MARKET PROFILE

Market profile

Mango puree and cut mango pulp of Côte d'Ivoire

COLEACP

Purpose of the study :	Mango puree and mango pulp cut on the local, regional, African (FTAA) and European markets
Date :	July 2021

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I. SUMMARY

This market profile focuses on two processed mango products, puree and cut pulp, and examines the local, regional, African and European markets. The objective is to identify whether opportunities for these products exist in the different markets.

Little data is available for the consumption of processed fruit and vegetables in Africa. It is also difficult to trace exports to the European Union (EU) accurately. The figures in this study are indicative and highlight trends in different markets.

II. SUPPLY

a. Products

While Côte d'Ivoire is an important player in the fresh mango market, its supply of processed mangoes is (still) limited. Annual production of fresh mangoes varies between 150,000 and 180,000 tonnes.[1] However, the proportion of processed product is quite low in this sector. Juice and dried mango represent only 4,500 and 170 tonnes respectively. However, these are the two main products of mango processing. Mango-based processed products are not exported much and are mainly destined for the regional market.

i. Mango puree

Mango puree is an essential ingredient for preparations that are currently in vogue, particularly thanks to the popularity of exotic flavours. Often reprocessed, it can be found in many sectors (drinks, baby food, pastries, etc.).

The quality of mango puree is generally judged by its Brix value, acidity level and less specific factors such as taste, flavour and consistency. The Brix value should be between 13 and 24 for puree and between 28 and 40 for concentrated puree. The acidity level should be between 0.2% and 1% for puree and up to 3% for concentrated puree. The Brix/acidity ratio varies between 37 and 50 for puree and is above 8 for concentrated puree.

ii. Mango pulp, cut up

Unlike mango puree, cut-up pulp is mainly a retail product. Its demand has recently increased, driven by consumer demand for convenient and healthy products, embodied in particular by new snacking products. This type of product is part of the «4th range», which includes fresh, raw, washed, peeled and cut vegetables and fruit. The products are packaged in ambient air, modified atmosphere or vacuum, in bags or in trays. Their use-by date is very short, i.e. a maximum of ten days with storage at 4°C.

It is important to take into consideration the constraints related to the processing and preparation of the cut pulp. Indeed, even if this type of product sells at higher retail prices (between 10 and 12 euros per kg in Europe for mango), its margins are lower due to the logistics required.

On the one hand, low-fibre mango varieties with a very specific ripening stage should be used. The mangoes must be ripe enough to be tasty, and remain firm to look good when cut. The expiry date of the product should also be systematically reassessed according to the ripening stage of the batch of processed mangoes.

On the other hand, the transport and storage of the product must be uncompromising. The time between harvest and processing must be as short as possible, as must the time between processing and shelf display. The transport of these products is mainly done by plane when they are destined for foreign markets, which increases its cost. In addition, to avoid impacting the quality and visual aspect of

1 The figures vary according to the sources, we have opted for the wide range.

the cut mango pulp, it is important to be very rigorous in terms of temperature and humidity during storage. Generally speaking, respecting the cold chain for cut mango pulp requires the full attention of the various parties involved.

In order to meet all these requirements, it is recommended that producers of cut mango pulp work directly with retailers or wholesale importers. The company Blue Skies with its Ghanaian subsidiary offers a good example, in its collaboration with Tesco in the UK.

b. Main producers and exporters

India is the main competitor on the international market for mango puree, and more generally on the international market for exotic fruit puree, where it accounts for almost 23% of European imports. In the mango puree market in particular, India can afford to be very competitive in price and outperform other major producing countries such as Brazil and Peru. Other main competitors in this market are Ecuador, Colombia, Mexico, and Cuba.

The Netherlands is a particular partner in the European fresh mango market, being both the main importer and re-exporter. Indeed, 55% of the mangoes on the European market pass through this country. Some mangoes are also partially processed there (e.g. into puree or pre-cut) before being re-exported.

The graph below gives an overview of exporters of mango puree, but also of other exotic fruits to the EU.

