



Food and Agriculture  
Organization of the  
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# MAJOR TROPICAL FRUITS

Market Review 2022







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## NOTE ON METHODOLOGY

This report describes full-year results on developments in global major tropical fruits trade in 2022 and represents an update to the Major Tropical Fruits Market Preliminary Results 2022. The analysis contained herein is based on data on trade quantities that were compiled from the following sources: country responses to the 2023 questionnaire of the FAO Intergovernmental Sub-Group on Tropical Fruits; data from the UN Comtrade database and Trade Data Monitor Inc.; communications with national sources and industry partners in trading countries; and secondary data and information from desk research. The findings incorporate revised data and information as available up to the end of June 2023. All data in this report should be considered as provisional. FAO is continuously monitoring global trade flows of major tropical fruits and will update these results should revisions of officially reported data be released.

Detailed tables on global trade in major tropical fruits and trade are available at the following FAO webpage <https://www.fao.org/markets-and-trade/commodities/tropical-fruits>.

## FOREWORD

This report is issued on an annual basis to the Members and Observers of the Sub-Group on Tropical Fruits of the Intergovernmental Group on Bananas and Tropical Fruits, which is a subsidiary body of the Committee on Commodity Problems (CCP).

It is prepared by the Team on Responsible Global Value Chains, Markets and Trade Division, Food and Agriculture Organization of the United Nations (FAO), Rome. The Team on Responsible Global Value Chains provides research and analyses on global value chains for agricultural commodities, and economic data and analyses on tropical fruits. Regular publications include market reviews, outlook appraisals and projections for bananas and tropical fruits. The Team also provides assistance to developing countries in designing and implementing national policies regarding responsible value chains in agriculture.

The report is available at the following FAO webpage: [www.fao.org/economic/est/est-commodities/tropical-fruits](http://www.fao.org/economic/est/est-commodities/tropical-fruits).



## DEVELOPMENTS AT A GLANCE

- ▶ World exports of major tropical fruits fell by approximately 2.8 percent in 2022, to USD 10.4 billion in 2014–2016 prices, marking the first decline in over one decade.
- ▶ Production shortages from the major production zones, including a steep drop in global supplies of avocado, were the main reason hampering a sustained expansion in trade in 2022.
- ▶ High costs for airfreight, meanwhile, were reported as impeding higher growth prospects for papaya exports.
- ▶ Developments by commodity in 2022:
  - Global exports of mango, mangosteen and guava declined by 2.9 percent, to 2.3 million tonnes.
  - Global pineapple exports contracted by 2.2 percent, to 3.1 million tonnes.
  - Global exports of avocado fell by 3.1 percent, to 2.5 million tonnes.
  - Global exports of papayas grew by 1 percent, to 375 000 tonnes.
- ▶ Amid higher costs, lower supplies and ample global import demand, world average export unit values of all four major tropical fruits displayed an overall tendency to increase.
- ▶ Indicative average wholesale prices in the United States of America similarly displayed a tendency to increase for most major tropical fruits, with the exception of papayas, whose average wholesale prices remained relatively unchanged from the previous year, albeit at a high level.
- ▶ However, the considerable and simultaneous rise in energy and input prices, significantly raised production costs. Higher costs of transport, alongside the global shortage in refrigerated containers, exerted additional upward pressure on costs and squeezed margins in the first half of 2022, with some of these pressures seemingly abating during the second half of the year.
- ▶ Indicative data related to the impacts of the war in Ukraine on relevant trade flows – as available at the time of writing – are provided in the Overview section of this report.



## Overview

Available full year data indicate that, amid significant shortages in global supplies, persisting bottlenecks in global supply chains as well as high input and transport costs, the volume of world trade in major tropical fruits in 2022 fell to USD 10.4 billion in 2014–2016 prices, marking a decline of 2.8 percent from 2021 (Fig. 1). This constituted the first significant contraction in a previously burgeoning global market.

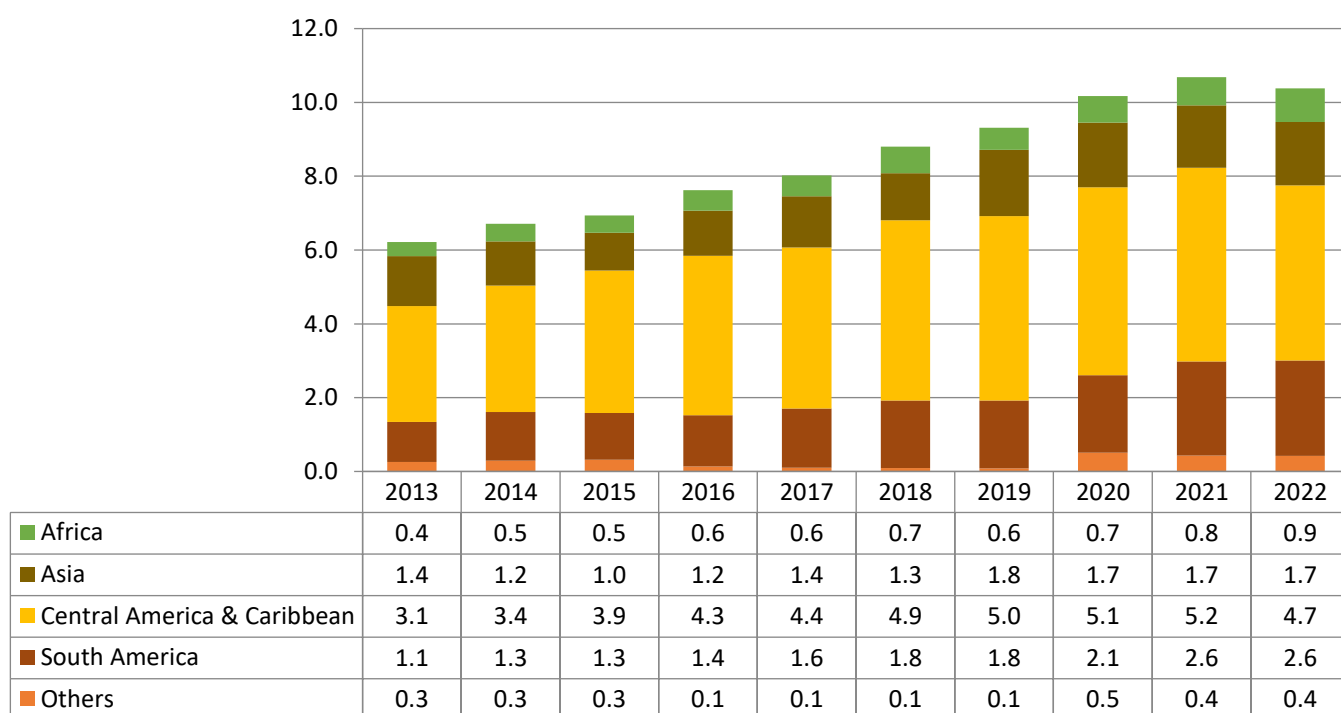
Adverse weather conditions, in particular cooler than normal temperatures, resulted in production declines from several major tropical fruit production zones, most notably a drop in pineapple supplies from Costa Rica as well as a steep fall in avocado supplies from Mexico. Exports of the commodity cluster mango, mangosteen and guava were reportedly hampered not only by a drop in production by South American suppliers, but also by supply chain disruptions in shipments to China. High costs for airfreight, meanwhile, were reported as impeding export growth prospects for papayas.

On the import side, the lifting of the remaining COVID-19 related constraints on the

hospitality sector supported demand growth, particularly for avocados and pineapples, in both the United States of America and the European Union, the two main importers. In both markets, consumers reportedly also displayed a higher propensity to spend on nutrient-rich foods in retail outlets, even despite the inflationary pressures. Industry sources attributed this to the relatively inelastic nature of demand for most major tropical fruits.

Amid lower supplies and ample global import demand, average unit values and prices at the export, wholesale and retail levels of all four major tropical fruits showed an overall strong tendency to increase, as further described in the respective *Commodity Briefs* sections below. However, the considerable and simultaneous rise in global energy and input prices, significantly raised production costs. The cultivation of tropical fruits, much like the rest of agricultural products, absorbs high amounts of energy directly, through fuel, gas and electricity use, and indirectly, by using agro-chemicals such as fertilizers, pesticides and lubricants. Expenditures on fertilizers and pesticides weigh particularly heavily in the production of some tropical fruits because of their very high frequency of use. Higher costs of transport, alongside the global

Figure 1. Major tropical fruits: global aggregate export volumes, 2013–2022, USD billion, constant dollar (2014–2016)



Source: FAO.

