



## SECTOR BRIEF SENEGAL: Mangoes



### Introduction and Overview

Senegal's traditional groundnut-based model of agriculture is gradually being replaced with one based on horticulture and agribusiness. The dramatic growth in the country's mango sector since the early 2000s illustrates the extent of this phenomenon perfectly and demonstrates the potential for Senegal to diversify its agricultural exports.

Mangoes are one of the most rapidly expanding products grown in Senegal. Between 100,000 and 150,000 tonnes are produced each year, equivalent to 63 % of the country's total fruit and vegetable production. Around 25,000 hectares of mango orchards are concentrated around three main areas:

- Casamance (which, according to estimates, accounts for around 55 % of national production and up to 70 % of potential production);
- the Niayes region (which accounts for around 35 % of national production and produces mainly for the export market) and;
- the Sine-Saloum and Mbour regions (which account for around 10 % of national production).

Senegal's mango exports increased dramatically between 1998 and 2018, rising from 288 tonnes to 21,340 tonnes at a time when average annual production was 120,000 tonnes. The country produces 0.3 % of the world's mangoes, ahead of Mali and Guinea, which produce 0.2 % and 0.1 % respectively.

Income from exports of fresh mango have risen sharply to more than USD 16 million in 2018. Sales of fresh mango on the domestic market and the production of mango pulp and juice are also increasing.

According to information obtained by Trade Map (2019), 3 % of Senegal's mango exports are destined for Germany – some 409 tonnes, worth USD 410,000. The German Government is therefore keen to explore and support Senegal's mango value chain. However, given the actual and potential contribution of the mango sector to Senegal's economy, it is relevant to explore the impact that COVID-19 may have had on stakeholders in 2020 and 2021, including as a result of restrictions on movement.

## Ongoing measures

A number of donors and NGOs have begun to support the development of exports of fresh mango from Senegal. Most of the fruit is produced by small-scale farmers. The support focuses on organising farmers, providing technical and organisational training, and building the skills of professional exporters.

Considerable work has been carried out to acquire GLOBALG.A.P. certification and, subsequently, organic certification, etc. and to link farmers with the markets by sponsoring trade visits. Support has also been given to enable exporters to set up simple packaging stations and to facilitate the availability of freight using SEPAS, the Senegalese agricultural produce export company, and ONAPES, the national body representing fruit and vegetable growers and exporters. Mangoes are expensive but could fill a gap in the supply schedule, and customers are willing to pay to have them on the supermarket shelves all year round.

The huge efforts made to promote exports have been largely successful and have enabled Senegal to gain a foothold in the European market. However, quality remains a major issue. Inadequate cultivation practices mean that just 10% of mangoes that are grown on smallholder plantations are of an appropriate shape, colour and quality to be exported as fresh mango to the European Union (EU).

## Problems

Senegal's exports rose sharply between 1995 and 2020, from below 500 tonnes a year to around 20,000 tonnes in 2020. However, over the past five years the growth in exports has stagnated. Exports are currently hampered by transport, which is costly, lengthy and frequently unreliable, and by a drop in the quality of the fruit, which is prone to attack by fruit flies.

Fruit flies seem to be becoming a bigger problem every year. As soon as the rains begin in June/July, fruit fly populations multiply rapidly so exports have to be halted well before that happens. Consignments are often inspected and if fruit flies are detected the entire consignment is destroyed. Fresh fruit exports have very low profit margins, so a rejected consignment can wipe out most of a producer's profit for the entire season. This means the export season is very short and seems to become shorter each year.

Mangoes are transported by lorry between countries in the west African sub-region. Alongside threats to security, the main risks the country faces are:

- poor road conditions on domestic routes and inappropriate modes of transport, such as open and non-refrigerated lorries;
- limited capacity of port facilities for storing ocean freight, with relatively high storage costs;

- small capacity for air freight, a lack of support infrastructure and high costs of air freight; although this is not a problem for goods destined for a premium market;
- lack of access to appropriate information on the supply markets, which explains the small number of specialist exporters locally and their limited ability to negotiate with buyers;
- a risk of unwieldy and bureaucratic customs procedures; insufficient information on transport costs as a percentage of the total expenses and the resources to manage these costs through joint marketing, negotiations with transport companies, etc.

The availability of containers is a common problem. Senegal exports large volumes through the port of Dakar, which is frequently congested.

The mango sector remains dominated by small-scale producers who invest little in maintaining their orchards. Even the major growers do not operate like professionals. This means that only a small percentage of the mangoes grown can be exported, and there are frequent problems with the quality. As explained below, fruit flies are a particular problem as they attack the crop as soon as the rains begin, which shortens the season by between four to six weeks. Anthracnose, or black spot, is another major problem as the disease does not become evident until the mangoes have already arrived in the EU.

Women are crucial to the local trade and small-scale processing of mangoes. Up to 90% of local mango trade in towns is believed to be carried out by women, who also account for almost 80% of jobs in packaging plants. However, more than 90% of mango orchards are still owned by men because ownership is acquired through inheritance.

A large number of small-scale growers produce Senegal's mangoes. Production is seasonal, and at certain times of year, thousands of tonnes of fruit simply fall off the trees and rot. The losses are significant and may be as much as 50% of total production. These losses are exacerbated by poor cultivation practices and inadequate monitoring of the plantations, which are rarely pruned or watered to boost productivity.

Small-scale producers often fail to maintain their orchards and plan professionally, so even in selected orchards, only a small proportion of the fruit (< 10%) is suitable for export. Reasons include insufficient monitoring of the ripening stage; the size, colour and shape of the fruit; defects; bruising during harvesting and transport; and the presence of fruit flies or other infestations and diseases.