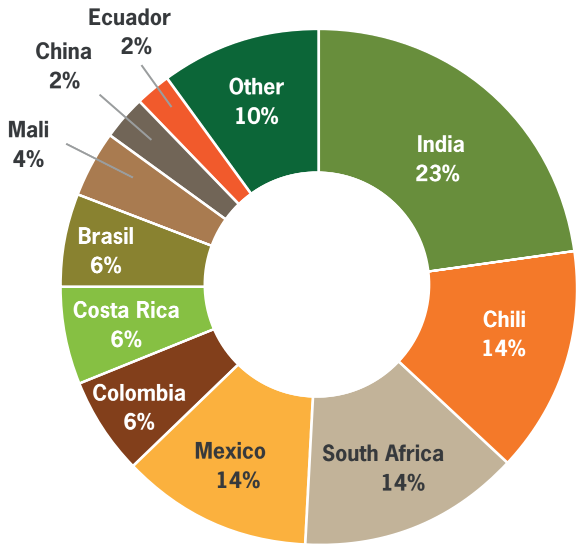

Figure 1: Share of tropical exporting countries in EU28 imports of exotic fruit jams, jellies, marmalades, purées or pastes, in tonnes, 2019

(total: 42,818 tonnes) Others=Rest of the Tropical World. *(HS 200799, 200710). Source: COLEACP based on EUROSTAT*

There are few export competitors for fresh pre-cut mango on the African continent. The exception is Ghanaian company Blue Skies, which works with Tesco to export to the UK. It has expanded its operations to Egypt, South Africa, Senegal and the Gambia.

Concerning infrastructures, at the regional level, Côte d'Ivoire has less mango processing facilities than its neighbours, in particular Ghana, Burkina Faso and Mali.

- In Ghana, annual mango production is estimated at 110,000 tonnes of fruit, of which :
  - about 30,000 tonnes are processed..

  Ghana is mainly specialised in the production of fresh pre-cut mangoes (Blue Skies is the main player) and dried mangoes (HPW is the main player).

- In Burkina-Faso, annual production is estimated at 200,000 tonnes of mangoes, including :
  - About 45,000 tonnes are dried (for a dried mango production of about 3,000 tonnes) by about 100 drying workshops[2],
  - 12,000 tonnes are processed through the Dafani industrial unit, which produces pulp and juice,
  - 8,000 to 10,000 tonnes are exported fresh,

- In Mali, the Ministry of Agriculture estimates annual mango production at between 200,000 and 600,000 tonnes of fruit from mango trees. More than 2 million mango trees were planted in 2015 and 2016 to maintain or increase this production. The ministry is talking about 200,000 tonnes of mango production available by 2020, to meet the trend of increasing demand. The reality today is probably closer to a maximum of 50,000 tonnes marketed, including :
  - 20,000 tonnes are exported fresh,
  - 15,000 tonnes are processed into aseptic puree by CEDIAM and COMAFRUIT,
  - the rest being consumed on the local market.

Very little dried mango is produced in Mali and only by artisanal workshops[3].

2 «Agro-industrial sectors in Burkina Faso: identification investment needs in the private sector», classM, November 2020

3 «Detailed feasibility study for an investment in the mango sector in Mali», October 2018.

III. DEMAND

a. Mango puree

The beverage industry is the largest user of mango puree. Indeed, mango is one of the most popular flavours for fruit juices and smoothies. Non-alcoholic drinks (iced teas, flavoured waters, energy drinks, sports drinks) are also increasingly using mango puree.

In addition, mango puree is often used in dairy products, ice cream and yoghurt. However, it needs to be transformed back into a more processed solution by adding ingredients such as sugar, glucose syrup, gelling agents, thickeners, flavourings, starch or acidity regulators.

Mango puree is also used in the pastry and confectionery sector, where it is reprocessed for use as a filling.

Mango puree in dehydrated form can still be found in the manufacture of some fruit snacks and bars. This sector is growing, following the trend towards healthy and convenient eating.

Mango puree is also used in the production of certain sauces and condiments, such as chutney or salsa. This sector is highly developed in the UK.

Mango puree is also an ingredient of choice for infant feeding. However, this sector is uncompromising in terms of food safety. Therefore, achieving quality and food safety standards in the manufacture of such products almost guarantees access to all other sectors.

i. Local market

In Côte d'Ivoire, the share of mangoes processed into puree is negligible. The main juice production unit in the country is ATOU Ivorio. It consumes 750 tonnes of mango puree per year, of which 250 tonnes are produced locally, the rest being imported

from neighbouring countries. ATOU Ivorio would represent more than two thirds of the national production of juice. The national demand for mango puree would thus be of the order of 1,000 tonnes.

ii. Regional market

It can be assumed that West African demand is mainly for fresh mangoes. Indeed, there does not seem to be any mango processing infrastructure (especially for pureeing) in Nigeria, which is the largest producer of fresh mangoes in West Africa. Nigeria's mango production is mainly destined for the local market and, to a lesser extent, for regional markets in neighbouring countries.

