

MARKET PROFILE

Market profile

for fresh papaya from West
Africa to regional and European
markets





Subject of the study:	Market profile for fresh papaya from West Africa to regional and European markets
Date :	June 2024

This publication has been developed by the Fit For Market + programme, implemented by COLEAD within the framework of the Development Cooperation between the Organisation of African, Caribbean and Pacific States (OACPS) and the European Union (EU). It should be noted that the information presented does not necessarily reflect the views of the donors.

This publication is part of a collection of COLEAD resources, which consists of online and offline educational and technical tools and materials. All of these tools and methods are the result of more than 20 years of experience and have been developed progressively through COLEAD's technical assistance programmes, notably in the framework of development cooperation between the OACPS and the EU.

The use of particular designations of countries or territories does not imply any judgement on the part of COLEAD concerning the legal status of these countries or territories, their authorities and institutions or the delimitation of their frontiers.

The content of this publication is provided in a "currently available" form. COLEAD makes no warranty, direct or implied, as to the accuracy, completeness, reliability or suitability of the information at a later date. COLEAD reserves the right to change the content of this publication at any time without notice. The content may contain errors, omissions or inaccuracies, and COLEAD cannot guarantee the accuracy or completeness of the content.

COLEAD cannot guarantee that the content of this publication will always be current or suitable for any particular purpose. Any use of the content is at the user's own risk and the user is solely responsible for the interpretation and use of the information provided.

COLEAD accepts no liability for any loss or damage of any kind arising from the use of, or inability to use, the content of this publication, including but not limited to direct, indirect, special, incidental or consequential damages, loss of profits, loss of data, loss of opportunity, loss of reputation, or any other economic or commercial loss.

This publication may contain hyperlinks. Links to non-COLEAD sites/platforms are provided solely for the information of COLEAD staff, its partner-beneficiaries, its funders and the general public. COLEAD cannot and does not guarantee the authenticity of information on the Internet. Links to non-COLEAD sites/platforms do not imply any official endorsement of, or responsibility for, the opinions, ideas, data or products presented on those sites, or any guarantee as to the validity of the information provided.

Unless otherwise stated, all material contained in this publication is the intellectual property of COLEAD and is protected by copyright or similar rights. As this content is compiled solely for educational and/or technical purposes, the publication may contain copyrighted material, the further use of which is not always specifically authorised by the copyright owner.

Mention of specific company or product names (whether or not indicated as registered) does not imply any intention to infringe proprietary rights and should not be construed as an endorsement or recommendation by COLEAD.

This publication is publicly available and may be freely used provided that the source is credited and/or the publication remains hosted on one of COLEAD's platforms. However, it is strictly forbidden for any third party to state or imply publicly that COLEAD is participating in, or has sponsored, approved or endorsed the manner or purpose of the use or reproduction of the information presented in this publication, without prior written consent from COLEAD. The use of the contents of this publication by any third party does not imply any affiliation and/or partnership with COLEAD.

Similarly, the use of any COLEAD trademark, official mark, official emblem or logo, or any other means of promotion or advertising is strictly prohibited without the prior written consent of COLEAD. For more information, please contact COLEAD at network@colead.link.



Funded by
the European Union

Table of Contents

1. INTRODUCTION.....	3
1.1 Key findings.....	3
2 SUPPLY	4
2.1 Presentation of the product.....	4
2.2 Papaya production.....	4
2.2.1 Papaya production worldwide.....	4
2.2.2 Papaya production in West Africa.....	5
2.3 Exporting countries in West Africa.....	6
2.3.1 The Ghanaian exports of papaya	7
2.4 Main varieties and supply seasons in West Africa and other key geographies	8
3 DEMAND.....	9
3.1 Trends in the European market	9
3.1.1 Imports	9
3.1.2 Main competitors	10
3.1.3 Potential analysis of main papaya importers in Europe.....	11
3.1.4 Main varieties consumed.....	11
3.1.5 Key markets.....	12
3.1.6 B2B trends.....	12
3.2 Trends in the West African market.....	13
3.2.1 Local demand	13
3.2.2 Imports	13
3.3 Requirements of destination markets	14
3.3.1 Europe	14
3.3.2 West Africa	16

3.4	Marketing mix: price, products, packaging	17
3.4.1	Europe.....	17
3.4.2	West Africa	19
4	MARKET	22
4.1	Organisation of the supply chain	22
4.1.1	Europe.....	22
4.1.2	West Africa	23
4.2	Opportunities	24
4.2.1	Europe.....	24
4.2.2	West Africa	25
5	CONCLUSIONS.....	26
6	DATA SOURCES.....	27

1. INTRODUCTION

This market study evaluates the potential for papaya from West Africa in local and European markets.

The study offers an analysis of the market data (import, export, prices) as well as the information provided by several stakeholders in the value chain, including exporters, importers and experts. The status of Ghana as a papaya exporter is examined in more detail, as it currently has the highest export values of papaya in the region.

The HS code used for the trade analysis is 080720 Fresh pawpaws “papayas”.

1.1 Key findings

The current European market for papaya is growing, although it still has a relatively small share of the market in comparison to other tropical fruits. As papaya is a delicate product, it is usually transported by plane, which increases the cost of the product for the end market.

France and Germany are key consumption markets offering potential for suppliers from West Africa. Both countries are end markets where the fruit is consumed. Imports into the French market have slightly decreased by – 0.6%. The German market is also interesting, as the import volumes have grown rapidly in the last 11 years (around 2.4% yearly). The United Kingdom (UK) is also an important market, although imports from Ghana have been declining. The Netherlands and Belgium have small domestic markets, but they are home to numerous importers who distribute across Europe. This makes these countries interesting partners for fresh produce exporters.

Retailers and importers are willing to include suppliers that are geographically nearer than Brazil, including suppliers in West Africa. Nevertheless, the product must be competitive in terms of quality, packaging, volumes, compliance with regulations, sustainability standards and price.

As air freight plays a key role in the price of papaya, the connectivity and rates applied to flights from Ghana and other West African countries will determine the competitiveness of the product. However, there is room for suppliers that can ship papayas by sea while maintaining the quality of the fruit. The transit times between the origin and destination markets must be as short as possible for this to be feasible. Suppliers from Senegal have the best opportunity to deliver a good quality product by sea to France (Dunkirk, Marseilles, Port Vendres), Spain (Algeciras) or the UK (Tilbury) due to short transfer times. An efficient harvest and transportation process to the port and a solid cold chain are key success factors for sea transport of such a delicate crop.

Tips for papaya producers

- If your volumes are low, join forces with other producers to offer bigger volumes to buyers and optimise logistics costs.
- Jump on the sustainability trend! In the past decade, being GLOBALG.A.P. certified has become a key requirement for retailers and importers when selecting a supplier. The main European retail chains now also require growers to have an internationally recognised sustainability standard in place, such as [GRASP](#), [Rainforest Alliance](#), [SMETA](#) or [Fair Trade](#). On top of that, the Green Deal might increase the importance of those standards in the near future.
- Consider including the Formosa variety in your cultivar. Offering both varieties is an interesting feature for buyers.

In West Africa, it is currently difficult to identify a stable domestic demand, as papaya is produced in several neighbouring countries and is not a staple food, so consumption is limited.

2. SUPPLY

2.1 Presentation of the product

Papaya (*Carica papaya*), also known as papaw or pawpaw, is a soft tropical fruit. It grows on semi-woody tree-like plants of up to ± 8 m tall. Although papayas are large oval or pear-shaped fruits that can weigh from about 200 g to more than 2 kg, they are considered berries. They are 15–45 cm long and 10–30 cm in diameter. When maturing, the fruit's skin turns from green to yellow/orange. The orange or yellow flesh of the ripe fruits is sweet, tender and creamy. The flesh of green fruits is white and crisp, with a mild flavour. Papayas are usually consumed raw, but they can also be cooked or used in fruit compotes, juices, sauces and other preserves. Similar to other fruit, papaya is healthy when eaten as part of a balanced diet and is relatively low in calories.

There are different papaya varieties that differ mostly in size and slightly in flavour. The small or “personal” size fruits weigh 200–700 g, while the larger varieties start at 900 g and can weigh over 3 kg. Traditionally, the small varieties are marketed for small households, while the larger varieties are more suitable for bigger families or catering.

Some common small varieties are Solo, Sunrise and Golden. The most common larger varieties are Formosa, Tainung and Maradol.

Raw papaya consists of 88% water and 11% carbohydrates (mainly sugar). The fruit is a rich source of fibre and various antioxidants. Per 100g, papaya contains about:

- 1.7 g fibre
- 61 mg vitamin C (each individual papaya contains more than 100% of the daily recommended intake of vitamin C)
- 47 µg vitamin A RAE
- 0.3 mg vitamin E (alpha-tocopherol)
- 1,830 µg lycopene
- 274 µg beta-carotene

The HS code for papaws (papayas) is 080720. The Codex Alimentarius¹ international food standards contain a specific standard for papaya. This states that papayas for fresh supply to the consumer must be:

- whole
- sound
- clean, practically free of any visible foreign matter
- practically free of damage caused by pests
- practically free of pests affecting the general appearance of the produce
- free of abnormal external moisture
- free of any foreign smell and/or taste
- firm
- fresh in appearance
- free of damage caused by low and/or high temperatures.

The peduncle (stalk), if present, should not exceed a length of 1 cm.

2.2 Papaya production

2.2.1 Papaya production worldwide

According to the FAO, in 2022 global papaya production was around 14.5 million tonnes and showed a compound annual growth rate (CAGR) of 1.6% between 2011 and 2022. The main producer of papaya worldwide was India, which produced over 5 million tonnes, accounting for 37% of the world's production (Table 1 and Figure 1). Brazil, Indonesia, Dominican Republic and Mexico followed, with production over 1.1 million tonnes and growth rates ranging between 1.2% for Indonesia and 9.0% for Dominican Republic. Brazil was the only top producer with a decrease in its production, with -4.6 % annually between 2011 and 2022.

¹ FAO (1993) CODEX Alimentarius. Standard for Papaya. An explanatory brochure project based on Codex Alimentarius standard is planned to be adopted and published by OECD Scheme for fruits and Vegetables.

2.2.2 Papaya production in West Africa

Nigeria was the sixth largest producer worldwide and the main producer in West Africa, producing over 877,000 tonnes in 2022, accounting for 6.1% of worldwide production, and showing a CAGR of 1.3% between 2011 and 2022. Other major producers in West Africa were Mali with over 88,000 tonnes and a CAGR of 9.3%, Côte d'Ivoire with 14,000 tonnes and a CAGR of 2.3%, and Ghana with over 5,000 tonnes and 1.5% CAGR.

