAE holding similar shares in the US's exports, 26.9% and 20.4% respectively. The UAE indicated the most growth in the US's exported quantity and value, recording an 88% growth in value from 2018-19. Shelled walnuts from the US are directed mostly to Germany, Japan, Korea, and Canada. The US exports more in-shell walnuts than shelled walnuts, with 122K tons of shelled walnuts exported in 2019, compared to 157.55K tons of in-shell walnut exports.

Although the US remains the highest exporter of walnuts, it has had its hiccups within the past few years which has been expounded by the coronavirus. In 2019, India issued retaliatory tariffs on US products which included walnuts, following the Trump administration's decision to remove India from the US Generalized System of Preferences. This happened after concerns arose about India's steel and aluminum imports, which allows partner countries to export certain goods to the US without duties. What was originally a 100% tariff on in-shell walnuts in 2018 jumped to 120%, and shelled nuts from 30.9% to 50.9%. Prior to the change in duties, tariffs had been maintained at 30%, which made it a favorable market.

From the period between 2018-19, when the initial tariffs were administered, export quantity to India dropped, with California shipping

11.54K tons of walnuts valued at USD 39.2 million in the 2017-18 season from 15.86K tons with a value of USD 43.4 million in the previous season. China has also upped its tariffs on walnuts in September 2019, bringing worries from US growers in losing their presence in the Chinese market.

Production has been favorable for the US, not for just walnuts but all tree nuts. Farmers who have been riding the wave of high demand have planted more trees than ever, which normally takes five to seven years for harvest after the sapling is planted. The abundant crop has pushed prices down, which has been an ongoing trend since 2013. Additionally, since the coronavirus hit, logistical bottlenecks have restricted exports globally, and combined with the supply glut, it is unlikely that the prices of walnuts will bounce back anytime soon. According to Bloomberg, farmers have already put in their deposits for the planting of the next round of crops set to arrive in 2022, and acreages of trees are difficult to size down than other crops.

## China

### Production and Export Trends

**Major Producing Regions:** Xinjiang Uygur Autonomous Region, Yunnan Province, Shanxi, Shaanxi, Hebei, Gansu, and Henan.

Although China remains the world's top producer, it is not a significant exporter, with nearly 95% of its production consumed domestically in 2016 with widespread knowledge on the benefits of walnuts within the country. Production for in-shell walnuts recorded 1.59 million MT in 2018, a slight increase of 1.9% from the previous year. Planting areas for walnuts is spread across 21 provinces. Poor farmers have grown walnuts in response to the strong demand and good prices aided by the government's support. Chinese walnut production mostly consists of local varieties rather than imported varieties like the popular Chandler.

Exports of walnuts, specifically walnut meats, have drastically decreased from 2008-09 with the increase in domestic demand, from 10.66K MT to 4.4K MT during the time period. Accordingly, imports of in-shell walnuts as well as kernels increased around the same period but decreased after hitting a peak in 2012 when domestic production started to outpace imports. Thus, this increase in internal production will likely cause exports to pick up again.

## The US Trade Wars and Chile, a Rising Sourcing Destination

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The US walnut industry has been hurt by multiple tariff measures from importing markets, including China and India. With the current tariffs from India standing, the US is essentially blocked from the Indian market, impacting other exporting countries, including Chile, as the tariffs have been non-discriminatory. Chile suffered the brunt of the tariff increase as India has been a strategic destination for its exports, since Indian consumption for nuts is the highest in October, which is when Chile is the main supplier for the nuts.

The tariffs applied to the US from China, however, may be beneficial for Chile, as the country holds free-trade agreements with China. Since it is located in the Southern Hemisphere, its season runs counter to China, thus giving it the advantage of providing walnuts during China's off-season. Chile has recently been on the watch as a rising sourcing destination, in which it has increased production for in-shell walnuts by 249% within ten years, from 2008-18, and directly competes with Californian walnuts in the European market. In addition, Chile mainly exports the more popular variety of walnuts, the Chandler, like the US. Chile's walnut industry is export-oriented, and has been expanding not only in planting areas but also in export destinations as well.



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