The Kirène company in Senegal uses mango puree for the production of fruit juice, which it imports in part from the sub-region (Mali).

iii. European and international market

The demand for mango puree is increasing in the EU and even more so in the Gulf countries of the Middle East. To determine the main markets, it is necessary to refer to the destinations of Indian exports of mango puree. Indeed, India is the main player in the sector and the only country to trace its flows precisely. The most important markets in the EU are the Netherlands, Germany, Poland, Spain, France, Belgium and Portugal. The UK is also an important market for this type of product. Outside the EU, Saudi Arabia, Yemen, Kuwait, the United States and China represent the greatest opportunities

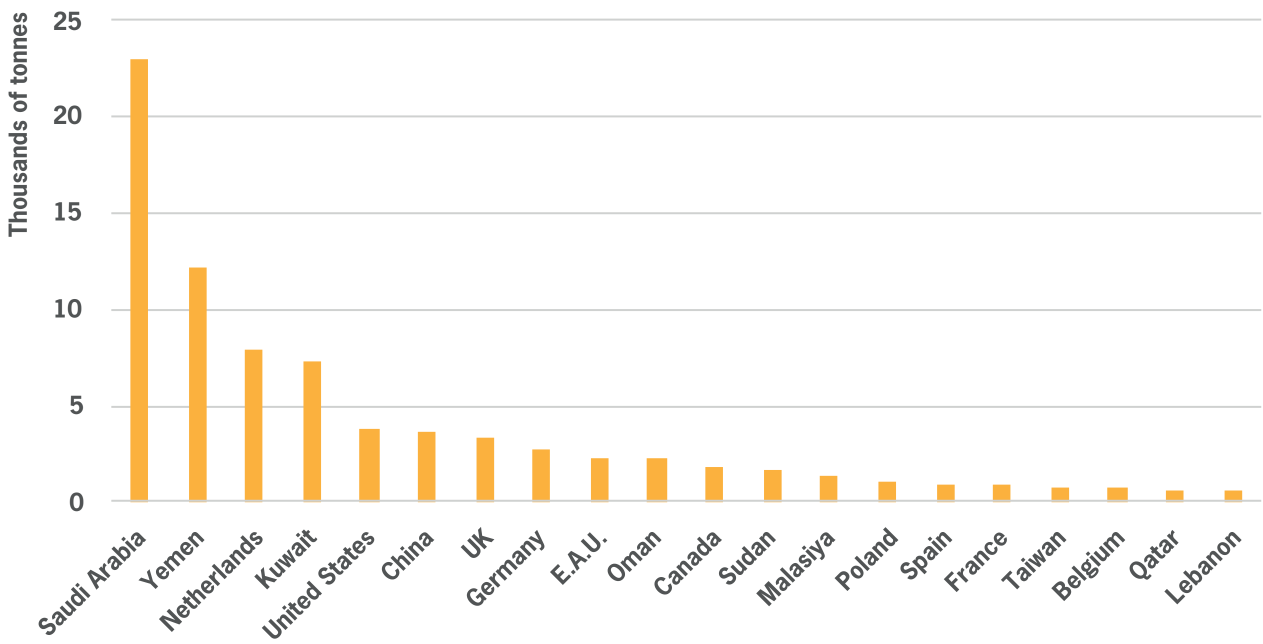

Figure 2: Top 20 destinations for Indian mango puree exports
in thousands of tonnes (2019-2020). *Source: COLEACP based on https://commerce-app.gov.in/eidb/*

More generally, EU imports of fruit puree are structurally on the rise. The EU market for mango puree is estimated to be between 70,000 and 80,000 tonnes (including 20,000 tonnes of concentrated puree)[4]. The graph below enables an estimate to be made, even if the specific flows for pureed products are not precisely traced.