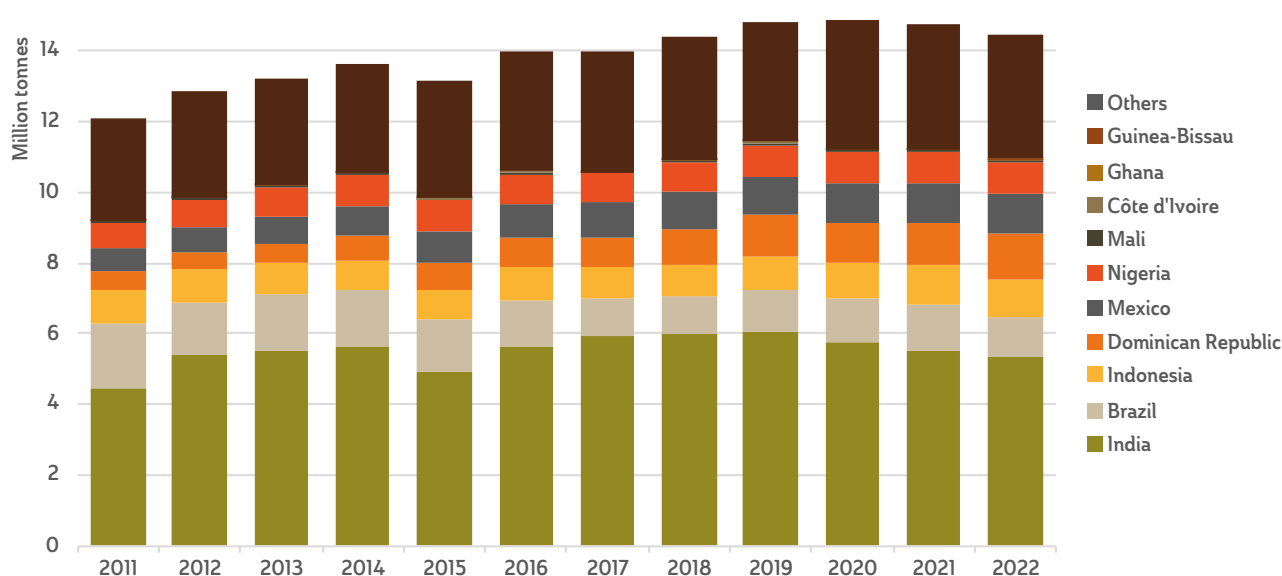
From 2010, heavy infestations of the papaya ring spot virus were observed in Côte d'Ivoire's main production area around Azaguié. Both the area planted and the production per hectare decreased. Currently, only small quantities of papaya are produced for the Abidjan market.² In Ghana, papaya production was affected by a type of papaya mealybug, which caused a significant decrease in production. There are now protocols for controlling this pest, so resuming production of this crop should be viable.

Table 1. Main papaya producers worldwide in 2022. Main producing countries in West Africa in bold.

Rank	Country	Tonnes	CAGR 2011–2022	% of total production
1	India	5,341,000	1.7%	36.9%
2	Brazil	1,107,761	-4.6%	7.6%
3	Indonesia	1,089,578	1.2%	7.5%
4	Dominican Republic (the)	1,281,726	9.0%	8.8%
5	Mexico	1,139,121	5.5%	7.9%
6	Nigeria	877,009	1.3%	6.1%
22	Mali	88,196	9.3%	0.6%
36	Côte d'Ivoire	14,230	2.3%	0.1%
44	Ghana	5,652	1.5%	0.0%
50	Guinea-Bissau	3,040	1.4%	0.0%
	Others	3,544,042	1.9%	24.5%
	Total	14,491,357	1.6%	100%

Source: COLEAD based on FAOSTAT.

Figure 1. Worldwide papaya production per country in volumes (2011–2022)



Source: COLEAD based on FAOSTAT.

² Hortisol Holland (2018) Horticulture in Côte d'Ivoire. <https://www.rvo.nl/sites/default/files/2018/09/Horticulture-Cote-divoire.pdf>

2.3 Exporting countries in West Africa

In 2022, Ghana was the main papaya exporter in West Africa. Ghana generated over 86% of the total papaya export value of the region (99% in volume), with more than EUR 1.4 million and 813 tonnes going to the 27 countries of the European Union (EU27) and the United Kingdom (UK) (Table 2). Ghana's exports peaked in 2021 at over 3,500 tonnes, of which over 2,000 were exported to Burkina Faso, before slightly declining in 2022 (Figure 2).

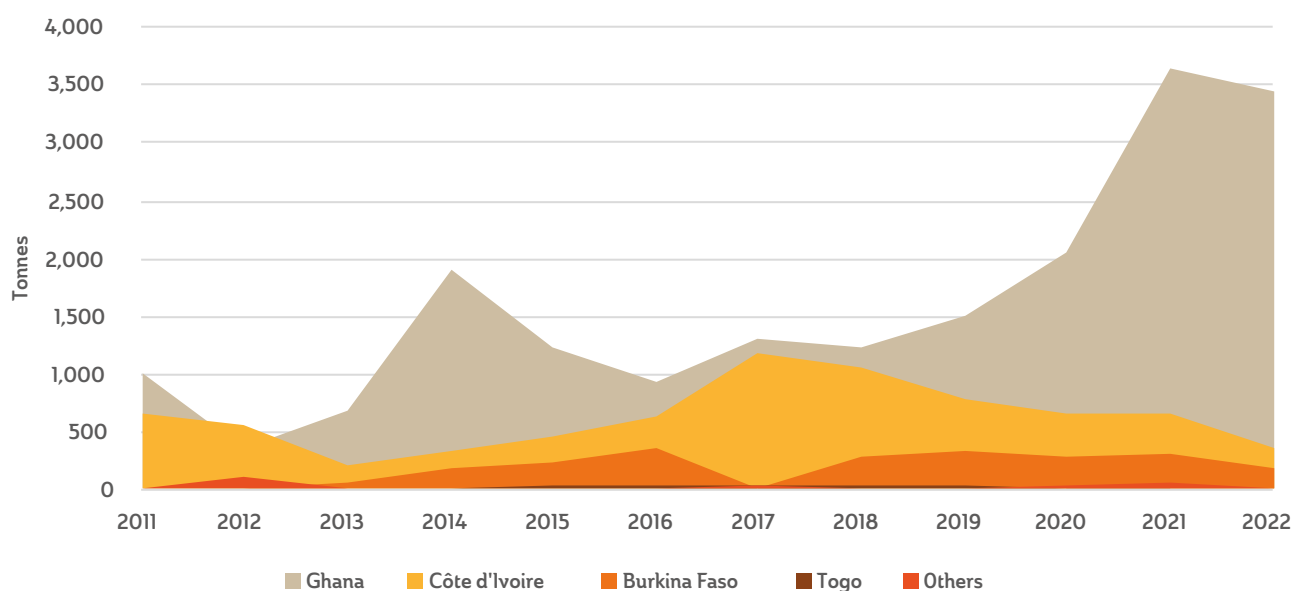


Table 2. Main papaya exporters to the EU27 and UK in West Africa in 2022, tonnes

Country	2011	2022	CAGR 2011–2022	% of West African exports (volume)
	Tonnes	Tonnes		
Ghana	1,009	813	-1.9%	99.3%
Senegal	0.05	4.8	51.6%	0.6%
Togo	0.12	1.2	23.4	0.1%
Others	1	0.01	-35.1%	-
Total	1,010	819	-1.9%	100%

Source: COLEAD based on CEPII BACI, Eurostat and IFPRI.

Figure 2. Exports of papaya from West Africa per country of origin in volume (2011–2022)



Source: COLEAD based on CEPII BACI, Eurostat and IFPRI.

Cote d'Ivoire's exports peaked in 2017 and 2018, with around 1,000 tonnes exported, mainly to Mali. Burkina Faso has exported from 1 to over 180 tonnes sporadically over the last 10 years.

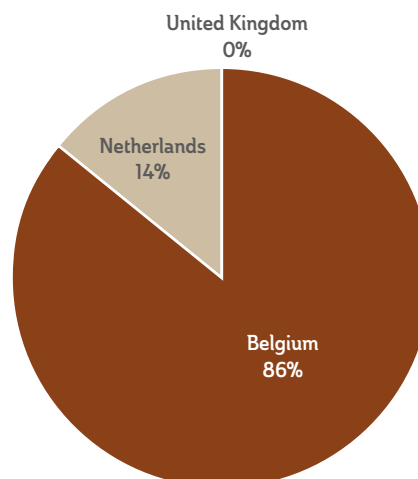
2.3.1 The Ghanaian exports of papaya

In 2022, Ghanaian exports of papaya were concentrated in Europe, particularly Belgium and the Netherlands. Small shipments were also made to the UK.

Ghana emerged as the preferred source of import of papaya to the EU27 and UK for several reasons, including³:

- Annual review of all process-related activities to confirm GLOBALG.A.P compliance and traceability
- Production of the highest quality papayas due to on-farm pre-shipment inspections at various locations
- Ghanaian solo papaya (the main variety produced in Ghana, about 80% of total production) is preferred in the market over papaya from competitor countries
- Increasing number of farms producing organic papaya in response to its perceived health benefits to the consumers
- Fruits are harvested at the optimum time of maturity Availability of fruits year-round
- Proximity of Ghana to Europe, the main market, which enables Ghanaian papaya to arrive at its destination in good condition.

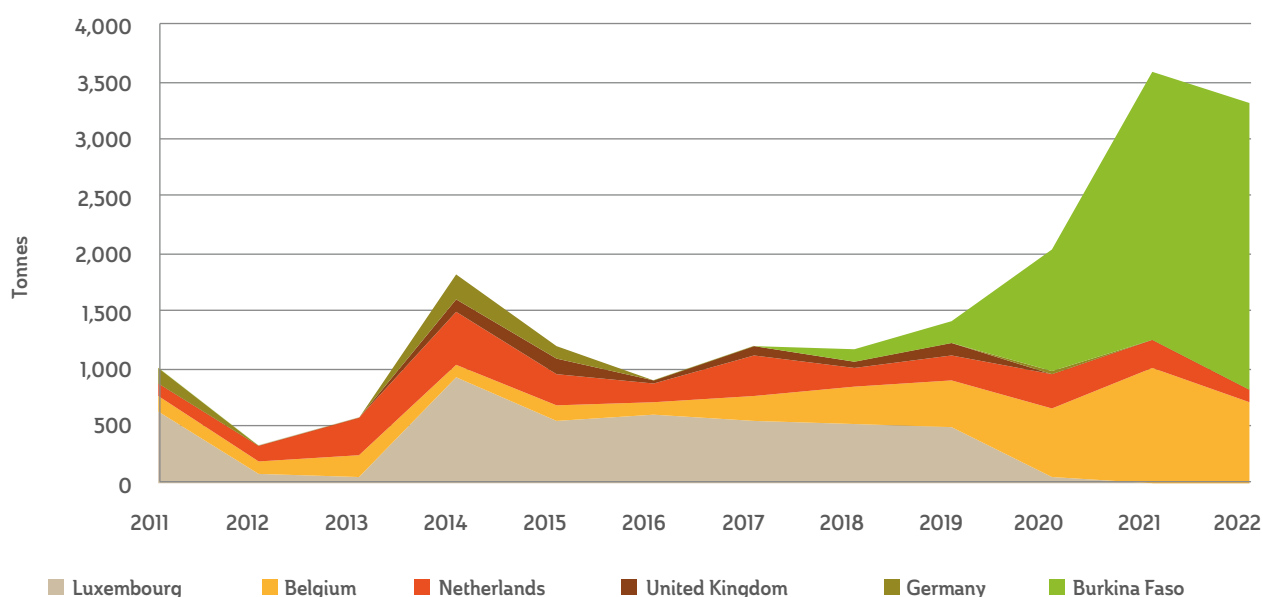
Figure 3. Main destinations of Ghanaian exports of papaya in 2022 by volume



Source: COLEAD based on CEPII BACI, Eurostat and IFPRI.