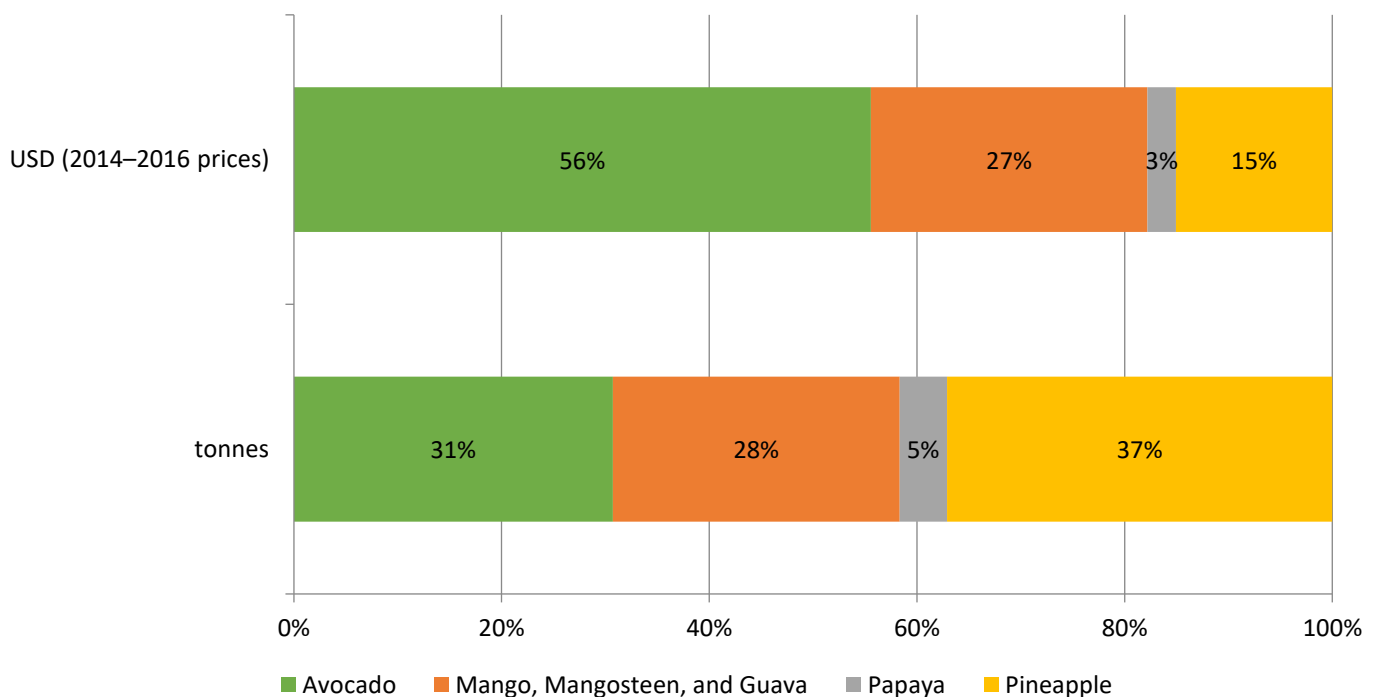
shortage in refrigerated containers, exerted additional upward pressure on costs and squeezed margins along the value chain particularly in the first half of 2022, with some of these pressures seemingly abating during the second half.

The difficult operating environment in 2022 was further complicated by the depreciation of many currencies against the United States dollar, which affected operations all along the value chain since transactions in the tropical fruits industry, including the purchasing of inputs, are habitually conducted in United States dollars. This exerted additional upward pressure on costs to producers, exporters and importers. Although prices along the value chain displayed a tendency to increase in 2022, in most cases this was not sufficient to compensate for the substantially higher costs. While producer costs reportedly continued to be some 40–50 percent above their pre-pandemic levels, prices at export, import, wholesale and retail level rose by only approximately 10–20 percent, leaving concerns about the reduced profit margins a key topic for the industry in 2022.

Meanwhile, the war in Ukraine resulted in the discontinuation of important trade relations amid the economic sanctions and caused severe disruptions to transport routes to Ukraine. The repercussions of these developments for global tropical fruit markets were immediate. Prior to the war, the Russian Federation imported some 160 000 tonnes of tropical fruits per year, predominantly pineapples, avocados and mangoes, with supplies principally originating in Costa Rica and Peru.

Ukraine, meanwhile, imported approximately 20 000 to 30 000 tonnes of major tropical fruits per year, mainly avocados and pineapples originating in Peru and Costa Rica. These quantities translate into some 2.4 percent of global tropical fruit shipments that faced considerable obstacles to reach their destination market throughout 2022. In turn, major tropical fruit producers such as Costa Rica and Mexico on average import approximately one quarter to one third of the fertilizers used in their agricultural production from the Russian Federation. Indicative data on how the war affected relevant trade flows – as available at the time of writing – indicate the following developments:

Figure 2. Major tropical fruits: Share of 2022 export quantities by type, measured in USD billion, (2014–2016 prices) and tonnes



Source: FAO.

- Data on import quantities of major tropical fruits by Ukraine indicate a 44 percent decline from 2021, as reported by the State Customs Committee of the Ukraine.
- Data on pineapple export quantities from Costa Rica for the full year 2022 show declines of 24 percent in shipments to the Russian Federation and 94 percent in shipments to Ukraine.
- Data on avocado export quantities from Peru for the full year 2022 show declines of 37 percent in shipments to the Russian Federation and 85 percent in shipments to Ukraine.
- Fertilizer quantities imported by Mexico from the Russian Federation over the full year 2022 show a decline of 49 percent, or 590 000 tonnes, as reported by the Mexico National Institute of Statistics.

Globally, pineapple, avocado and mango continued to be the three most significantly traded tropical fruits in terms of their export quantities in 2022, bananas aside (Fig. 2). With global exports of some 3.1 million tonnes, pineapples remained by far the predominant commodity in quantity, with their popularity primarily driven by the fruit's extremely low average export unit values. However, in value terms, avocados continued to account for over 50 percent of global trade in major tropical fruits in 2022 (Fig. 2) due to the significantly higher average export unit value of this fruit, which is typically a multiple of the average export unit value of pineapples. The commodity cluster mango, mangosteen, and guava accounted for approximately 27–28 percent of global major tropical fruit trade in both quantity and constant value terms in 2022. At an export quantity of only 375 000 tonnes, papayas continued to play only a marginal role in international markets. A major obstacle to a significant expansion in global papaya trade, outside of its main destination of the United States of America, remains the fruit's high perishability and sensitivity in transport, which renders Central and South American produce less suitable for supply to far afield destinations, including the European Union.

## Outlook

Regarding the outlook, several significant threats to global production, trade and consumption of major tropical fruits are present. On the demand side, prevailing high inflation rates, high interest rates and exchange rate fluctuations threaten to hinder demand, especially for higher value tropical fruits. Many analysts are also predicting slower economic growth globally in 2023, which may further restrain demand. In this regard, particularly consumers in poorer economic strata who need to spend a higher proportion of their income on food may be affected by a reduced access to these commodities.

On the supply side, the effects of global warming are resulting in a higher occurrence of droughts, floods, hurricanes and other natural disasters, which render the production of major tropical fruits increasingly difficult and costly. The uncertainties surrounding the war in Ukraine with regard to its impact on global supply chains, fertilizer markets, transport routes and access to export markets add further risks to the outlook. Given the perishable nature of tropical fruits in production, trade and distribution, environmental challenges, insufficient infrastructure and transport bottlenecks continue to jeopardize production and supply to international markets. This is a particularly acute difficulty since the vast majority of tropical fruits are produced in remote, informal settings, where cultivation is highly dependent on rainfall, prone to the adverse effects of increasingly erratic weather events and disconnected from major transport routes.

Governments and producer organizations of producing countries have a key role to play in mitigating the possible impacts stemming from these various risks, particularly in view of their potential repercussions for smallholder farmers and workers employed in the industry. Close co-ordination of the capacity-development and extension activities of all concerned national institutions will be beneficial to the development of proper policies, regulations and strategic measures that address these challenges in a comprehensive way. The transparent collaboration among all stakeholders of the tropical fruit sector will be critical, especially with regard to addressing and containing current and future sustainability concerns related to the rising expansion of this industry.