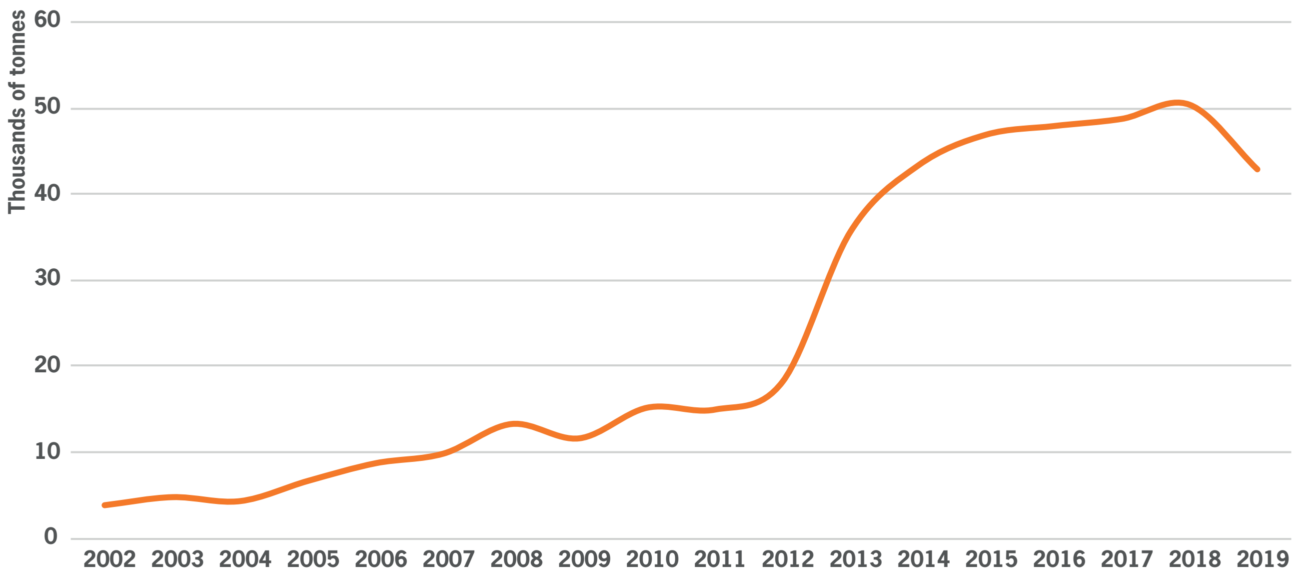

Figure 3: EU28 demand for exotic fruit jams, jellies, marmalades, purées or pastes, in thousand tonnes. *(HS 200799, 200710). Source: COLEACP based on EUROSTAT*

4 CBI Estimations

Most importers require a food safety certification recognised by the Global Food Safety Initiative. The main certifications required for mango puree are

1. IFS (International Featured Standard),,
2. BRCGS (British Retail Consortium Global Standards),
3. FSSC 22000 (Food Safety System Certification)

It is important to find out the requirements of different markets, as some certifications are favoured by importers in a country. If the mango puree is destined for the fruit juice sector, an SGF (*Sure Global Fair*) certification may be of interest. Organic certifications are also an advantage, if not a criterion, for working with some organic importers.

b. Mango pulp, cut up

i. Local market

On the local market, the production of cut mango pulp is quite low.

On the one hand, this product requires a cold supply chain that is not available throughout the country, especially in rural areas.

On the other hand, the limited availability of cut pulp in Côte d'Ivoire leads to low demand. However, cut pulp has a future in urban areas with the emergence of a middle class of consumers. With higher incomes, they have the purchasing power to regularly buy such high value-added products. The trend of ready-to-eat products is very strong in cities, lending itself particularly well to urban lifestyles. Partnerships could be developed with local supermarkets in this respect.

ii. Regional market

The regional market for 4th range mango is very limited. Indeed, these products require a fresh distribution chain that is only available in large urban centres. This implies a high unit price in relation to local purchasing power.

On the other hand, street vendors' supply of fresh fruit directly prepared before consumption is much more adapted to the lifestyle and consumption patterns in West Africa. This presents a significant competition that strongly limits the competitiveness of the 4th range on the regional market. It is therefore not relevant to focus on this market today.

iii. European market

Côte d'Ivoire is Africa's largest exporter of fresh mangoes to the EU: 95% of Ivorian mangoes exported are destined for the EU, i.e. around 30,000 tonnes of fresh mangoes per year. Its geographical proximity and direct access to the sea are important export advantages over its competitors.