- Belgium was the main destination for Ghanaian papayas, receiving 86% of the export volume, followed by the Netherlands with 14% (Figure 3). Exports to the Netherlands peaked in 2014 at 448 tonnes and have subsequently varied year-by-year. Exports to Belgium have grown continuously over the last 10 years, especially after 2017. It declined slightly in 2022 to 697 tonnes.

Figure 4. Development of Ghanaian exports of papaya in 2011–2022 per destination, in volume



Source: COLEAD based on CEPII BACI, Eurostat and IFPRI.

³ GEPA (n.d.). Blue Sky Product Ghana Limited. <https://www.gepaghana.org/import/ghana-exporter/blue-sky-product-ghana-limited/>

Ghanaian exports of papaya to other destinations have shown less positive development. Exports to Luxembourg declined dramatically in 2020 and disappeared in 2021 and 2022, while those to Germany ceased almost completely in 2016 (Figure 4). Exports to the UK reached a peak of 124 tonnes in 2014 but declined to just 2 tonnes in 2021. Ghana exported over 2,000 tonnes to Burkina Faso in 2022, coinciding with a peak in Burkina Faso's exports, which suggests this might be the product of a conjunctural re-export transaction.

For European destinations, data on the import country reflects the initial European destination of the airfreight and not the final market or the country where the importer is located. The current airfreight costs from Ghana to Belgium are lower than to other countries in the region. Therefore, importers commonly send the goods through Belgium and then transport them to the end destination by road. The high volumes exported to Luxembourg might also reflect an air freight route that was convenient until 2019 but was then replaced by an alternative route to Belgium.

Togo exported around 32 tonnes in 2015, mainly to Belgium and Germany, but these exports subsequently rapidly decreased, to 1 tonne to Belgium and nothing to Germany in 2022. Nevertheless, the trade data for the region does not show the full picture of the regional trade, as some transactions take place informally, without being reported.

2.4 Main varieties and supply seasons in West Africa and other key geographies

Ghana produces papaya year-round, with a high and low season. The high season takes place between September and March and the low season is between April and August.⁴ However, this seasonality depends on the rain. In 2022, due to changes in rain patterns, Ghana's peak season was between June and December.

⁴ Fresh Plaza (2016) Overview Global Papaya Market. <https://www.freshplaza.com/europe/article/2158194/overview-global-papaya-market/>

The main variety of papaya grown in West Africa is Solo, which produces small fruits of between 500 g and 1 kg. Around 70% of production is of Solo papayas, while another variety, Golden papaya, accounts for about 20%. Golden papaya has a small fruit (400–700 g) and a more subtle flavour. Other minor varieties (such as Red lady papaya, Mexican Red/Yellow Papaya, Bettina papaya, Hastus Gold papaya and Walmanalo papaya) make up the remaining 10%.

Brazil, the main competitor with West African producers in Europe, produces two main varieties: Golden papaya and Formosa, a larger fruit (1–3 kg) with a stronger taste. Both varieties are available throughout the year, although Formosa papayas are at their best quality from July to November, while the Golden papaya is best from March to July.⁵

Considering that Ghana's main season for Solo papaya is outside the Brazilian season for Golden papaya, suppliers from Ghana have a potential opportunity to replace Brazilian suppliers during the high season, if they have a competitive offer in terms of quality, volumes and prices.

Mexico and Thailand are other strong competitors in Europe, offering mainly the Maradol and Red Lady varieties, respectively. Both varieties have large fruits, similar to the Formosa. Thai papayas are usually imported green for use in Thai dishes, so they are not competing in the same segment as the West African and Brazilian papayas.

⁵ Fresh Plaza (2021) Brazilian papayas see high demand throughout pandemic. <https://www.freshplaza.com/europe/article/9298631/brazilian-papayas-see-high-demand-throughout-pandemic/>

3. DEMAND

3.1 Trends in the European market

3.1.1 Imports

In 2022, Europe imported over 36,500 tonnes of papaya (Table 3) at a value of €90 million. The volume of import was the lowest in 2022 as compared to the previous 5 years. On the other hand, the imports value has increased at CAGR of 4.6%. This difference is due to the high cost of air freight, as papayas are primarily transported by air, but is also because Brazil has a large share of the market with relatively little competition, so weather conditions affecting Brazilian production have a strong impact on the availability and prices of papaya in Europe.⁶

The top five importers of papaya in Europe received 86% of the total papaya imports in 2022.

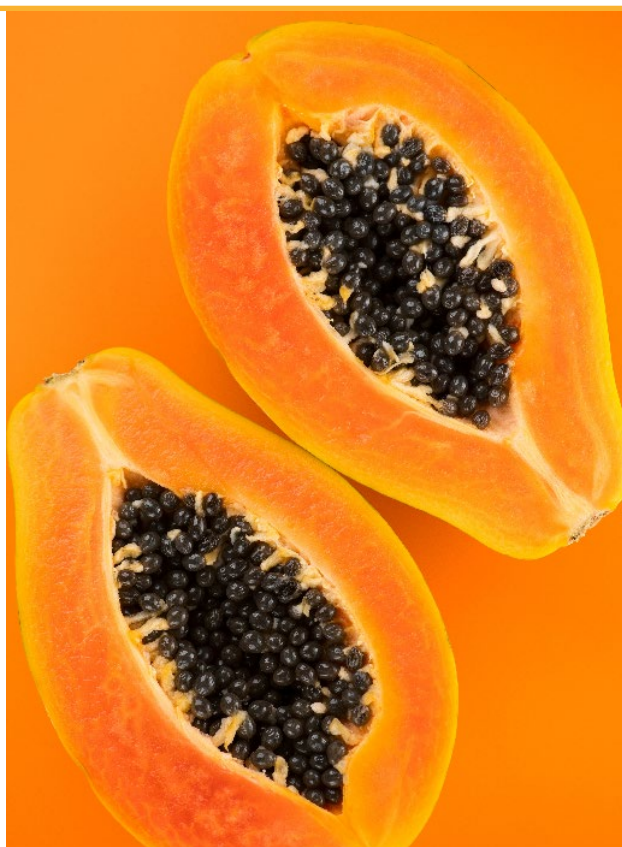


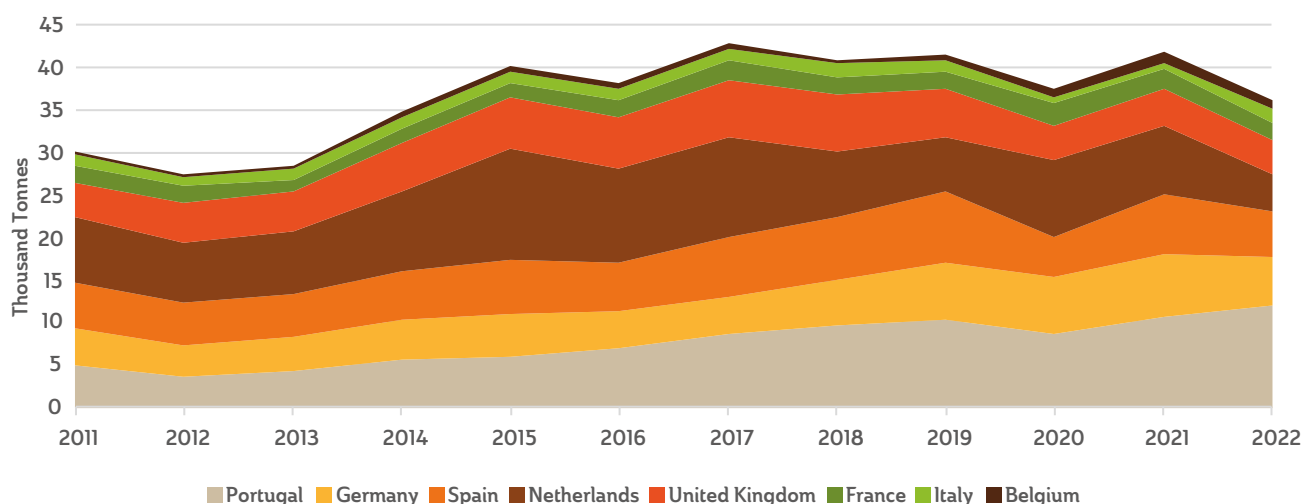
Table 3. Main papaya importers in EU27+UK in 2022, in tonnes.

Rank	Country	2011 (tonnes)	2022 (tonnes)	CAGR 11-22	Share of exports from West Africa to each main importer, 2022
1	Portugal	7,672	11,906	8.1%	0.0%
2	Germany	5,031	5,672	2.4%	0.0%
3	Spain	5,159	5,591	0.7%	0.0%
4	Netherlands (the)	4,109	4,169	-5.4%	2.7%
5	United Kingdom	4,390	4,163	0.1%	0.0%
6	France	2,042	1,908	-0.6%	0.0%
7	Italy	1,361	1,854	2.8%	0.0%
8	Belgium	294	984	11.6%	71.5%
9	Czechia	623	140	8.1%	0.0%
	Others	249	293	-12.5%	0.0%
	Total	30,935	36,578.37	1.5%	2%

Source: COLEAD based on Eurostat and UK Trade Info

⁶ Fresh Plaza (2022) Global Market Overview Papaya.. <https://www.freshplaza.com/europe/article/9468308/global-market-overview-papaya/>

Figure 5. Imports of papaya per country into Europe, by value (2011–2022)



Source: COLEAD based on Eurostat and UK Trade Info.

Between 2011 and 2022, Portugal was the most dynamic market of the top six, with a CAGR of 8.1%, making it the main importer in the region, with almost 12,000 tonnes imported and €28 million in value in 2022. Germany also showed 2.4% growth in the same period, becoming the second main importer and reaching over 16% of the total imports in 2022 with 5,700 tonnes and €10.5 million. Belgium accounts for only 3% of the European imports with around 984 tonnes and over €1.9 million but has been showing 11.6% yearly growth in volume.