## Opportunities

The mango sector provides income-generating opportunities for many rural households and helps to mitigate migration to the cities and tackle poverty. There are few accurate and up-to-date statistics on the number of jobs the sector generates, both directly and indirectly, but it is estimated to directly provide livelihoods for almost 25,000 people.

Senegal has considerable potential to grow and export mangoes. The climate is well suited to cultivating mangoes and it is said that Senegal possibly grows the most flavourful mangoes in the world. Moreover, as the country is in the northern hemisphere and on the west coast of the African continent, its growing season does not overlap with that of many other major exporters in Latin America, such as Brazil and Peru, and there seems to be limited competition. Senegal is also physically much closer to the EU market, so with well-organised logistics, it should be able to benefit from much shorter journey times. This also enables farmers to pick their mangoes at a later stage in the ripening process when they have a better flavour than the competition. The proximity of the EU also makes air freight more affordable.

Mango exports contribute around XOF 4 billion to Senegal's GDP and provide employment for between 20,000 and 35,000 people, almost half of whom are women. For several years, the mango value chain has demonstrated its importance to the Senegalese economy, but its potential remains under-exploited. The mango value chain represents opportunities for work and employment, particularly for women and young people, brings additional revenue to rural communities, especially to family farms, and adds value to rural employment in terms of skills development and certification.

Plants that form the plant material that is used to create new orchards are grown in nurseries. The longevity and profitability of the orchards depends largely on the choice of plants, the care taken to nurture them during their time in the nursery and their quality. A nursery requires careful planning if it is to produce the very best plants.

Apart from areas where the soil salinity is high, most land in Senegal can be used to grow mangoes. It is important to manage the supply of water for irrigation and to procure plants of certified quality to boost productivity and reduce damage and loss during production.

As indicated above, traditional village orchards account for more than 70% of the land in priority production areas and the same percentage of growers. There is an opportunity to facilitate investment in up-to-date and certified nurseries that can work with research and development to grow adapted mango varieties, including those resistant to climate change.



One opportunity would be to set up a partnership with producers or producer organisations to provide guidance on irrigation and pruning services for mango trees.

An investor could set up an independent company to harvest the mangoes suitable for export in partnership with producers, producer associations and exporters. Investors will need to focus on distribution and on setting up a small unit to treat the mangoes against fruit flies at a cost of XOF 25,000,000, which would enable producers to comply with EU Directives on the pre-export treatment of mangoes (by fumigation or hot water).

The profit margin on exports of fresh mango is between 10% and 20%. However, given the highly seasonal nature of mango production, capital accumulation and paying interest on a loan to purchase new machinery seem somewhat difficult.

It may therefore be interesting for an investor to facilitate the setting-up of a packaging centre. Enforcing directives on the Organisation for the Harmonisation of Business Law in Africa (OHADA) standards for cooperatives could make a major contribution towards professionalising cooperatives. Partnerships are therefore recommended.

The summary table below illustrates the main investment opportunities in harvesting and marketing mangoes.

Mangoes are the number one product to be packaged, both fresh and dried. Dried mango is mainly for the export market (Europe and America) and is packed in bulk to be shipped to importers, packers or to companies engaged in the secondary processing of mango products.



Value chain segment	Investment categories	Evaluation of potential	Impact on women and youth employment	Risks/Comments
<b>Harvesting and marketing</b>	Independent company to harvest mangoes for export	High	Significant impact on employment of young men and women	Availability of skilled individuals with all the necessary equipment in place and confirmed demand
	Hot water treatment unit for fruit fly infestations	Moderate	Significant impact on exports of mangoes to the EU	Availability of reliable and inexpensive sources of energy
	Promoting the international transport of mangoes, to ensure diversification	Moderate	Impact on growth of marketing of mangoes both internationally and locally	The potential risk is the extent to which government agencies are involved in facilitating negotiations with the top logistics companies
	Setting up of a packaging centre in production areas	High	Very significant impact on the packaging of mangoes	Good evaluation of the financial arrangements of the institutions involved
	Enforcing directives on the OHADA standards for cooperatives	Moderate	Strong potential to create businesses owned by women and young people	Acceptance of the establishment of cooperatives with the involvement of partners



<b>Production</b>	Planting modern and certified nurseries	High	Impact on the employment of young men and women completing courses at agricultural or forestry training schools	Urban development and access to water, with high costs linked to drainage
	Mango tree irrigation and pruning services	High	Irrigation and pruning services are labour intensive and offer high employment opportunities	Availability of skilled individuals with all the necessary equipment and confirmed demand
<b>Adding value</b>	Mango drying and juicing unit	Moderate	Significant impact on exports of mango to the EU	Availability of reliable and inexpensive sources of energy
	Mango pulping unit	High	Impact on growth in the marketing of mangoes both internationally and locally	The potential risk is the extent to which government agencies are involved in facilitating negotiations with logistics companies
	Production unit for cosmetic products and vinegar	High	Very significant impact on mango packaging	Good evaluation of the financial arrangements of the institutions involved
	Promoting mango products (dried, puree, juice, vinegar, butter, oil, etc.)	High	Strong potential to create businesses owned by women and young people	Acceptance of the establishment of cooperatives with the involvement of partners

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In order to support the sustainable engagement of German companies in emerging and developing countries, Germany Trade & Invest (GTAI), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the German Chambers of Commerce Abroad (AHKs) as well as other partners combined their expertise in the publication series “New Markets – New Opportunities”. The booklets show companies the economic potential of future markets as well as the funding and consulting opportunities offered by the German development cooperation.

“New Markets – New Opportunities: A Guide for German Companies” is supported by the Federal Ministry for Economic Cooperation and Development (BMZ). All issues are published on the websites of GTAI and GIZ. You can find selected issues, for example on Senegal also at

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