Demand for fresh pre-cut mangoes is increasing in Europe, with sales rising in supermarkets. This type of product is in line with the trend for convenient and healthy products and tropical flavours.

The main EU market for cut mango pulp is the Netherlands, with the UK also being a major market.

The practicality of a product is decisive for the consumer in these countries. Spain, Italy, France and Switzerland are also high potential markets. However, it is difficult to estimate volumes, as these products are not precisely traced.

Given the logistical and financial constraints of producing fresh pre-cut mango, a frozen alternative may be considered. The frozen variant of the product still requires intransigence with regard to the cold chain and product quality. However, it allows us to avoid working systematically on a just-in-time basis and to consider the product in the longer term. The trend for frozen tropical fruit is notably on the rise in the European market.

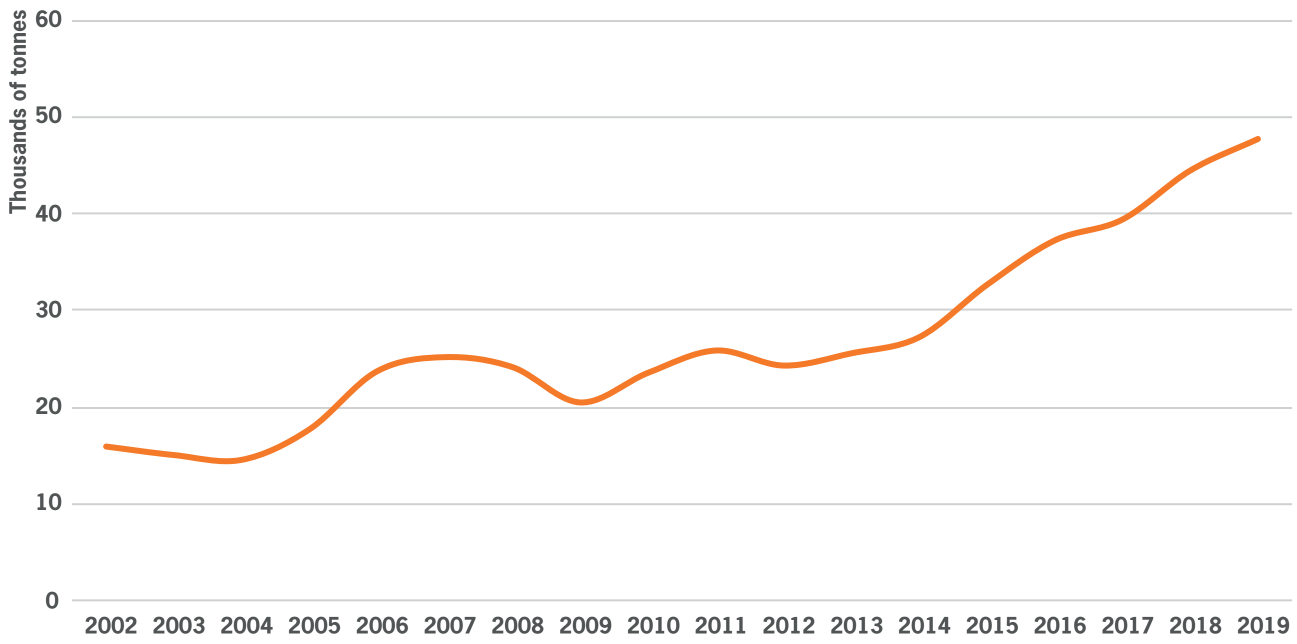

Figure 4: EU28 demand for frozen exotic fruit, in thousand tonnes. *(HS 081190-85,-31,-11).*
Source: COLEACP based on EUROSTAT

IV. MARKET

a. Organisation of the sector

i. Mango puree

For export, the mango puree sector can be organised in two ways, one including the use of importers or wholesalers as follows

PRODUCERS → COLLECTORS/ TRANSPORTERS → PROCESSORS → EXPORTERS → TRADERS OF SPECIALITY RAW MATERIALS → AGRI-BUSINESS FOOD

The alternative excludes importers or wholesalers from the organisation of the sector, such as :

PRODUCERS → COLLECTORS/ TRANSPORTERS → PROCESSORS → AGRI-FOOD INDUSTRIES

ii. Mango pulp, cut up

As mentioned above, the requirements for cold chain compliance and transport arrangements are very demanding. It is therefore often advisable to work closely with retailers directly, as shown by the successful collaboration between the Ghanaian company Blue Skies and Tesco (UK).