## Commodity Briefs

# Mango, mangosteen and guava

## Exports

Global exports of mango, mangosteen and guava declined to approximately 2.3 million tonnes in 2022, a decrease of 2.9 percent, or some 70 000 tonnes, from the previous year. The main reasons behind this contraction were a substantial drop in exports of mangosteen from Thailand, as well as lower exports of mangoes from Brazil and Peru, which were not offset by higher exports from Mexico, the leading exporter of this commodity group. In terms of export quantities by type at the global level, mango accounted for around 83 percent of global shipments and mangosteen for around 15 percent. As previously, guava has continued to display a low availability in import markets, in particular due to its lower suitability for transport.

Favourable weather conditions in Mexico reportedly resulted in an approximate 11 percent expansion in domestic production as well as satisfactory fruit quality.<sup>1</sup> Available trade data and information accordingly indicate that exports from Mexico grew by 1.1 percent over the full year, to 463 000 tonnes. The country thereby raised its market share in global mango exports to 20 percent in 2022. According to trade data by destination provided by the Mexico National Institute of Statistics, over the course of 2022, approximately 80 percent of Mexican mangoes were destined for the United States of America, and around 8 percent for Canada. On account of strong demand from both importers, the average export unit value of shipments increased by approximately 4.6 percent in 2022, to USD 1 234 per tonne. While this value continued to be relatively high compared to the prices offered by competing origins, notably Guatemala and Brazil, industry sources stated that mangoes from Mexico are met with rising consumer

demand in the United States of America due to their flavour and texture characteristics.

Exports from Thailand, the leading supplier of mangosteens to world markets, declined by 12.1 percent in 2022, to approximately 330 000 tonnes, as shipments to China, the main importer of Thai mangosteens, were hampered by supply chain disruptions. Critically, delays experienced at the main arrival ports for Thai mangosteens reportedly resulted in fruits depreciating in quality and being faced with higher reject rates, as well as lower prices. On average, China procures approximately 60 percent of total Thai exports of mangosteen, typically at high prices as the premium quality of Thai fruits is habitually met with firm consumer demand in China. In view of ample supplies but difficulties to bring fruit to market, data provided by the Ministry of Finance of Thailand indicate an 11 percent year-on-year decline in the average export unit value for shipments from Thailand in 2022, to USD 1 543 per tonne. Exports of mango, mangosteen and guava from South American exporters fell by 7.5 percent in 2022, to approximately 550 000 tonnes, as supplies from both key origins, Peru and Brazil, were hampered by adverse weather conditions. In the case of Brazil, industry sources further indicated that the political tensions in the country following the general elections as well as excessive rainfall in the autumn hindered the harvest and reduced supplies. Trade data for 2022 accordingly show full year declines of 2.1 percent for exports from Peru, and 15.1 percent for supplies from Brazil. Shipments from both countries are primarily destined for European Union markets, with only 20–30 percent of exports from either country reaching the United States of America. In the European Union, Brazil benefits from its ability to produce mangoes perennially, including a number of varieties that are popular in key European import markets such as Tommy Atkins, Keitt and Kent. With total export quantities of some 230 000 to 250 000 tonnes each, Brazil and Peru saw their shares in global mango, mangosteen and guava exports decline to some 10 to 11 percent each in 2022.

As regards emerging suppliers to world markets, trade data provided by the Ministry of Commerce and

<sup>1</sup> <https://www.agronometrics.com/stories/agronometrics-in-charts-mexican-mango-production-projected-to-increase-despite-climatic-challenges/> and [https://www.mango.org/wp-content/uploads/PDF/Mango\\_Crop\\_Forecast.pdf](https://www.mango.org/wp-content/uploads/PDF/Mango_Crop_Forecast.pdf)





Industry of India show further year-on-year growth in mango exports by some 1 percent, to a full-year total of 172 000 tonnes. Remarkably, the fastest increase in shipments in 2022 was indicated for Indian mango supplies destined to the Kingdom of the Netherlands, at some 40 percent year-on-year expansion, suggesting that India may become a more significant supplier of mangoes to the European Union going forward. India ranks by far as the largest producer of mangoes globally, at a production quantity of 25 million tonnes in 2021, as reported by the latest officially available FAOSTAT data. Strong domestic demand for mangoes in the country means that supplies almost exclusively cater to the domestic market. Some 25 to 30 percent of shipments from India are typically supplied to the United Arab Emirates and Saudi Arabia, where demand for tropical fruits has been burgeoning in recent years, and another 10 percent to neighbouring Nepal. Available data for exports from Pakistan, meanwhile, show that the country saw a drop in shipments by 24 percent in 2022, to 110 000 tonnes, on account of supply shortages caused by cold temperatures and conditions of drought.

## Imports

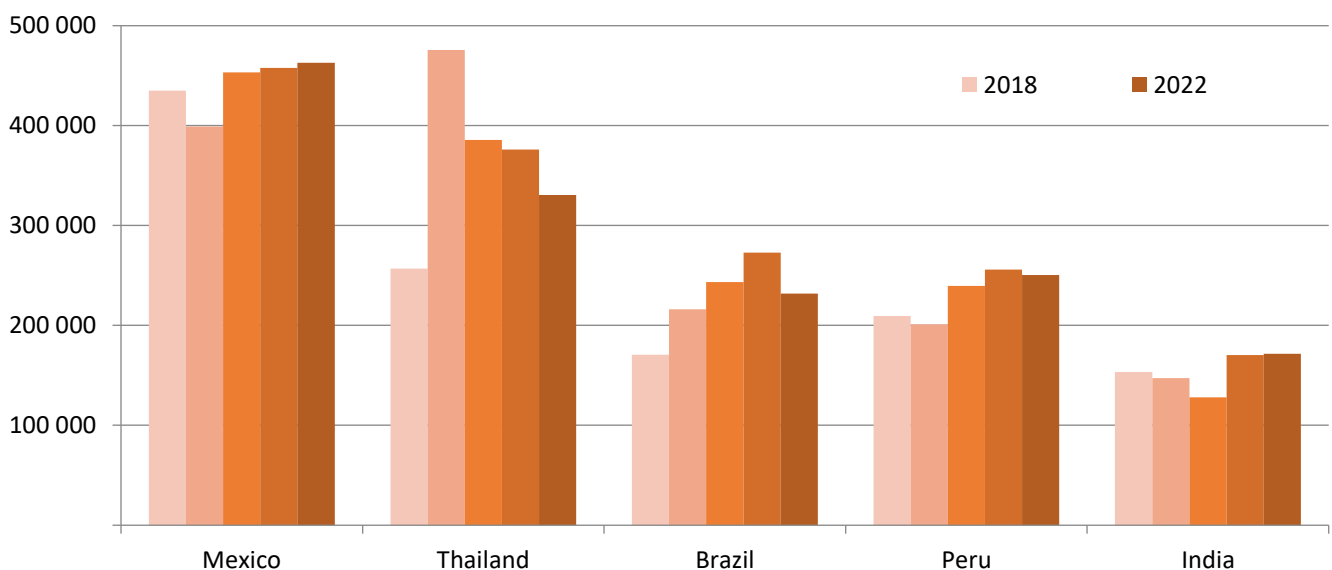
Total global import quantities of fresh mangoes, mangosteens, and guavas contracted by 0.2 percent

in 2022, to 2.2 million tonnes. The United States of America and the European Union remained the two leading global importers, holding import shares of 27 percent and 18 percent, respectively. In both markets, industry sources reported higher consumer demand for mangoes, despite prices and inflationary pressures being high, in line with a generally higher nutritional awareness of the potential health benefits of these fruits. Import growth in the United States of America was supported by higher supplies from Mexico, the leading origin for mangoes in this market. Overall, imports into the United States of America expanded by 4.2 percent in 2022, to some 590 000 tonnes. Trade data for the full year of 2022 show a year-on-year increase in the average import unit value of 2 percent, to USD 1 280 per tonne.