The increase in imports into Belgium is mainly due to the lower airfreight prices relative to imports into the Netherlands. Belgium remains a small market for papaya.

Spain and France rank 3th and 6th in terms of papaya imports with around 5,600 (€12.7 million) and over 1,900 tonnes (€5.5 million) respectively. Spain showed a positive annual growth of 0.7 while France's is at -0.6%. The UK ranked 5th in 2022, with around 4,100 tonnes valued at almost €9.8 million. The growth in imports into the UK is at 0.1%.

Papaya imports into the Netherlands, the main importer, have decreased with a CAGR OF -5.4% reaching almost 4,200 tonnes for €10.5 million in 2022. The lack of growth in the Dutch imports can partially be explained by the fact that Germany, a key market for Dutch importers, is increasing direct imports into the country.

In general, the main end markets for papaya are Portugal, Germany, the UK, Italy, and France. Spain is also a significant consumer, but is also responsible for most European production (in the Canary Islands, Almería and Málaga).⁷

3.1.2 Main competitors

Brazil dominates the European market for papaya, accounting for 90% of the value and 90% of the volume imported in 2022 (Table 4). The imports coming from Brazil also showed a positive dynamic between 2018 and 2022, growing 3.2% yearly (CAGR) in value. However, the volume decreased with a CAGR of -3.7 and reached over 32,000 tonnes and €81.7 million in 2022. Lower production volumes due to poor weather conditions and rising logistics costs have increased the prices, leading to a higher growth in value than in volume.

The other main origins of papaya imports in volume into Europe in 2022 were Ghana, with over 813 tonnes (over €1.4 million) and accounting for 2% of the total imports of Europe, followed by Panama with around 810 tonnes (€700,000), Angola with over 550 tonnes (€920,000) and Mexico with over 450 tonnes (€1.1 million).

Papaya imports from Angola have shown rapid growth. Imports began in 2018 with €51,000 and 30 tonnes and reaching over €920,000 and 575 tonnes in 2022.

⁷ El Productor (2022) *Resumen del mercado global de la papaya* <https://elproductor.com/2022/10/resumen-del-Acmercado-global-de-la-papaya-4/>

3.1.3 Potential analysis of main papaya importers in Europe

Table 4. Main papaya importers into Europe, their imports from Ghana and supplier concentration

Country	Imports 2022, tonnes	Imports 2022 € millions	CAGR tonnes 2011–2022	Imports from Ghana 2022, tonnes	CAGR tonnes 2011–2022	Main suppliers (in volume, 2022)
Portugal	11,906	27	4.1%	-	-	Brazil 97%, Angola 3%
Germany	5,672	15	1.1%	-	-	Brazil 94%, Mexico 6%, Thailand 5%
Spain	5,591	12	0.7%	-	-	Brazil 94%, Panama 5%, Morocco 1%
Netherlands	4,169	10	0.1%	113	-0.7%	Brazil 91%, Thailand 4%, Ghana 2%
United Kingdom	4,163	9	-0.5%	2	-13.0%	Brazil 93%, Thailand 3%, Bangladesh 2%
France	1,908	5	-0.6%	-	-	Brazil 84%, Thailand 12%, Morocco 3%
Italy	1,854	4	2.8%	-	-	Brazil 97%, Costa Rica 3%
Belgium	984	1	11.6%	697	17.2%	Ghana 62%, Brazil 33%
Czechia	140	0.9	-12.7%	-	-	Colombia 89%, Thailand 9%

Source: COLEAD based on Eurostat and UK Trade Info.

Based on trade data, the most interesting markets for papaya from Ghana and West Africa as a whole are Belgium and the Netherlands, as both overall imports of papaya and imports from Ghana is increasing in Belgium but decreased slightly in the Netherlands (of the two, Belgium receives the highest imports from Ghana, by volume). United Kingdom is also another interesting market for papayas from Ghana and from West Africa in general. It is one of the top importing markets for papaya and is growing rapidly.

Belgium and the Netherlands are not end markets, but the importers located in those countries, especially the Netherlands, are still key actors in the distribution of exotic produce in Europe, including papaya.

3.1.4 Main varieties consumed

There are two main papaya sizes in the European market: smaller fruits weighing less than 1 kg and larger papayas weighing 900 g or more. Some common varieties of smaller papayas on the European market are

Solo, Sunrise and Golden. Formosa is the main variety of larger papayas in the market.

Both sizes of papaya are consumed in different European markets and retailers often request both sizes from their importers. Formosa is often consumed in Germany and Golden is particularly popular in Eastern Europe.⁸

Brazil produces both Golden (small fruit) and Formosa (large) varieties all year round, which allows this market to dominate the papaya imports in Europe. In the past, there was only demand for the smaller varieties in the European market, possibly because the smaller households prevalent in Northern Europe tend to prefer smaller portions. Nevertheless, the market is opening for larger varieties like Formosa, especially because of their flavour and current quality.⁹

⁸ Fresh Plaza (2022) Increased focus on European papayas. <https://www.freshplaza.com/europe/article/9475638/increased-focus-on-european-papayas/>

⁹ Hortisol Holland (2018) Horticulture in Côte d'Ivoire.. <https://www.rvo.nl/sites/default/files/2018/09/Horticulture-Cote-divoire.pdf>

3.1.5 Key markets

Germany

The consumption of papaya is growing in Germany, where Formosa is the preferred variety, followed by Golden. In Germany, papaya used to be a niche product, mostly sold in weekly markets or in Turkish specialist markets. Today, you can find papayas in the mainstream retailers including discounters, stock papayas, including in small sizes (900 g–1 kg).

UK

In the UK, the Golden variety is the most popular.¹⁰ This market has one of the most exclusive and costly retail sectors in Europe, allowing for pre-packed, ready to eat papayas as well as “jumbo” papayas of the Formosa variety. In this market, new sizes and innovative packaging often find retail opportunities. Nevertheless, after Brexit and with the current economic crises, the prices in the UK are rising, which could lead to a decline in the consumption of luxury goods, including some exotic groceries such as papaya.

Portugal

Portugal is one of the main consumption markets for papaya in Europe, which has led to the emergence of local production in the south of the country. Nevertheless, the local production is currently small-scale, and the market is still supplied by imports. Portugal has strong links with Brazil and Angola, explaining why these two origins dominate the market.

France

While France is also a key consumer of papaya in Europe, consumption is relatively stable, as papaya is still considered a niche product for the specialist market.

Spain

In Spain, papaya is an important fruit for the catering sector. The market is dominated by

Brazilian suppliers, although the local papayas produced in the Canary Islands, Almería and Málaga also have a strong position.¹¹

Belgium and the Netherlands

Belgium and the Netherlands are both trade hubs but are not large consumption markets. Germany is the main end destination for papaya imports of both countries. However, the Netherlands has a larger trajectory as trading hub, and therefore supplies a wider range of markets in Europe, while Belgium is currently focusing mainly on Germany.

3.1.6 B2B trends

Convenience

European consumers want convenience. They increasingly prefer buying their papayas ripe, sweet and ready-to-eat. Mini papayas (small papaya varieties with a small size) and papayas with a longer shelf life are particularly suitable for the convenience segment. Papayas can also be sold freshly cut, as time-saving and healthy snacks. Large retailers play a key role in this segment by cutting and packaging larger Formosa papayas.

Papayas are relatively difficult to handle and ship because they bruise easily and are prone to over-ripening. Because of this, the longer shelf life of Formosa papayas may have added to their increased popularity in recent years. New papaya varieties with a longer shelf life and more resistance could offer opportunities. Technical advancements or improvements in transport and ripening processes can also lower both the risks and costs involved in shipping papayas.

Sustainability

Environmental and social sustainability are becoming increasingly important in the production and processing of fresh fruit for the European market. Within this area, specific issues include reducing the use of pesticides and ethical employment. European importers

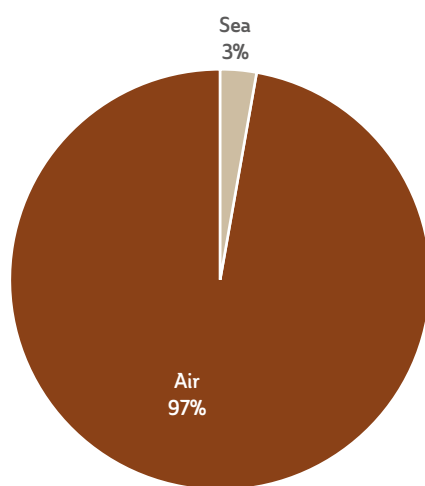
¹⁰ Fresh Plaza (2021) Brazilian papayas see high demand throughout pandemic. <https://www.freshplaza.com/europe/article/9298631/brazilian-papayas-see-high-demand-throughout-pandemic/>

¹¹ El Productor (2022) Resumen del mercado global de la papaya. <https://elproductor.com/2022/10/resumen-del-mercado-global-de-la-papaya-4/>

and retailers generally prefer certification schemes such as SMETA, [GLOBALG.A.P.](#), GRASP and Rainforest Alliance.

In 2022, several European retailers announced plans to stop using air freight to import fresh fruit and vegetables.¹² The feasibility of this plan regarding papayas is still unclear, as currently the vast majority of the papayas reaching the market arrive by air (Figure 6). Nevertheless, any origin that is able to deliver a good quality papaya by sea will have a critical differentiator and potentially a serious advantage in the market.

Figure 6. Percentage of papaya import volume in the EU by transportation method



Source: COLEAD based on Eurostat.

Health benefits

Food items with health benefits (“health foods”) are becoming more and more popular in the European market. Papayas are known to be rich sources of antioxidants such as vitamin C and carotenoids, and their fibre content may help digestion. Increasing consumers’ awareness of these health benefits may boost the popularity of papayas.

Organic

Related to the trends of sustainability and health foods, there is an increased interest in organic fruits and vegetables. Although the market for organic papayas is relatively

¹² Fresh Plaza (2022) Switching from air freight to sea freight legumes went smoothly. <https://www.freshplaza.com/europe/article/9501011/switching-from-air-freight-to-sea-freight-legumes-went-smoothly/>

small, this trend may be accelerated by the European Union’s new Farm to Fork Strategy.¹³ The current supply of organic papayas is likely to be smaller than the potential demand.

Technology

Today’s fresh fruit exports increasingly rely on data, technology and automation. Precision farming is a data-driven approach to farm management that improves productivity and helps reduce the use of inputs such as water, fertiliser and pesticides. These tools are also becoming available for smallholder farmers.¹⁴ Exporters also need to monitor the cold chain, especially for delicate fruit like papaya.