The cut mango pulp industry is organised as follows:

PRODUCERS → COLLECTORS/ TRANSPORTERS → PROCESSORS → EXPORTERS (REFRIGERATED AIRCRAFT) → RETAILER

b. Current and future opportunities

The supply of fresh mangoes in Côte d'Ivoire is far greater than the demand. Of the 140,000 to 160,000 tonnes produced each year, domestic demand only represents between 44,000 and 74,000 tonnes. European exports of 30,000 tonnes do not fill the demand deficit on the national market. Post-harvest losses are therefore very high, representing between 30 and 60% of production depending on the year. These losses are also attributable to the poorer quality of the mangoes in some years, the short shelf life of the product or non-compliance with certain sanitary or phytosanitary standards.

On the export side, the Brexit may, under certain conditions, prove to be an opportunity. Indeed, transport disruptions along the trade routes between the EU and the UK may create new opportunities in the UK market. The same applies to a potential devaluation of the pound against the euro. It is possible that British importers will turn less to the Netherlands as a hub for (re)processed products on the European market. They would then compensate for this change in supply by importing products directly from the producing countries. This would create an opportunity for the processing of mangoes on Ivorian territory. In this context, compliance with the UK's own sanitary and phytosanitary standards is essential. It is also important to obtain food safety certifications that are valued in the UK, such as the British Retail Consortium (BRC).

It is also important to make sure to understand and adapt to the new context brought about by the Brexit and the increased complexity of triangular trade (exporting country-EU-UK), bringing new costs, administrative constraints and unknowns. Direct value chains to the UK are now more competitive than those through the EU. With this in mind, towards the end of 2020, Côte d'Ivoire signed an agreement with the UK ensuring the continuity of the export conditions that the country enjoys under an Economic Partnership Agreement with the EU.

i. Mango puree

Almost 90% of mango puree is directly reprocessed to supply the various sectors mentioned above. Therefore, it is worth looking at the degree of processing of the mango before export.

Higher value-added opportunities exist, as well as demand, particularly in Europe. Some of these outlets are nevertheless demanding in terms of the technology used. Therefore, partnerships with brands or distributors can be envisaged.

Côte d'Ivoire does not appear to be benefiting from the general trend of growing demand for fruit purees in the EU. Its exports of fruit puree to the EU remain extremely low compared to total EU imports, as the following graph shows. Ivorian producers can create a niche in this market as they have the necessary raw materials. However, this segment is very competitive.