Imports into the European Union, meanwhile, declined by 5.7 percent in 2022, to some 390 000 tonnes, on the back of supply shortages in Brazil and Peru, the two primary origins of mangoes in this market. Industry sources reported that demand in key importing countries within the European Union, in particular the Kingdom of the Netherlands, Belgium and Germany, remained firm, resulting in considerable price rises at the wholesale level, although no precise data are available.

Imports by China, the third leading global importer of mangoes, mangosteens and guavas in 2021, rose by

Figure 3. Mango, Mangosteen, and Guava: Export quantities from the leading exporters, 2018 to 2022, tonnes



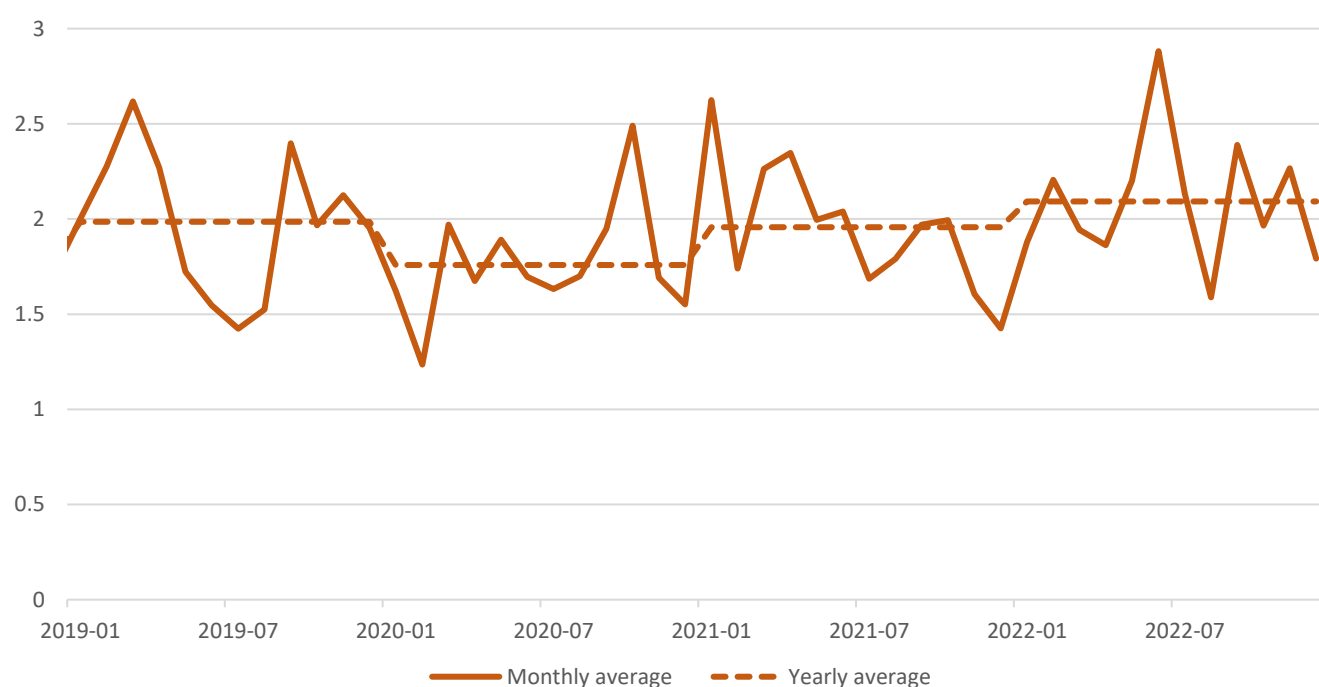
Source: FAO.

5.6 percent in 2022, to approximately 320 000 tonnes, equivalent to 15 percent of global imports. Chinese imports of this commodity group are dominated by mangosteens, which accounted for 71 to 72 percent of total quantities in 2022, according to available data on imports by type provided by China Customs Statistics. Some 28 percent of imports in this group were further made up of fresh mangoes, and a negligible amount of guavas. Growth in imports of this commodity group into China had in recent years been driven by higher procurements of mangosteens from Thailand. However, in 2022, substantially higher imports of mangoes from Viet Nam and Cambodia, which respectively reached some 50 000 tonnes and 28 000 tonnes, played a larger role. Imports of mangosteens from Thailand meanwhile showed a 21 percent decrease over this period, as delays at ports amid the elevated health safety measures in China resulted in fruit losing quality or going to waste. The considerably high import unit values of mangosteens from Thailand, which averaged some USD 2 981 per tonne in 2022 according to available data, were quoted as another obstacle to growth in procurements from this origin.

Further noteworthy importers of mango, mangosteens and guavas continued to be the United Arab Emirates, which procured some 85 000 tonnes from world markets in 2022, and Saudi Arabia, whose imports rose by 6.3 percent to 91 000 tonnes in 2022. Available trade data by type indicate that imports of this commodity cluster by Saudi Arabia continued to be dominated by fresh or dried mangoes at some 88 percent in 2022, with guavas and mangosteens accounting for only a negligible share of total imports. The main origins of mango imports into Saudi Arabia over this period were Yemen, Egypt and Pakistan, with procurements from Egypt showing year-on-year growth of over 50 percent.

Indicative average wholesale prices of mangoes in the United States of America (Fig. 4), which exclude mangosteen and guava, continued to reflect seasonal fluctuations in supply and demand throughout 2022, but ranged some 7 percent above their average of the previous year. Prices largely fluctuated around USD 2.00 per kilogram throughout the first half of the year, reached a peak of USD 2.88 per kilogram in June 2022 in response to low supplies, and dropped to USD 1.59 per kilogram in August, when competition

Figure 4. Mango: United States of America, Indicative average monthly and yearly wholesale prices January 2019 to December 2022, USD/kg



Source: FAO.

from cheaper summer fruits exerted downward pressure. At an average of USD 2.09 per kilogram over the full year 2022, the United States of America wholesale prices stood at their highest level in over one decade.

## Pineapple

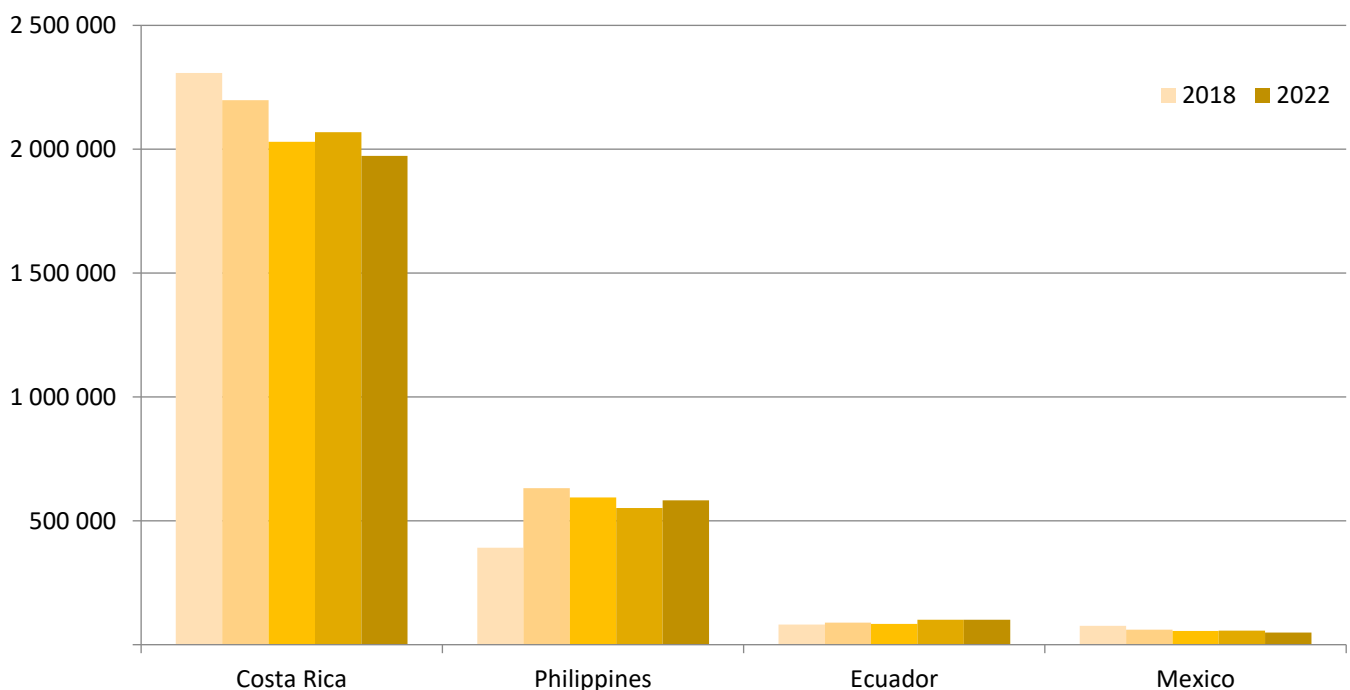
### Exports

Based on available full year data, global exports of pineapples fell by 2.2 percent in 2022, to 3.1 million tonnes, determined largely by reduced supplies from Costa Rica, the world's largest exporter at a market share of almost 70 percent. According to industry information, cold weather conditions, high energy costs and container problems negatively affected production and export from Costa Rica in 2022. Shipments from the country fell by 4.7 percent in 2022, equivalent to a drop of nearly 100 000 tonnes, to just below 2 million tonnes in strong contrast with the expansion experienced in 2021. This also marked the first time since 2015 that shipments fell below 2 million tonnes. In terms of leading destinations, pineapple shipments from Costa Rica continued to be almost exclusively destined to the United States of