3.2 Trends in the West African market

3.2.1 Local demand

The local demand for papaya in West Africa is increasing.¹⁵ For example, in Ghana, papaya as a commodity has become just as important as other fruit such as mangoes, pineapples and oranges. Consumption is good but depends on the spending power of the consumers. The main consumer base for commercial production is consumers from middle and higher income households who can spend at retailers’ points, supermarkets, hotels and restaurants where fruits are served as deserts and juices.

3.2.2 Imports

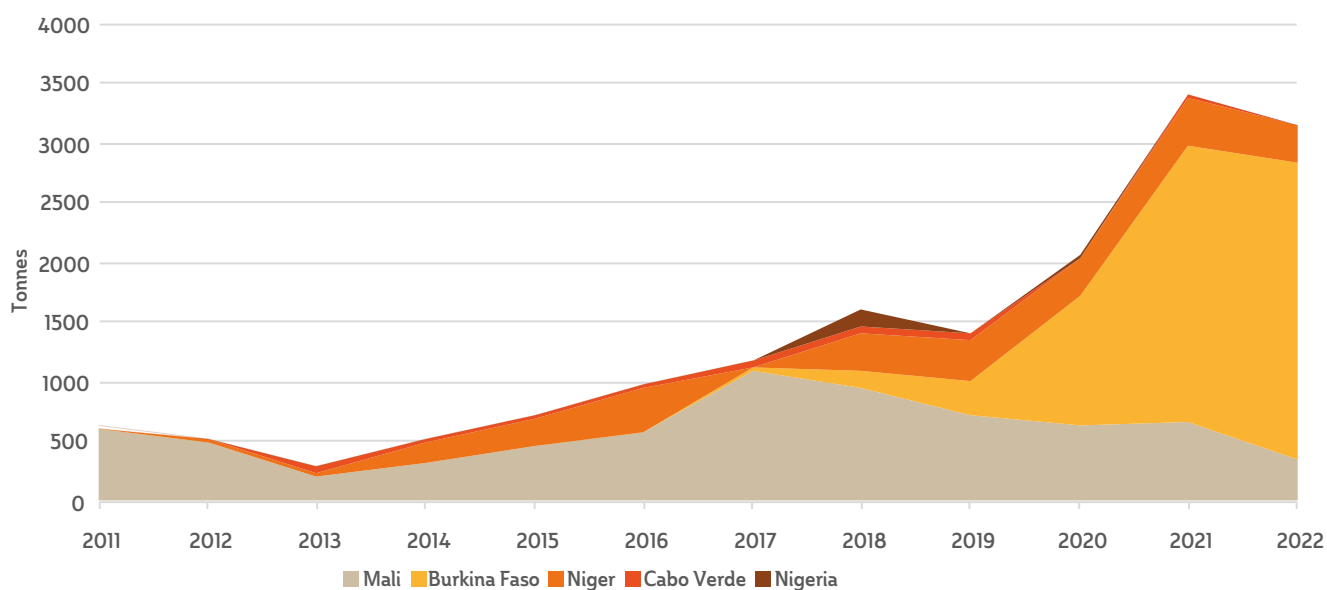
In 2022, in the selected West African countries, Nigeria imported less than 1 tonnes of papaya. Between 2011 and 2017, other top importers were Mali, Burkina Faso and Niger (Figure 7). Cabo Verde’s imports have been relatively low over the years (less than 100 tonnes). Mali’s imports have declined from 1,000 tonnes (€82,000) in 2017 to 700 tonnes (€40,000) in 2019. In the case of Burkina Faso, imports have been on the rise, reaching a peak over 2,000 tonnes (€18,000) in 2022.

¹³ European Commission (2023) Farm to Fork Strategy.

¹⁴ UNDP (2021) Precision agriculture for smallholder farmers.

¹⁵ Ghana: Papaya export frustrated by drought and bureaucracy (2016) <https://www.itfnet.org/v1/2016/06/ghana-papaya-export-frustrated-by-drought-and-bureaucracy/>

Figure 7. Imports of selected West African countries, in volume (2011–2022)



Source: COLEAD based on CEPII BACI, Eurostat and IFPRI.

Between 2011 and 2022, the main suppliers of papayas to countries in West Africa were Côte d’Ivoire, Spain, Burkina Faso, Ghana and India (Table 5).

Table 5. Main papaya suppliers of selected* West African importers by volume

Importer	Main supplier	Main supplier’s proportion of imports by volume (2011–2022)
Mali	Côte d’Ivoire	100%
Cabo Verde	Spain	98%
Niger	Burkina Faso	96%
Burkina Faso	Ghana	95%
Nigeria	India	85%
Senegal	Ghana	84%

*Countries with imports over 100 tonnes in at least 10 years between 2011 and 2022.

Source: COLEAD based on CEPII BACI, Eurostat and IFPRI.

Based on this data, some regional markets for Ghanaian papayas could be Burkina Faso, Nigeria, Senegal and Mali. Nevertheless, it is unclear whether there is a stable demand in those markets. In addition, the data for regional trade does not show a complete picture, as many transactions are made informally and therefore are not properly reported.

Cabo Verde’s imports are monopolised by Spain. As Cabo Verde is in the middle between Spain and Ghana, it is unlikely that Ghanaian suppliers are more competitive. Exporters in Senegal could have an advantage in this market due their proximity.

3.3 Requirements of destination markets

3.3.1 Europe

Mandatory requirements

Pesticide residues

The EU has set maximum residue levels (MRLs) for pesticides in and on papayas.¹⁶ The residue levels in food must be safe for consumers and must be as low as possible. Papayas that exceed these limits are withdrawn from the market. Several countries, such as the UK and Germany, have set even stricter MRLs.

Phytosanitary requirements

The EU has rules for the trade in plants and plant products from non-EU countries.¹⁷ To be allowed onto the European market, papayas must have a phytosanitary certificate, guaranteeing that they are:

¹⁶ EU Pesticides Database (2023) Papaya.

¹⁷ European Commission (2023) Trade in plants & plant products from non-EU countries.

- properly inspected
- free from quarantine pests
- in compliance with the plant health requirements of Regulation (EU) 2019/2072.¹⁸

Ghanaian papaya exporters can ask the IPPC Official Contact Point¹⁹ at the Ministry of Food and Agriculture or the Ghana Food And Drugs Authority under which conditions they can export papayas to Europe.

Marketing standards

Papayas for the European market must comply with the general marketing standard of Regulation (EU) 543/2011.²⁰ There are currently no specific EU or United Nations Economic Commission for Europe marketing standards for papaya, but a worldwide standard exists, established by Codex Alimentarius.²¹

The Green Deal

The new European Green Deal²² strives to reduce net greenhouse gas emissions by at least 55% by 2030. Its Farm to Fork Strategy²³ aims to make food systems fair, healthy and environmentally friendly. It focuses on topics such as sustainable food production and food loss and waste prevention, with goals including reducing the dependency on chemical pesticides.

Labelling

All foodstuffs marketed in the EU must comply with EU labelling rules,²⁴ aimed at ensuring that consumers have all the essential information to make an informed choice while purchasing their foodstuffs.

Regulation No 543/2011 sets out detailed rules for the application of Council Regulation (EC) No 1234/2007 in respect of the fruit and

vegetables and processed fruit and vegetables sectors,²⁵ and specifies that fruit sold in bulk in the trading package must include the country of origin, common name of the product, the name and address of the packer and production party identification or lot number. The label should be in the language of the consumers in the country of destination.

The labelling or marking in the Codex Alimentarius standard is used by exporters of papaya, as they contain more information than that required by the EU and are accepted by importers and retailers. According to the standard, the labelling should include:

- name and address of the packer or shipper
- product name 'papayas' and name of the variety, if the produce is not visible from the outside
- country of origin
- class and size (using the codex standard for papaya)
- official control mark (optional)
- lot number for traceability or GGN if certified GLOBALG.A.P.
- post-harvest treatment
- organic certification, including name of inspection body and certification number (if applicable)
- retailer logo (in the case of private-label products).

Voluntary requirements

GLOBALG.A.P.

The most common certification for fresh papayas is GLOBALG.A.P., which covers the agricultural production process from before the plant is in the ground to the unprocessed product. It focuses on food safety, the environment, labour conditions and product quality. It has become a standard requirement for most European supermarkets.

¹⁸ Official Journal of the European Union (2019) Regulation (EU) 2019/2072 regards protective measures against pests of plants.

¹⁹ FAO (2023) IPPC Official Contact Point Ghana.

²⁰ Official Journal of the European Union (2011) General marketing standard of Regulation (EU) 543/2011.

²¹ FAO (1993) CODEX Alimentarius. Standard for Papaya.

²² European Commission (2023) A Europe Green Deal.

²³ European Commission (2023) Farm to Fork Strategy.

²⁴ European Commission (2023) Labelling and Packaging.

²⁵ 543/2011/EU: Commission Implementing Regulation (EU) No 543/2011 of 7 June 2011 laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 in respect of the fruit and vegetables and processed fruit and vegetables sectors

Sustainability

Sustainability is a popular theme in Europe. Most buyers have a (supplier) code of conduct, especially in Northwestern Europe.

Common social standards include SMETA, GLOBALG.A.P. GRASP, Fair Trade, [Fair for Life](#) and [ISO 26000](#). Fairtrade certification is most common for the leading types of fresh fruit, but [Fairtrade International](#) does have a [Fairtrade Premium for fresh papaya](#). Common environmental standards include GLOBALG.A.P. [SPRING](#), Rainforest Alliance and [ISO 14001](#). Sustainable buyer initiatives include [Amfori BSCI \(social\)](#), [Amfori BEPI](#) (environmental), [ETI](#), [Sedex](#) and [SIFAV](#).

If companies want to place their products in the retail sector in Northwestern Europe, they must have at least one sustainability standard, such as Rainforest Alliance, SMETA, GRASP, Fair Trade or ETI.

Organic papayas

Although the market for organic papayas is relatively small, European demand for organic fruit is growing. Between 2018 and 2021, European customs registered imports of organic papayas of around 100 tonnes a year. Since 1 January 2022, Regulation (EU) 2018/848²⁶ sets the rules on organic production and labelling of organic products. Producers must have used these organic production methods for at least 2 years before they can certify their papayas as organic. With the new regulation, inspections have become stricter.

To become certified, producers must be audited by an accredited certifier. When approved, producers can use the [EU organic logo](#) and the standard holder's logo on their papayas. All organic products imported into Europe must have an [electronic certificate of inspection \(e-COI\)](#), administered through the Trade Control and Expert System (TRACES).

²⁶ European Commission (2018) Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007.

Food safety management systems

Although not mandatory for fresh fruits and vegetables, having a quality management standard in place will help companies gain trust from retailers in Europe.

The main food safety management systems include:

- [British Retail Consortium \(BRC\) Global Standards](#): Main quality standard for UK supermarkets.
- [Food Safety System Certification \(FSSC\) 22000](#): Quality standard accepted widely in Europe
- [International Featured Standards \(IFS\)](#): Main quality standard for German and French supermarkets.