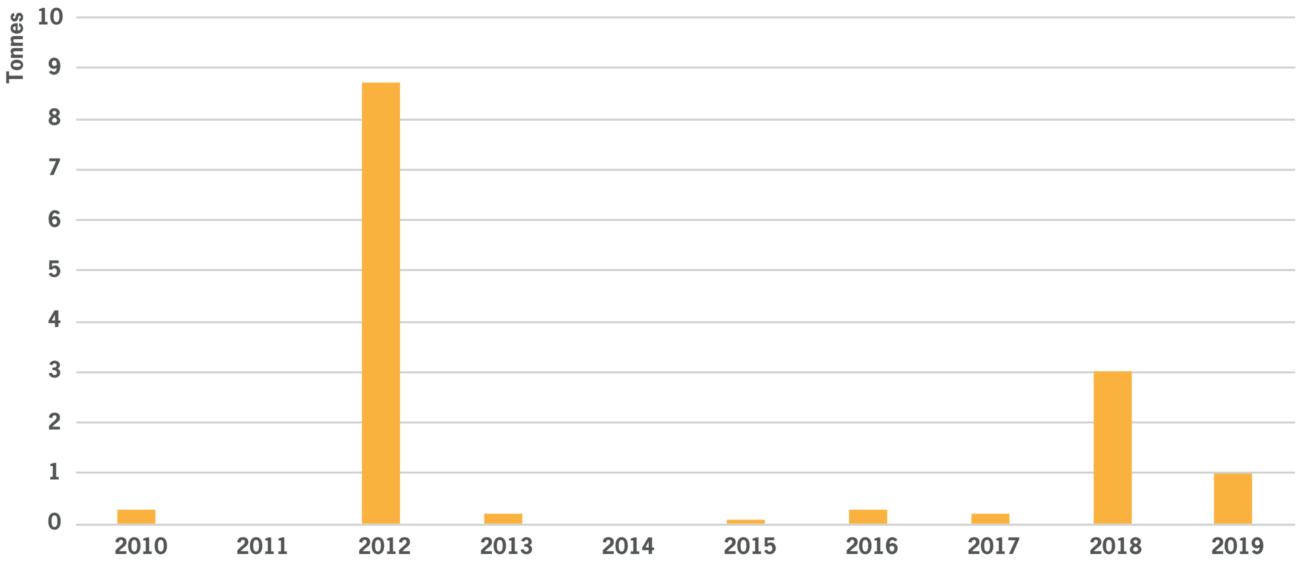

Figure 5: Exports of exotic fruit jams, jellies, marmalades, purées or pastes from Côte d'Ivoire to the EU28, in tonnes. *(HS 200799, 200710). Source: COLEACP based on EUROSTAT*

ii. Mango pulp, cut up

Like mango puree, pre-cut frozen mango is part of the growing market demand for frozen tropical fruit. However, Côte d'Ivoire does not seem to be taking advantage of this trend. Ivorian exports of this type of product have been irregular and low in recent years, as the graph below suggests.

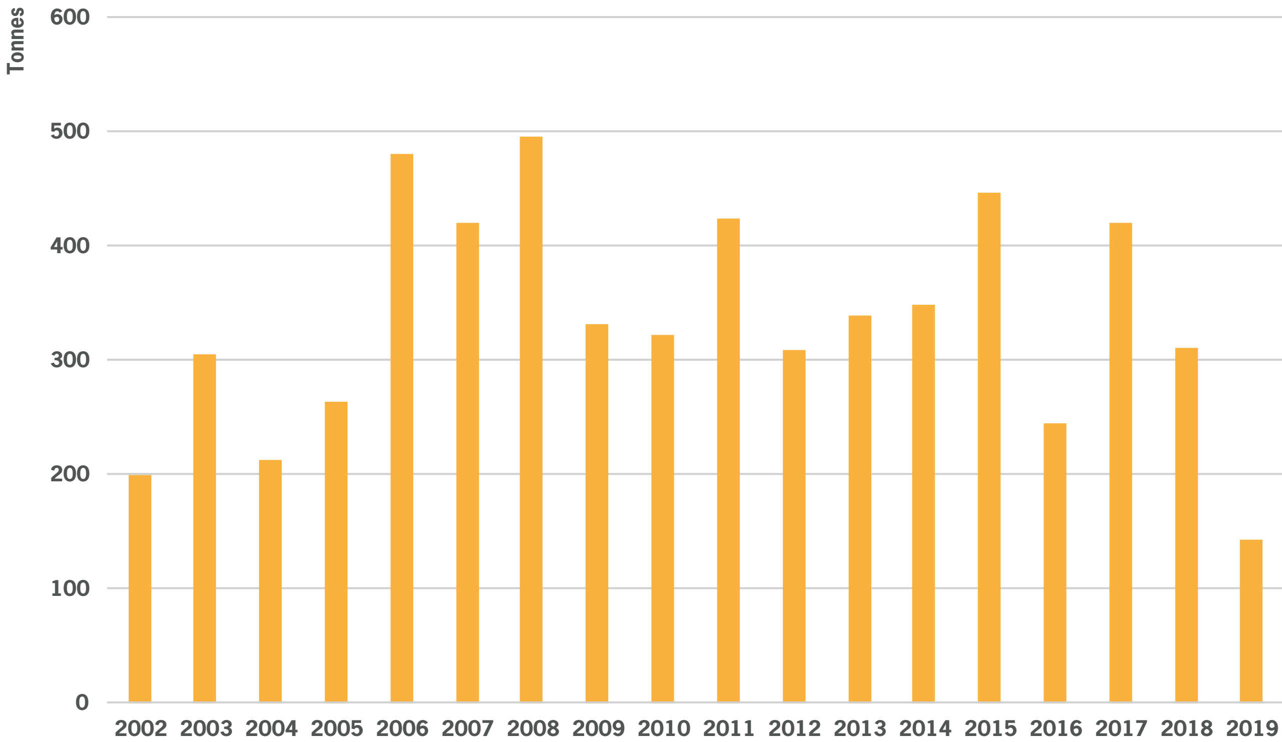

Figure 6: Exports of frozen exotic fruit from Côte d'Ivoire to the EU28, in tonnes. *(HS 081190-85,-31,-11).*
Source: COLEACP based on EUROSTAT