America and the European Union, where demand reportedly remained firm.

Exports from the Philippines, the second leading exporter of pineapples to global markets, expanded by 5.6 percent in 2022, to some 580 000 tonnes, as COVID-19 related difficulties and the hurricane damage that had impeded export growth in 2021 abated. This marked a strong recovery from the 7 percent fall in exports registered in 2021. Available trade data by destination for 2022 show a 16 percent year-on-year increase in shipments to China, the leading recipient of pineapples from the Philippines at a quantity share of some 43 percent. Industry sources reported that imports of pineapples from the Philippines to China benefited from the logistical difficulties experienced by supplies from Costa Rica and South American origins, as transport routes from the Philippines remained relatively unaffected by disruptions. Another supporting factor was quoted as being the long shelf life, year-round production cycle and attractive price-to-quality ratio of the MD2 pineapples, the main variety cultivated in the Philippines. Further key import markets for pineapples from the Philippines remained Japan and South Korea in 2022, at quantity shares of some 30 percent and 13 percent, respectively.

Figure 5. Pineapple: Export quantities from the leading exporters, 2018 to 2022, tonnes



Source: FAO.

Shipments from Ecuador, the leading exporter of pineapples from South America, increased by 1 percent in 2022, to approximately 100 000 tonnes. Data on trade flows by destination indicate that Ecuador sent approximately 50 percent of its total exports in 2022 to the European Union, some 27 percent to Chile, and 8 percent to the United States of America.

Pineapple exports from Mexico, a comparatively small exporter of pineapples to global markets, declined by 14.7 percent, to 49 000 tonnes, due to reduced production associated with cooler temperatures and increased production costs. Supplies from Mexico are virtually exclusively destined for the United States of America, where the country ranks as the third leading origin of pineapple imports behind Costa Rica and Honduras.

Exports from Côte d'Ivoire, the leading African supplier of pineapples to world markets, rose by 4.8 percent, to 32 000 tonnes in 2022, returning close to their previous five-year-average of 33 000 tonnes. Despite this increase, industry sources reported that cold weather conditions in the country had resulted in a reduction in supplies in terms of both quantity and quality, causing difficulties to cater to import demand for higher quality pineapples from European Union markets. Trade data by destination suggest that France and Belgium continued to be the two key recipients of pineapples from Côte d'Ivoire in 2022, jointly procuring some 77 percent of the country's total shipments. Amidst the reported quality concerns, the average export unit value of shipments from Côte d'Ivoire to world markets decreased to USD 444 per tonne in 2022, a decline of 11 percent from 2021.

Shipments from Ghana, previously the second leading exporter from Africa, continued to fall drastically, by 36.7 percent in 2022. Total pineapple exports from Ghana therefore reached only some 1 600 tonnes, down from their previous 5-year-average of 20 000 tonnes. Trade data by destination for 2022 show that some 74 percent of exports from Ghana were destined to France. Exports from Ghana continued to struggle to keep up with the lower prices of pineapples from competing origins in global value

chains, with the average import unit value of shipments from Ghana received by France ranging at USD 1 348 per tonne in 2022. By comparison, this was some 88 percent higher than the average import unit value of imports by France from Costa Rica, and some 48 percent higher than the average import unit value of imports by France from Côte d'Ivoire.

## Imports

Available full year data show a decline of global imports of pineapples to 2.9 million tonnes in 2022, a contraction of 1 percent compared to 2021, on account of supply shortages from the main global supplier, Costa Rica. The two leading import destinations continued to be the United States of America, which procured about 39 percent of global exports in 2022, and the European Union at a quantity share of 26 percent. In both markets, a large part of available pineapples is consumed away from home. Estimates for the United States of America, for example, indicate that food service sales account on average for some 60 percent of total sales.<sup>2</sup> Aided by a strong dollar and an upswing of sales in the hospitality sector, imports by the United States of America increased by 3.9 percent in 2022, to 1.1 million tonnes, accompanied by a 4.4 percent increase in the indicative average import unit value. Conversely, imports by the European Union, the second largest importer, fell by 6.5 percent as supply shortages and shipping issues reduced the quantities that could be received throughout the year. Weaker economic conditions and a lower value of the euro against the US dollar posed further difficulty. Over the full year, imports by the European Union dropped to approximately 770 000 tonnes, some 15 percent below their previous 5-year average.

Imports by China, the third leading global importer of pineapples, contracted by 3.3 percent in 2022, to 208 000 tonnes, as import growth continued to be affected by weaker economic conditions and transport bottlenecks associated with the prolonged lockdowns implemented in many parts of the country. Import demand was further reduced by a stable availability of domestically produced, high-quality pineapples as weather conditions in key Chinese

<sup>2</sup> Estimate by the International Pineapple Organization.





growing regions were reportedly favourable. However, industry sources reported that the extended lockdown conditions significantly suppressed domestic prices in China, which posed difficulty not only for imported pineapples but also domestic ones, especially amid the rising costs of production and transport.

Indicative average wholesale prices of pineapple in the United States of America varied considerably throughout 2022, starting off strongly in early 2022 at USD 1.44 per kilogram in January, then rising to a peak of USD 1.62 per kilogram in August, declining thereafter to a low of USD 0.80 per kilogram in November, and USD 1.03 per kilogram in December. Over the full year, average wholesale prices stood 12 percent higher than in the previous year – and at their highest level since 2015 – thereby somewhat easing the pressure on a market that is characterised by strong competition along the value chain. Particularly in key import markets such as the United States of America, the United Kingdom of Great Britain and Northern Ireland and Germany, the fruit is habitually sold at low prices in retail outlets, which squeezes producer margins.