These systems are recognised by the [Global Food Safety Initiative \(GFSI\)](#).

3.3.2 West Africa

In most countries in West Africa, especially those with forest, semi-forest (deciduous) and transitional vegetations, papaya grows in the wild. This serves as source of food, particularly for rural communities. In recent times, however, commercial production of papaya has been expanded to meet growing market demand in the urban and peri-urban areas, and also for export. To meet market demands, the papaya sector in producing countries has adopted general norms and standards that have served as the basis for training of farmers, exporters, pack-house operators and all other actors along the value chain to ensure high quality papayas that meet market requirements at all times.

Some features of West African papaya markets are:

- A number of papaya farmers are GLOBALG.A.P. certified so that they can actively export to Europe and other emerging markets.
- There is a growing trend and shift towards organic production, accompanied by the required

certification through certifying bodies such as Agro Eco Louis Bolk Institute in Ghana.²⁷

- Producers are adopting preferable export varieties such as solo dwarf papaya in Ghana, which is in high demand in the international market.
- Harvesting is carried out at the right stage of maturity so that the fruits can attain the desired stages of ripening by the time they reach the destination markets.
- Checks are done on the fruit to ensure no bruising or damage to skin.
- Producers are registered as nucleus farmers or belong to out-grower farmer groups so that they can receive the right type of training to improve their production.
- Fruits ready for harvesting are checked physically for insect and other pest infestations and other defects before harvesting. This is to ensure the physical appearance of the fruit is attractive and matured before they are harvested.
- The mature and approved fruits are harvested into clean plastic crates and transported to the packhouse or factory. The fruits are kept refrigerated just below room temperature at +23°C.

3.4 Marketing mix: price, products, packaging

3.4.1 Europe

Packaging

Papayas have a thin skin, so it is very important to properly pack and protect the product, to maintain quality throughout the supply chain. Usually, papayas are delivered in 3.5–4.5 kg boxes, individually protected by a foam net and paper (Figure 8).

The number of fruits per package depends on the size and weight of the fruits. With size 7, for example, seven pieces fit in a package (4.5 kg).

Figure 8. Papayas individually packed in foam nets



Source: Shutterstock.

Some distributors also sell ready-to-eat (Golden) papaya in individual packages (Figure 9).

Figure 9. Pre-packed ready-to-eat golden papaya



Source: Nature's Pride packaging options https://www.naturespride.eu/en/range/fruit/ready-to-eat-fruit/papaya?product_property=papaya

Prices

The retail prices widely vary depending on the retail type and the market (Table 6).

²⁷ Ghana Export Promotion Authority. <https://www.gepaghana.org/import/ghana-exporter/blue-sky-product-ghana-limited/>

Table 6. Retail prices in various European markets

Market	Variety	Retail type	Price	Aprox. weight	Date
Germany	Golden	Supermarket	€2.99	400–500 g	14.03.2023
Germany	Golden	Supermarket	€3.49	400–500 g	09.02.2023
Germany	Formosa	Discounter	€3.99	900 g	07.02.2023
Netherlands	Formosa	Supermarket	€4.65	1.3 kg	08.02.2023
Germany	Formosa	Supermarket	€5.99	> 1 kg	09.02.2023
France	Formosa	Greengrocers	€13.90	1.2 kg	08.02.2023
Sweden	Golden	Asian grocery store - online	SEK49	400-480g	08.02.2023

Source: Various sources.

The price per weight for larger papayas is slightly lower than for smaller varieties.

Papaya prices can fluctuate over time, influenced by supply and demand. Weather conditions can disrupt supply in the producing countries as papaya production strongly depends on rain. Prices also strongly depend on airfreight rates; if rates are too high, the trade of papaya becomes inviable.

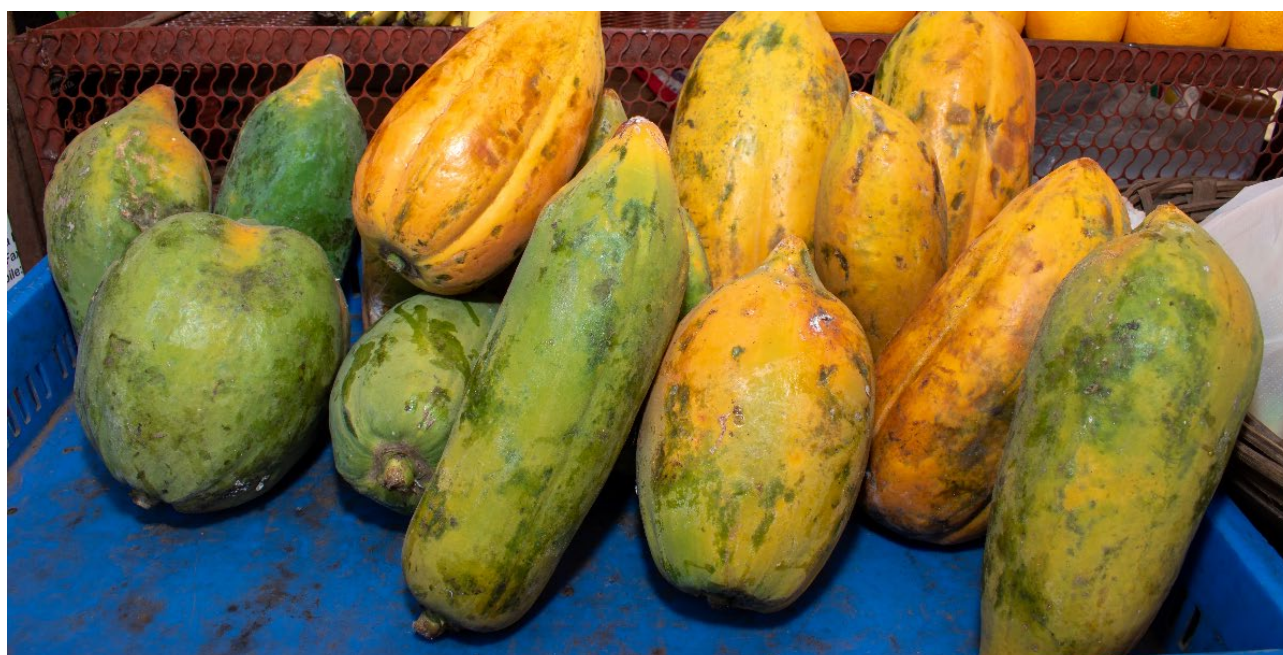
Current FCA prices for papaya range between US\$1 and US\$1.5 per kilo, depending on the distribution channels. Importers supplying to open markets for example offer lower prices, while importing retailers or importers working with supermarkets offer better prices. This might also vary depending on the market. The wholesale price for the German discounter is currently around US\$11.5 and US\$12.5 per 4.5 kg box.

Table 7. Indicative price composition per kilogram (US\$)

FCA price	1.1
+ airfreight*	
Import price	2.1
+ 30% wholesale margin and logistics	
Wholesale price	2.8
+ 50% retail margin	
Retail price	4.1
+ 7% VAT	
End consumer price**	4.4

*Airfreight estimated at US\$1 per kg. This rate can vary from US\$1 to US\$1.3.

**Price based on observations in discounter in German market for papaya Formosa calibre 5 from Brazil.





Some specialist importers are offering papayas with a wholesale price of US\$4.1 for Formosa (calibres 3–4) and US\$5.2 for golden (calibre 9) from Brazil. It is not clear whether this translates into a higher price for the producer, or if the wholesalers are targeting higher profits with this product.

3.4.2 West Africa

Papaya is known to have several health benefits that could be considered for healthy diet plans. Some of the health benefits attributed to papaya consumption include:

- Helps to reduce the risk of Alzheimer’s disease
- Protect against certain types of cancer
- Boosts the immune system
- Protects the heart
- Helps in lowering blood sugar
- Plays a role in fighting inflammation
- Fiber in papaya also promotes healthy digestion.

Papayas from Ghana have a distinct, characteristic taste, which may be perceived as desirable by consumers and could give the country a competitive advantage.²⁸

Packaging

Papayas traded in the market may be whole or freshly cut fruit, cut and mixed with other fruits (fruit salad), dried pawpaw, or processed fruit in the form of powder. The form in which the papaya is marketed determines the type of packaging used (Figure 10). For example, whole fruits are packaged in cardboard boxes, with each package containing 6–12 fruits weighing 500 g to 2 kg each. The fruits are packed in a single layer in telescopic corrugated fibreboard cartons, with the stems placed facing the bottom of the box.

Freshly cut papaya is packed in transparent plastic packs weighing 100–500 g and are sold refrigerated in supermarkets. In the local market, freshly cut papaya is packed in transparent polythene bags and is often sold at roadside, usually in the mornings.

Papaya juice is usually sold in plastic bottles, while dried and powdered papaya are packed in paper and pouched bags. Pictures showing samples of the various packaging are shown below.

²⁸ GEPA (2021) Sector capabilities – Papaya from Ghana <https://www.gepaghana.org/import/ghana-exporter/blue-skyproduct-ghana-limited/>

Figure 10. Different forms of papaya packed in various types of packaging



Fresh whole papaya packed in cartons for export.²⁹



Fresh cut papaya included in packed fruit salad³⁰



Dried papaya packed in paper pouch bag³¹



Papaya powder packed in paper pouch bag³²



Papaya extract packed in a bottle³³



Fresh whole papaya fruits displayed in local market

29 SGA Farms, Ghana Limited www.sgafarms.com

30 Provest Export, Ghana Limited <https://www.21food.com/products/fruit-salad-485442.html>

31 Yvaya farm dried papaya slices (2023); <https://yvayafarm.com/>

32 Anti-aging Digesting booster organic papaya powder (2023); <https://www.ubuy.com.gh/search?q=papaya+fruit>

33 Herbal Goodness Green Papaya fruit extract (2023); <https://www.ubuy.com.gh/search?q=papaya+fruit>

Prices

Prices of papaya in the Ghanaian market vary widely depending on several factors. These factors include whether the product is locally produced and sold in the local market as fresh or processed fruit, whether it is locally produced and exported or whether it is imported papaya (usually with high level of processing) and sold in the local market.

Locally produced fruit, sold fresh in the local market, is the most common form of papaya sold in West Africa. Data from the Ghana Export Promotion Authority and the Statistics, Research and Information Division of the Ministry of Food and Agriculture, less than 20% of papaya produced in the country is exported.

Local market: Prices in the local market are cheap and affordable, especially to middle-income consumers who are the target of most local commercially produced papaya. Prices in the local market for a papaya weighing 500 g–1 kg may range between 5 and 10 Ghanaian cedis (GHC; US\$0.50–1.00) depending on the size, variety and season.

International market: Papaya destined for export to the international market costs more as a result of the quality, extra costs of certification and other induced costs. These papayas may cost two to three times more than papayas in the local market.