Although European imports of fresh mangoes are increasing, the sale of Ivorian mangoes on this market may be partly impacted by the new EU phytosanitary rules. These regulations (Implementing Directive (EU) 2019/523) aim to prevent the introduction of the fruit fly into the EU and require the presentation of a certificate ensuring that the product is safe. However, this directive only applies to fresh fruit. Processed mango products are therefore an interesting alternative for exporting to the EU and avoiding interceptions.

iii. Alternative: pineapple puree and pulp

There is an opportunity in the market for pineapple puree and sanitized pulp. Several interviews with players in the sector (Naturex, Andros, etc.) have highlighted the fact that the supply from Costa Rica (the main producer of processed pineapple products) does not meet world demand. The competitiveness of Côte d'Ivoire's production remains to be confirmed, however, with Côte d'Ivoire producing 50,000 tonnes of fresh pineapple and Costa Rica 2.9 million tonnes.

V. CONCLUSION

Whatever the market, the demand for processed mango is growing or potential. Such a structural dynamic is encouraging, and so there is an interest in any investment that would allow the development of production. All the more so since, as in many West African countries, the local offer is not valued at the marketing level of fresh production. However, there are many barriers to entry into this market: mastery of the cold chain, investment in equipment and infrastructure, global competition, etc. Opportunities exist, particularly on the local and regional market with the development of urban consumption by the middle classes and distribution by supermarkets that are looking for volumes and local products.

Thus, the installation of a processing unit could make it possible to use the sorting differences during the mango season and increase volumes in a supply chain that is already under control. However, other products need to be identified (pineapple, ginger, guava, papaya, etc.) to use this asset outside the mango season and amortise the fixed costs and investment.

The 4th range market requires a great deal of mastery of the technical and sanitary aspects, as well as a strong partnership in distribution in the consumer countries, particularly in the EU. It seems risky to embark on a first experience of agri-food processing on this type of product.

Processing into puree requires facilities capable of absorbing a large quantity of fruit. A minimum of 10,000 tonnes of all products (in addition to mango) is needed to produce between 2,000 and 4,000 tonnes of puree and thus to position itself competitively on the international market. A study of the market and supply chains for other products in addition to mango must be conducted to validate a viable economic model.

A final approach that can be considered is the production of dried mango. The process is technically simpler to master than the production of puree and 4th range. It also makes it possible to start with smaller volumes, as a tunnel oven absorbs about 1 ton/day of fresh fruit. This market is expanding, and Burkina Faso, a major supplier of dried mango, currently presents significant security risks that could compromise the development of its production. There is therefore a possible opportunity to position oneself on this market.

DATA SOURCES

The data mentioned in this market research report comes from the following sources

- CBI
  - « Analyse de la chaîne de valeur des fruits transformés au Burkina Faso, au Mali et en Côte d'Ivoire », 2019
  - «Entering the European market for mangoes, 2020
  - « Exportation de purée de mangue vers l'Europe », 2019
  - « Europe : des marchés prometteurs pour l'export des mangues fraîches », year of publication not indicated
  - «The European market potential for mangoes, 2020

- classM for Endeavour Mining
  - « Etude de faisabilité détaillée pour un investissement dans la filière mangue au Mali », 2018

- classM for IFC and Proparco
  - « Filières agroindustrielles au Burkina Faso : identification des besoins d'investissement dans le secteur privé », 2020

- COLEACP
  - « Nouvelles règles phytosanitaires de l'UE : suivi spécifique concernant les exportations de mangues », 2019
  - Own data and data based on UN-COMTRADE, IFPRI, EUROSTAT, FAOSTAT, national statistics,...

- ECONSTOR
  - «Strategies for sustainable upgrading in global value chains: The Ivorian and Ghanaian mango sectors», 2018

- ECOWAS-TEN and ITC :
  - « Mangue - Service Des Nouvelles Des Marchés », 2011

- FruiTrop
  - «Producer country file - The mango in Côte d›Ivoire», 2018
  - Magazine n°255, Special report on mango, March/April 2018

- National Mango Board
  - «Fresh-cut Mangos as a Value-added Product, 2017

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