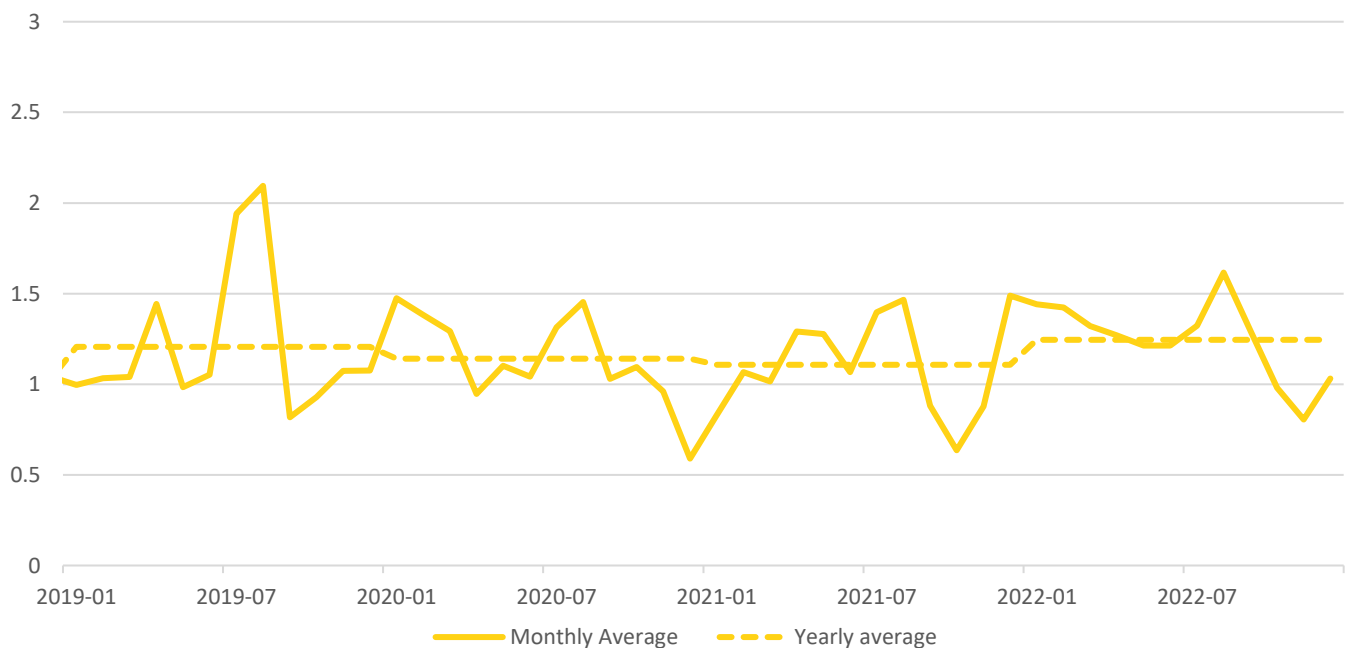
## Avocado

### Exports

Global exports of avocado declined by 3.1 percent in 2022, to 2.5 million tonnes, on account of severe weather-induced supply shortages in Mexico, the world's leading exporter. Although exports from most alternative origins continued to grow at comparatively fast rates, these increases did not fully offset the unprecedented shortfall in supplies from Mexico, as further described below. Meanwhile, ample global demand and high export prices continued to be critical drivers of growth in this dynamic sector, stimulating substantial investments in area expansion in emerging producing countries.

Available data indicate that exports from Mexico experienced a fall of 16.2 percent in 2022, to 1.2 million tonnes, more than 200 000 tonnes below the previous year's level. Nearly 80 percent of Mexico's avocado exports went to the United States of America in 2022, some seven percent to Canada, and the remainder mostly to Japan and the European Union. In global trade, Mexico, where avocados

Figure 6. Pineapple: United States of America, Indicative average monthly and yearly wholesale prices January 2019 to December 2022, USD/kg



Source: FAO.

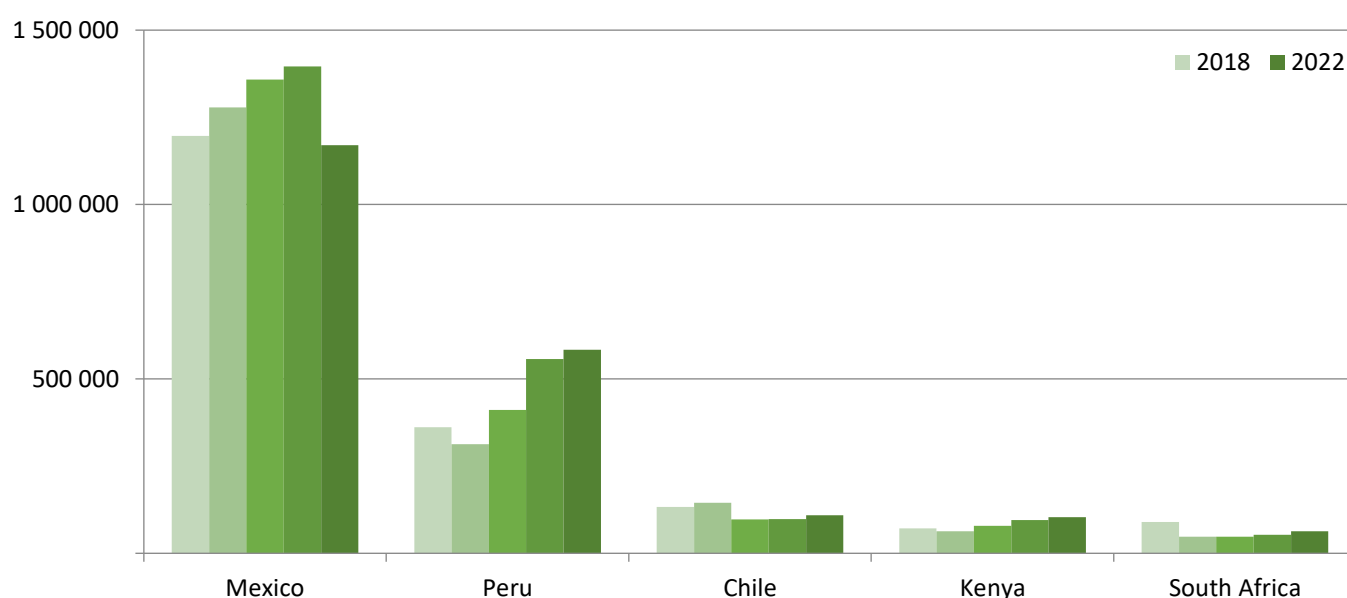
originated, typically accounts for some 55 to 60 percent of total export quantities. This is due to Mexico's ability to produce the fruit in all seasons and its focus on the higher quality Hass variety, which is in greater demand in world markets than other varieties. In 2022, following substantial production losses caused by a destructive storm in June and persisting conditions of drought in major production areas, Mexico's share in global avocado exports fell to 46 percent. On the back of these production shortages, and against continuously strong demand in the United States of America, the average export unit value of shipments from Mexico rose to USD 4 294 per tonne over the first eight months of 2022, some 87 percent higher than over the same period of the previous year. The annual average stood at USD 3092 per tonne in 2022, still some 28 percent higher than in 2021.

Exports from Peru, meanwhile, continued to benefit from favourable weather and successful prior investments in production expansion, the combination of which stimulated not only higher supplies but also better quality of produce. Data provided by the Peruvian Ministry of Agriculture in April 2022 indicate that harvested area in the country had expanded by 67 percent over the five-year period from 2017 to 2021, with further investments especially into the expansion of organic avocado production planned for 2022 to 2030. Available trade

data show that exports from the country expanded by 4.7 percent in 2022, to 584 000 tonnes. This enabled Peru to reach a share of global exports of 23 percent in 2022, up from 21 percent in the previous year. The country thereby further consolidated its position as the second leading supplier of avocados to world markets, behind Mexico. The positive trade performance was further enabled by the comparatively low prices for shipments from Peru, reflected by export unit values which averaged USD 1 580 in 2022, some 49 percent lower than the average export unit value for avocados from Mexico. Industry sources explained that Peruvian avocados are predominantly sold through previously agreed contracts instead of the spot market, meaning that prices received tend not to follow the most recent market developments. Approximately 50 percent of shipments from Peru continued to be destined for European Union markets in 2022, but data on trade flows by destination also show a large increase of 45 percent in exports to the United States of America, on account of the production shortages experienced in Mexico.

Exports from Kenya, an emerging supplier to global markets and the leading African avocado exporter, grew by 8.6 percent, to 103 000 tonnes in 2022. The country had invested in significant area expansion for avocados in recent years, nearly tripling the harvested area since 2015, to 25 918 ha in 2021, as indicated by

Figure 7. Avocado: Export quantities from the leading exporters, 2018 to 2022, tonnes



Source: FAO.

the latest official production data reported to FAO in 2022. More than half of Kenya's exports are supplied to European Union markets, where the country has been able to compete well on account of very low average export unit values. Despite upward pressure on prices due to rising production costs, these values continued to range around USD 1 100 to 1 300 in 2022, some 20 to 30 percent lower than the average unit values of shipments from Peru to the European Union, for example.

Other globally significant exporters of avocado continued to be Chile and South Africa, which also primarily supply the European Union. Exports from Chile expanded by 11.3 percent in 2022, to 110 000 tonnes, a remarkable increase compared to the previous year. However, similar to the situation in 2021, industry sources reported that further growth in avocado exports from Chile was restrained by strong domestic demand, which continued to divert produce away from export markets, and drought conditions that curtailed production.