Papaya and its derivatives – fresh cut, dried, powdered, juice, chunks, extracts – imported into Ghana are relatively very expensive. For example, a price tag of GHC 541 (US\$54) was found to be placed on fresh red papaya (box of two fruits weighing 4 kg); GHC 373 (US\$37.30) for 500 g of dried diced papaya; GHC 834 (US\$83.40) for a kilogram of micro ingredients organic papaya fruit powder; and GHC 664 (US\$66.40) for 660 mg of green papaya fruit extract.³⁴ Most of these products are imported to order.

Promotion

Like other fruits produced locally in Ghana, papayas are mostly sold in domestic fruit markets, on roadsides, in local supermarkets, or directly at the farm gate, where they are usually collected by middlemen for local supply or processing, or by private businesses for export to neighbouring countries such as Nigeria, Niger, Burkina Faso, Mali and Senegal, or to international markets (primarily the EU and the Gulf regions).

Promotion of locally produced fruits including papaya is usually carried out through associations of producers, by establishing business contacts with markets and buyers, and through their umbrella associations such as Federation of Association of Ghana Exporters. Attending exhibitions has also become a common method of promotion in recent years.

Instagram, Facebook and other similar digital platforms are emerging as marketing tools to enhance the promotion and sales of fruit and vegetables. For example, Yvaya Farms and Eden Tree are two companies using e-commerce to communicate with buyers and consumers on how to access healthy and good quality fruits. This means of promotion is showing promise in offering potential buyers, especially those that have no direct link with producers, better access to the product.

³⁴ Ubuy – Native forest organic products. Online market for papaya products; <https://www.ubuy.com.gh/search?q=papaya+fruit>

4. MARKET

4.1 Organisation of the supply chain

4.1.1 Europe

Papayas mainly reach European consumers via retail settings. Supermarkets are a key sales channel in Northwestern Europe, and specialised retail is more common in the South. Nevertheless, as the main papaya consumers in Europe are often people living in communities with a migratory background, specialist regional shops play an important role in the distribution of papaya.

Importers play a key role in the European papaya supply, distributing the product to the other actors in the chain (Figure 11). Main supermarket chains, discounters and high-end retailers often have a department or a subsidiary company responsible for direct imports of fresh fruit, which may include papaya.

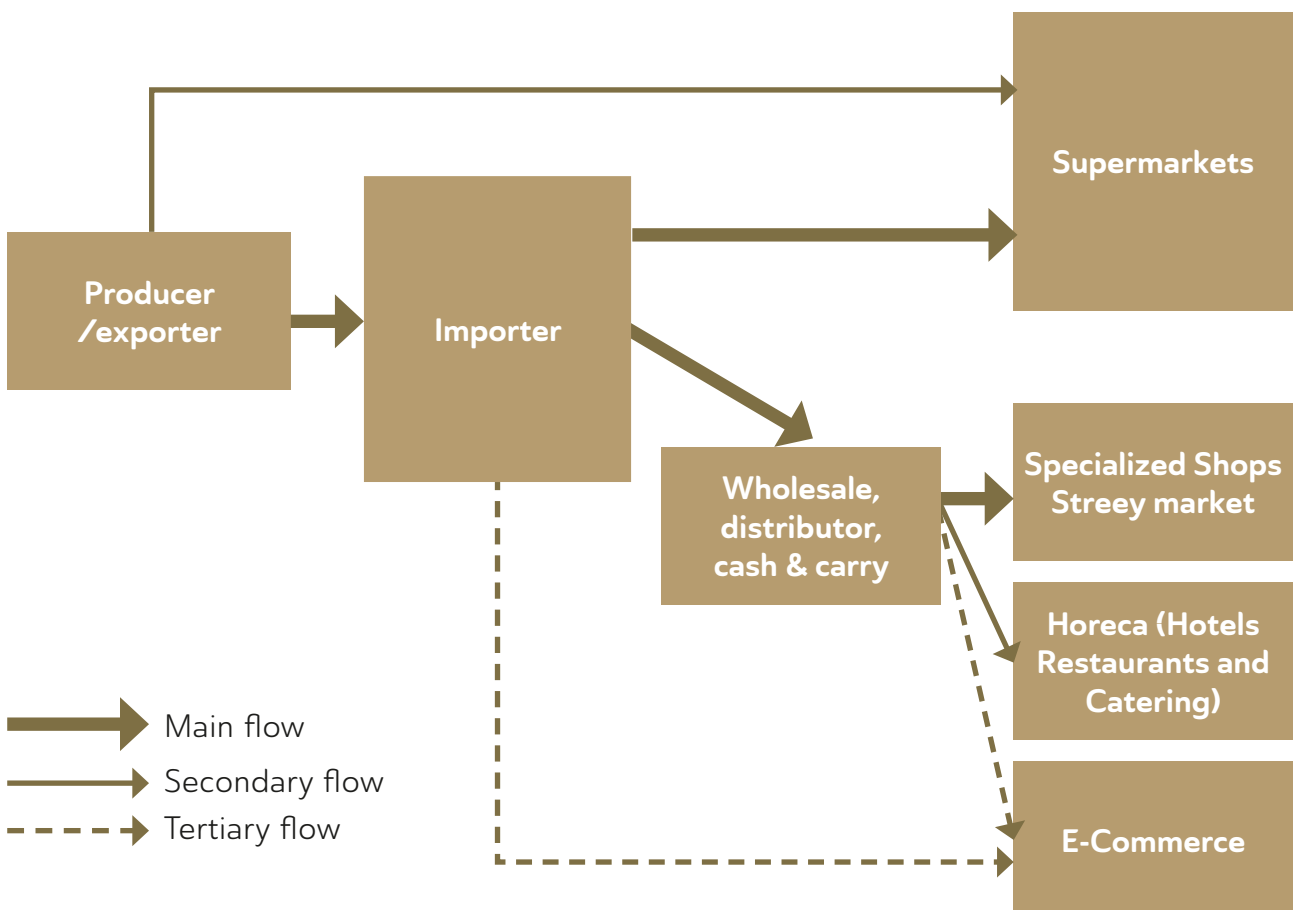
Importers

There are two main types of importers:

- Specialised importers that focus on wholesale, specific fruit categories, or niches such as organic produce. These are the traditional papaya importers and can be key partners to reach different markets and specialised shops.
- Larger importers that dominate the supply to large supermarkets. These now also include papaya in their portfolio and can be an excellent partner for papaya suppliers to enter supermarket chains.

European importers usually have longstanding relationships with both their clients and their suppliers. They are familiar with the market's requirements, for example on quality, certifications and upcoming regulations.

Figure 11. Supply chain for papaya in Europe



The experience of the buyer is important, especially for a challenging product like papaya. Importers take care of the formal administrative processes and often provide services such as (re-) packaging and logistics. Importers are constantly trying to increase efficiency in their operations and are implementing just-in-time delivery to save on warehousing costs.

Supermarkets

Most European consumers mainly buy their fresh fruit at the supermarket. Europe is home to large (international) supermarket chains such as Carrefour, Delhaize, Tesco, Sainsbury's, Rewe, Lidl and Ahold, as well as and smaller independent supermarkets. Supermarkets mainly source their fresh produce from importers and service providers who arrange much of the sourcing and distribution for them. The larger supermarkets have their own buying and distribution centres. They often work with supply programmes to plan and contract their purchases for the longer term. These programmes offer guaranteed demand and security, but standards are high and flexibility is limited. Supply programmes have their own quality control department to double-check shipments delivered by importers, which have already been subject to quality control at import level.

Specialised shops

Specialised shops, such as fresh fruit shops and greengrocers, mainly source their produce from local wholesalers. These small independent shops are often family-owned. They have a relatively small fresh fruit market share, as many consumers have favoured supermarkets in recent years. However, until relatively recently, papaya was mainly found in specialised shops with products targeting consumers from Asian, Latin American or African communities.

Street markets

Many European cities host weekly – or even daily – street markets. The market traders usually source the fresh produce that they sell at their stalls from local wholesalers. These traders have the smallest retail market share.

E-commerce retailers

There are small initiatives of fresh produce sales online, ranging from varied boxes containing the ingredients of a specific recipe, to importers that allow consumers to pre-order a whole box of a specific product directly from the origin. These initiatives are still new, but it is expected that e-commerce will continue to grow in this segment.

4.1.2 West Africa

In Ghana, papaya is cultivated on a commercial scale in the regions of greater Accra, Central, Eastern and Volta. Papaya produced in these regions has the greatest potential for local consumption, processing and export.

Production is usually organised among cooperatives or outgrowers of small-to-medium-scale farmers. Currently, there are two main producer organisations. The first, the Golden Papaya Growers Association of Ghana (Nsa Papaya), is well-known and the largest papaya growing association in Ghana. The association was formed in 2006 and has 19 members, consisting of 18 smallholder papaya farmers and one nucleus (large) farmer. The members and their farms are located mainly around Nsawam Aduagyiri Municipality in the Eastern Region. The objective of the association is to continuously improve the quality of papayas in order to meet the increasingly high standards of export market buyers.³⁵

The varieties produced by the members are Solo (70%), Golden (20%) and others (10%). Almost all the farms are GLOBAL.G.A.P certified.

The second recognised producer association dealing with papaya is the Papaya and Mango Producers and Exporters Association of Ghana, an association of privately-owned companies specialising in the production of premium fresh papaya and mangoes grown by members. The association has 20 members, of which about 70% are mango producers and 30% papaya

³⁵ Fresh Produce Directory 2019/2020, published by Federation of Ghanaian Exporters (FAGE) www.fageghana.org

producers. The association is a member of the Federation of Associations of Ghanaian Exporters, the umbrella body for exporters of several commodities from Ghana. The goal of the association is to establish a brand that is recognised for its high quality and desirable taste. The association facilitates the training of members in good agricultural practices and also aggregates fruits from the farms of members for group marketing and export.

The papaya market in Ghana has two segments:

- Local consumption in fresh fruit markets (fresh fruit consumption and local processing): In this situation, local traders buy papaya from farmers at farm gates and transport to local markets, where retailers buy the fruit for onwards sale to consumers. Some traders specialise in peeling and cutting the fresh papaya into slices and packing it in rubber containers for sale in supermarkets and in traffic. Some wholesalers sell the whole fruit in bulk to other retail points such as corner-stores, and street vendors who sell whole fruits. In addition to small artisanal processors, there are medium- to large-scale processors (such as Blue Skies, HPW, Peelco, Tropigha Farms, Yvaya Farms) that process papaya into products such as fresh cut, powdered, dried or juiced fruit, fruit salad and papaya extracts. These products are sold both in the domestic and export markets.
- Exports to neighbouring countries in West Africa, notably Burkina Faso, Nigeria, Niger, Mali and Senegal. Both the whole fresh fruit and processed products are sold in these markets. These are cross border trades where products are mostly transported by road. They may or may not be covered by formal documentation.