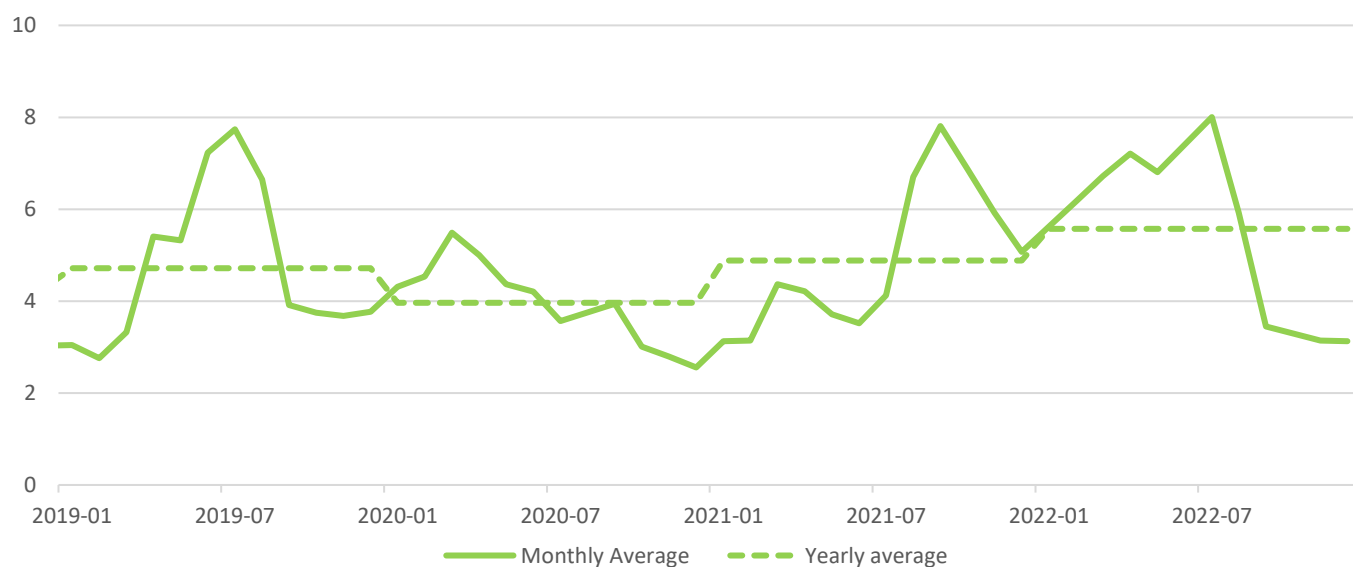
Exports from South Africa, meanwhile, grew by 19.3 percent in 2022, to 63 000 tonnes, as harvest conditions were reportedly positive. However, despite this relatively fast growth, industry sources reported that higher exports from South Africa in 2022 were severely curtailed by a near 50 percent

year-on-year drop in shipments to the Russian Federation, alongside high costs of inputs and global transport, which placed mounting pressure on producer margins. Available trade data show that around 75 percent of supplies from South Africa were destined to the European Union in 2022, where the market situation was further complicated by a higher availability of domestic supplies from Spain as well as higher imports from Peru. In view of this overall difficult situation, producers in some production areas reportedly delayed harvesting the fruits by 6 to 8 weeks, to try to capture better market conditions. Data on the value of exports in 2022 accordingly indicate a 10 percent year-on-year decline in the average unit value of shipments from South Africa, to USD 1 901 per tonne.

## Imports

Available data and information indicate that global imports of avocados fell by 7 percent in 2022, to 2.4 million tonnes. Despite continuously strong demand in the two major import markets, the United States of America and the European Union, which respectively accounted for 45 percent and 28 percent of global imports in 2022, overall growth in global trade was curtailed by the supply shortages experienced in Mexico.

Figure 8. Avocado: United States of America, Indicative average monthly and yearly wholesale prices January 2019 to December 2022, USD/kg



Source: FAO.

As such, imports by the United States of America declined by 6.4 percent in 2022, to 1.1 million tonnes. In the face of lower supplies but ample demand, available trade data show an increase in the average US import unit value of 15 percent, to USD 2 883 per tonne. The United States of America are particularly susceptible to changes in the supply situation in Mexico since they typically import some 90 percent of avocados from this origin. In 2022, Mexico's share in US imports declined to some 84 percent as competing suppliers, notably Peru and Colombia, raised their shipments to this market.

Meanwhile, imports into the European Union remained relatively stable at 677 000 tonnes, displaying only a very slight tendency to contract. Similar to the situation in the United States of America, consumption across the European Union continued to gain in popularity among an increasingly health-conscious population, with avocados widely perceived as a highly nutritious fruit. Within the European Union, growth continued to be particularly strong in Italy, where imports expanded by 22 percent in 2022, according to available trade data by destination. Expansion was also seen in Poland, another emerging avocado consuming country, which posted import growth of 13 percent in 2022. Similarly, avocado imports by France, the largest importer of avocados within the European Union, registered growth in imports of 10 percent from the previous year, including higher imports from Israel. However, it is important to note that all three countries primarily procured avocados re-exported from the Kingdom of the Netherlands, an important trade hub in the European Union, which typically accounts for

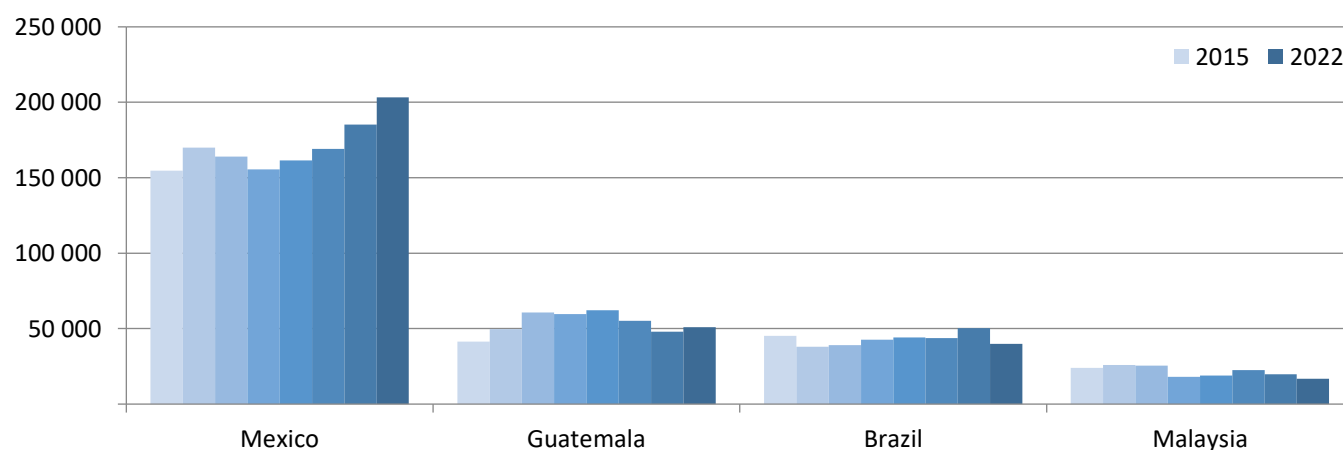
some 50 percent of the European Union's total imports and on average re-exports some 90 percent of their gross avocado imports.

On account of the tight supply situation, indicative average wholesale prices of avocado in the United States of America ranged some 14 percent higher in 2022 than in 2021. Prices displayed a strong tendency to rise throughout the first half of the year, increasing from USD 5.62 per kilogram in January to a peak of USD 8.00 per kilogram in July 2022, continuously declining thereafter to USD 3.13 per kilogram in December 2022. Over the full year, the average thereby amounted to USD 5.57 per kilogram, the highest level reported since 2017.

## Papaya Exports

Available trade data show a rise in global exports of papayas by 1 percent in 2022, to 375 000 tonnes. Exports from Mexico, the largest global exporter of papayas, achieved growth of 9.6 percent over the full year, on account of further production expansion. Data provided by the Mexican government suggest that the papaya harvested area in the country expanded by 4 percent in 2022, raising production to some 1.1 million tonnes. Export data indicate shipments of 200 000 tonnes in 2022, seeing Mexico reach a share in global exports of 54 percent. Virtually all Mexican papaya exports are destined for the United States of America, which globally ranks as the largest importer of papayas, accounting for over half

Figure 9. Papaya: Export quantities from the leading exporters, 2015 to 2022, tonnes



Source: FAO.



of all global imports in 2022, as indicated by trade data by destination. As can be inferred from the above figures, the bulk of Mexican papaya production, however, is destined for domestic consumption, meaning that trade outcomes depend critically on developments in both domestic and foreign markets. Over the first eight months of 2022, ample demand in the United States of America facilitated not only trade growth but also an increase in the average export unit value of shipments from Mexico to the United States of America of 14 percent, to USD 664 per tonne, as shown by data from the Mexico National Institute of Statistics. From October 2022, average export unit values displayed a tendency to decline again but remained at a full year average of USD 635 per tonne, the highest level recorded since 2014.

The second and third leading suppliers of papayas to world markets continued to be Guatemala and Brazil, which exported 51 000 tonnes and 40 000 tonnes in 2022, respectively. Exports of papayas from Guatemala grew by 6.4 percent in 2022, as production partly recovered from the COVID-19 related difficulties and hurricane damage that had constrained exports in 2021. However, despite this comparatively solid growth, the overall level of papaya exports from Guatemala remained lower than their 5-year average of 57 000 tonnes achieved between 2016 and 2020, as another tropical storm in October 2022 impeded further expansion. According to trade data by destination provided by the Guatemala National Institute of Statistics, approximately 64 percent of supplies from Guatemala were destined for the United States of America in 2022, where papayas of the Tainung variety are well received on the grounds of their consistency in quality and transportability. On account of ample demand in the United States of America, the average export unit value of shipments from Guatemala to the United States of America grew by 2.8 percent in 2022, to USD 640 per tonne. The remaining share of papaya exports from Guatemala primarily reached neighbouring El Salvador, where import demand was driven by low domestic production. Data provided by the Guatemala National Institute of Statistics show an increase of 32 percent in export quantities to El

Salvador in 2022, facilitated further by comparatively low average export unit values of USD 215 per tonne.

Shipments from Brazil, one of the leading producers of papayas globally, meanwhile declined by 20.8 percent in 2022, to 40 000 tonnes, following weather-induced production shortages. Industry sources reported that a cooler-than-usual winter had affected the maturation and quality of fruit for export, while previous reductions in crop area due to phytosanitary problems and high production costs were additionally detrimental to output.<sup>3</sup> These supply-side problems, combined with firm import demand from the European Union, the leading destination for papayas from Brazil, resulted in substantial increases in the average export unit value. Data provided by the Brazil Ministry of Development, Industry and Trade indicate a rise in the average export unit value of 24 percent in 2022, to USD 1 246 per tonne, as exporters outbid domestic demand. As in the case of Mexico, the bulk of Brazilian papaya production caters to the domestic market, where demand for the fruit remains high, but is more price sensitive than for exporters.

Papaya exports from Malaysia declined by 15.3 percent in 2022, to 17 000 tonnes. Supplies from Malaysia are almost exclusively destined for Singapore, where the fruit enjoys popularity. According to industry information provided by the International Tropical Fruits Network in December 2022, papaya shipments from Malaysia were hampered by the high costs of production stemming from higher expenditures for labour and inputs, as well as by a limited availability of labour in 2022. These factors impeded farm operations in the country and led to a reduction in production, with some farmers reportedly exiting the sector. Furthermore, bacterial plant diseases, in particular the bacterial dieback disease caused by phytopathogenic bacteria *Erwinia mallotivora*, were quoted as another factor having impeded Malaysian papaya production in 2022. On the import side, demand for Malaysian papayas in Singapore was reportedly impacted by a shift in consumer preferences, with cheaper and sweeter varieties from Indonesia gaining in popularity

<sup>3</sup> <https://www.datamarnews.com/noticias/papaya-harsh-winter-and-smaller-crop-area-limit-exports/>



to the detriment of the sekaki variety commonly grown by Malaysian producers.

## Imports

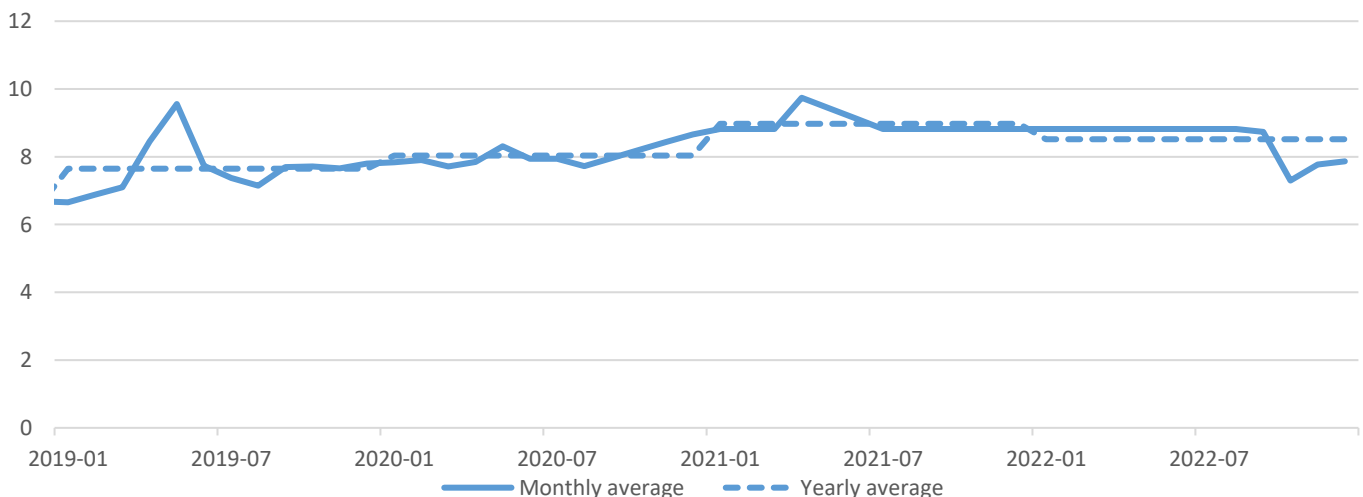
Available data suggest that global imports of papayas grew by 0.8 percent in 2022, to 351 000 tonnes. The United States of America remained the largest importer globally, accounting for a quantity share of 58 percent. Their imports grew by a reported 8.6 percent in 2022, to 202 000 tonnes, as demand remained solid amidst consumer's rising awareness of healthy nutrition, with papayas benefiting from their reputation of being a rich source of vitamin C. Import growth was further facilitated by the ample supply situation in Mexico, the leading supplier of papayas to the United States of America. Industry information moreover conveyed that the Mexican papaya industry had jointly implemented stringent efforts to improve the quality and food safety of their produce, in compliance with the requirements of regulatory authorities, which successfully reduced border reject rates and additionally supported trade growth.

The second leading importer globally continued to be the European Union, albeit with a much lower share in world imports of only 9 percent. Consumer awareness of papaya in the European Union generally remains low, mostly due to the fruit's fragility in transport, which renders a significant expansion in this market difficult to attain. However, in 2022

specialised media reported that demand for papayas in the European Union, especially in the key markets of France and Germany, was slowly but steadily rising. Despite this positive upswing in consumer interest in the fruit, the production difficulties experienced in Brazil, the leading origin of papayas in the European Union, resulted in significant supply shortages in 2022. Available data accordingly indicate that imports by the European Union declined by 16 percent in 2022, to 32 000 tonnes. Average import unit values, meanwhile, displayed a strong tendency to increase in 2022, amid high costs for airfreight, the main mode of transport for papayas shipped to the European Union. For example, the average import unit value in the Kingdom of the Netherlands, an important trade hub in the European Union also for papayas, increased by a reported 15 percent from the previous year. Further noteworthy importers of papaya in 2022 continued to be Canada, with a share of 5 percent of global imports, as well as Singapore, El Salvador and the United Arab Emirates, with some 5 to 6 percent each.

Indicative average wholesale prices of papayas in the United States of America remained at a high level in 2022, especially during the first nine months of the year when they averaged close to USD 9 per kilogram. Although prices displayed a sudden drop, thereafter, averaging USD 7.64 per kilogram from October to December 2022, the full year average of USD 8.52 per kilogram still remained significantly higher than the average prices recorded in the ten years before the pandemic.

Figure 10. Papaya: United States of America, Indicative average monthly and yearly wholesale prices January 2019 to December 2022, USD/kg



Source: FAO.







## CONTACT

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