4.2 Opportunities

4.2.1 Europe

Complementary supply calendars for solo variety

As Ghana's main season for Solo papaya is outside the Brazilian season for Golden papaya, suppliers from Ghana can replace Brazilian suppliers during the high season, if they have a competitive offer.

Carbon footprint reduction

For companies and consumers in Europe, reducing the carbon footprint of produce is a key goal. As West Africa is closer to Europe than Brazil, the main supplier of papaya to the market, there is an interest among buyers in including African suppliers, and, if possible, replacing Brazilian suppliers.

Adding Formosa variety to the portfolio

Offering both Solo and Formosa varieties can be a good strategy to offer a more interesting portfolio to importers, as these are currently buying both varieties. Importers prefer working with bigger suppliers that can offer a year-round supply and ideally of several products, as this reduces the administrative cost of dealing with several small suppliers.

How to take advantage

For West African suppliers to take advantage of this opportunity, they need to have a competitive offer in comparison to Brazil, including the following elements:

- Good quality product
- Packaging according to current standards
- Ship bigger volumes to optimise logistic costs
- Compliance with European regulations
- GLOBALG.A.P. and one social standard (e.g. Grasp, SMETA, Rain Forest Alliance)
- Competitive prices.

The cost of air freight plays a key role in the competitiveness of suppliers of papaya. If the air freight from West Africa turns out to be more costly than from Brazil, this will exclude West African suppliers from the market. Internal logistics must also be considered: the cost of transporting the produce in good condition from the field to the airport often plays an important role in the international competitiveness of the product.

Sea freight

Papaya is currently shipped by air as previous trials of bringing the fruit by ship have failed. The fruit needs to be cut too early, which leads to the fruit having a poor taste when it reaches the consumer. However, as sea transportation would be an excellent way of reducing costs and carbon footprint, some importers may be interesting in trying to transport the papaya by sea from nearby suppliers. Currently, trials are taking place on bringing papaya to Europe by sea from Brazil, Colombia and Mexico. However, it remains uncertain whether the quality of the product will be adequate.

In theory, West African countries could be preferred suppliers of papaya by sea to Europe, as their transit times are lower than those of Latin American competitors (Table 8).

Given the transit times shown in Figure 8, Senegal may be best placed to ship papaya to the UK and France (key consumption markets). Belgium is also a possible destination, for redistributing to other countries in Europe – but the risk of the papayas arriving in poor condition would be higher.

To ensure that papayas reach their final destination in good condition, exporters aiming to ship papaya by sea must guarantee a very efficient harvest and transport process to the port. The cold chain should start as soon as possible to prevent the ripening of the fruit before it arrives at the port.

4.2.2 West Africa

Currently, there are expectations that the African Continental Free Trade Area will contribute to more trade in the continent, which could have an impact on the sales of papaya. Nevertheless, it is difficult to identify a stable demand, as papaya is produced in several neighbouring countries and is not a widely consumed food staple in comparison to other food products.

Table 8. Transit time (days) from West Africa to selected destination ports.

From/to	Tilbury, UK	Antwerp, Belgium	Dunkirk, France	Le Havre, France	Amsterdam, Netherlands	Rotterdam, Netherlands	Vigo, Portugal
Dakar (Senegal)	10	11	8	17	15		
Tema (Ghana)	18	15/19	16		23		
Abidjan (Ivory Coast)	14	12/15	13	14	19		
Fortaleza (Brazil)						15	13
Altamira (México)				23		21	
Cartagena (Colombia)				18		12	

Source: CMA CGM (2023) Happag Lloyd.

5. CONCLUSIONS

Although papaya remains a niche product in Europe, with imports of 36,500 tonnes with a value of €90 million in 2022, the market is growing. The consumer price of papaya is relatively high because the delicate fruit must be imported via air freight.

For West African suppliers, key European target markets are Netherlands and Belgium. Both countries are end markets where the fruit is actually being consumed. Imports into the French market have slightly decreased by more than -0.6%. The German market is also interesting, as the import volumes have grown rapidly for the last 11 years (over 2.4% yearly). The UK is also an important market, but imports from Ghana into the country have been declining. The Netherlands and Belgium have small domestic markets, but are home to numerous importers who distribute across Europe. This makes these countries interesting partners for fresh produce exporters.

The main variety of papaya grown in Ghana is Solo, so targeting the French market (rather than the German market, where the Formosa variety is more popular) and collaborations with importers in Benelux might offer a promising opportunity.

Retailers and importers are interested in suppliers that are closer to the European market than Brazil. This could offer opportunities for West African suppliers, provided their product is competitive in terms of quality, packaging, volumes, compliance with regulations, sustainability standards and price. Air freight rates and connectivity strongly influence the competitiveness of papayas from Ghana and other West African countries. To improve competitiveness, producers can join forces to offer larger quantities and optimise the logistic costs.

There are also opportunities for suppliers who can ship good quality papayas by sea. For this to be feasible, shipping times must be as short as possible. Suppliers from Senegal have the best opportunity to deliver a good quality product by sea to France (Dunkirk, Marseilles, Port Vendres), Spain (Algeciras) or the UK (Tilbury) due to relatively short transfer times. For this to work, the exporters must ensure an efficient harvest and transportation process to the port, as well as a solid cold chain even before the goods leave the country.

In West Africa, papaya is produced in several neighbouring countries and is not a widely consumed staple food. This makes it difficult to identify a stable demand in these countries.

6. DATA SOURCES

- ALDI papaya price (2023)
- CBI (2018) Exporting fresh papayas to Europe <https://www.cbi.eu/market-information/fresh-fruit-vegetables/papayas>
- CBI (2022) 11 tips for finding European buyers on the European fresh fruit and vegetables market <https://www.cbi.eu/market-information/fresh-fruit-vegetables/finding-buyers>
- CMA CGM (2023) Euraf 1 <https://www.cma-cgm.com/products-services/line-services/flyer/EURAF1>
- Edeka (2023) Edeka Papaya C (401–500g) Ready-To-Eat Brasilien <https://multi-leer.edeka-shops.de/alle-produkte/obst-gemuese/obst/exoten/edeka-papaya-c-401-500g-ready-to-eat-brasilien-zid4311527773367>
- El Productor (2022) Resumen del mercado global de la papaya <https://elproductor.com/2022/10/resumen-del-mercado-global-de-la-papaya-4/>
- EU Pesticides Database (2023) Selected product: Papayas <https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/start/screen/products/details/77>
- European Commission (2008) Guidelines on imports of organic products into the European Union https://agriculture.ec.europa.eu/system/files/2018-12/guidelines-imports-organic-products_en_0.pdf
- European Commission (2011) Regulation (EU) No 543/2011 of 7 June 2011 laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 in respect of the fruit and vegetables and processed fruit and vegetables sectors <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32011R0543>
- European Commission (2018) Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007 <https://eur-lex.europa.eu/eli/reg/2018/848/oj>
- European Commission (2023) Farm to Fork Strategy https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en
- European Commission (2023) Labelling and Packaging <https://trade.ec.europa.eu/access-to-markets/en/content/labelling-and-packaging>
- European Commission (2023) The European Green Deal https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
- European Commission (2023) Trade in plants & plant products from non-EU countries https://food.ec.europa.eu/plants/plant-health-and-biosecurity/trade-plants-plant-products-non-eu-countries_en
- FAO (1993) CODEX Alimentarius. Standard for Papaya
- FDA Ghana (2023) Food division <https://fdaghana.gov.gh/food.php>
- FranceAgriMer RNM (2023) Prix cours marché - Fruits et Légumes <https://rnm.franceagrimer.fr/prix?PAPAYE>
- Fresh Plaza (2016) Overview Papaya Global Market <https://www.freshplaza.com/europe/article/2158194/overview-global-papaya-market/>
- Fresh Plaza (2021) Brazilian papayas see high demand throughout pandemic <https://www.freshplaza.com/europe/article/9298631/brazilian-papayas-see-high-demand-throughout-pandemic/>
- Fresh Plaza (2022) Global Market Overview Papaya <https://www.freshplaza.com/europe/article/9468308/global-market-overview-papaya/>
- Fresh Plaza (2022) Increased focus on European papayas <https://www.freshplaza.com/europe/article/9475638/increased-focus-on-european-papayas/>
- Fresh Plaza (2022) Switching from air freight to sea freight legumes went smoothly <https://www.freshplaza.com/europe/article/9501011/switching-from-air-freight-to-sea-freight-legumes-went-smoothly/>

- Fruit logistica trend report (2022)
- Globus online (2023) Papaya query <https://www.globus.de/produkte/search?query=papaya>
- Gosselin Primeurs (2023) Achat Papaye Formosa <https://gosselinprimeurs.fr/product/papaye-3/>
- Holland International Distribution Council (2016) Agro & Food Logistics Proposition the Netherlands <https://docplayer.net/41312237-Agro-food-logistics-proposition-the-netherlands-version-1-7-final-draft-october-6-2016.html>
- Hortisol Holland (2018) Horticulture in Côte d'Ivoire <https://www.rvo.nl/sites/default/files/2018/09/Horticulture-Cote-divoire.pdf>
- Jumbo Supermarkten Papaya bestellen (2023) <https://www.jumbo.com/producten/jumbo-papaya-431750STK>
- Nature's Pride (2023) Buy ready-to-eat papayas the whole year https://www.naturespride.eu/en/range/fruit/ready-to-eat-fruit/papaya?product_property=-papaya
- Official Journal of the European Union (2011) General marketing standard of Regulation (EU) 543/2011 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02011R0543-20221024&qid=1675860103456>
- Official Journal of the European Union (2019) Regulation (EU) 2019/2072 regards protective measures against pests of plants <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R2072>
- PLUS.nl (2023) EAT ME Papaya (ready to eat) stuk 1 stuks - Kiwi. mango. avocado. overig exotisch fruit <https://www.plus.nl/product/eat-me-papaya-ready-to-eat-stuk-1-stuks-377081>
- Pongmarket.se (2023) Papaya Ready To Eat app400-480g. Price per Piece - Brazil <https://pongmarket.se/en/papaya-ready-to-eat-app400-480g.-price-per-piece-brazil/>
- REWE (2023) Papaya essreif 1 Stück <https://shop.rewe.de/p/papaya-essreif/26158>
- UNDP (2021) Precision agriculture for smallholder farmers
- USDA (2019) Papaya raw <https://fdc.nal.usda.gov/fdc-app.html#/food-details/169926/nutrients>
- Vitta (2023) Formosa papaya <https://papayavitta.com.br/en/produtos/ma-mao-formosa/>
- Waitrose Perfectly Ripe Large Solo Papaya (2023) <https://www.waitrose.com/ecom/products/waitrose-perfectly-ripe-large-solo-papaya/088220-45186-45187>



COLEAD

GROWING PEOPLE