

# THE FLOWER SECTOR IN KENYA: ROSES



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# List of acronyms

AfCFTA	African Continental Free Trade Area
BEEEP	Business Environment and Export Enhancing Programme
CAGR	Compound Annual Growth Rate
CO2	Carbon Dioxide
EU	European Union
FCM	False Codling Moth
F.O.S.S	Flowers and Ornamental Sustainability Standard
FPEAK	Fresh Produce Exporters Association
FSI	Floriculture Sustainability Initiative
GAP	Good Agricultural Practices
HCD	Horticultural Crops Directorate
IPD	Import Promotion Desk
KALRO	Kenya Agricultural and Livestock Research Organization
KEPHIS	Kenya Plant Health Inspectorate Service
KFC	Kenya Flower Council
KPI	Key Performance Indicators
KRA	Kenya Revenue Authority
Ksh	Kenyan Shilling
NExT	New Export Trade
NPPO	National Plant Protection Organisation
O2	Oxygen
PEF	Product Environmental Footprint
PESCR	Product Environment Social Category Rules
PPP	Plant Protection Products
PVP	Plant Variety Protection
SPS	Sanitary and Phytosanitary
SWOT	Strengths, Weaknesses, Opportunities, and Threats
UAE	United Arab Emirates
UK	United Kingdom
USA	United States of America
VAT	Value-Added Tax
WUR	Wageningen University & Research

# 1. Introduction

## 1.1 Background rose sector

The floriculture commercial production in Kenya dates back to the late 1960s and significant growth from the 1990s onwards through large-scale investments that transformed the sector into a major player on the international market. Kenya now is one of the top cut flower exporters in the world, alongside Colombia, Ecuador, and the Netherlands. The floriculture sector is important for Kenya's economy as it accounts for about 18% of its total exports (KenTrade, 2024). After tea, cut flowers even account for the highest export value (KenTrade, 2024). Fresh cut roses are the main export flower product, with an estimated value of 40 billion Kenyan Shilling (Ksh) making up 66% of the total value of Kenya's flower export in 2022 (Table 1). The floriculture sector in Kenya is thus predominantly export-driven (>95%) and great improvements have been made in cultivation techniques, advanced technology, quality standards, management and labour skills, logistics, and marketing.

Table 1. Fresh export of flowers for January - December 2022. Source: Horticultural Crops Directorate (HCD).

Cut Flowers	Volume (1K Stems)	% volume	Value (K Ksh)	Value (K USD)	% value
Carnation / Dianthus	1	0.02	498	4	0.81
Chrysanthemums	376	0.01	116	947	0.19
Eucalyptus	1	<0.01	390	3	<0.01
Lilies / Longiflora	152	<0.01	70	574	0.11
Mixed flowers	2	<0.01	92	754	0.15
Roses	2	66.79	40	330	66.05
Tuberose	2	<0.01	194	2	<0.01
Cuttings	1	33.17	20	163	32.69
<b>Total</b>	<b>4</b>	<b>100</b>	<b>61</b>	<b>500</b>	<b>100</b>

Historically, rose farms in Kenya started small, often covering areas of 2-3 hectares. As demand grew, particularly from European markets, the sector moved in the 1990s from low-input open-field flower production to large-scale greenhouses at higher altitudes. This shift resulted in the cultivation of higher-value roses that proved to be profitable and respond better to changing market trends and demands. Production of flowers is spread over more than 15 counties with the main production areas being around Lake Naivasha, Mount Kenya, Nairobi, Thika, Nakuru, Kericho, and Eastern Kenya. These high-altitude locations contribute to the quality and thus popularity of Kenyan roses on the global market.

In general, the Kenyan floriculture industry has seen consistent growth in scale due to increased global demand for cut flowers, especially roses, which have become a dominant export product for the country. Around 10 years ago, many rose farms expanded significantly, reaching sizes between 10-20 hectares. This expansion is driven by market pressures, advancements in cultivation techniques, and the need to reduce costs, particularly in the supply chain, which has led to shorter, more direct links between growers and buyers.

# 1. Introduction

Farms have been investing in larger operations to meet the rising demand and to improve efficiencies through economies of scale. Nowadays, many roses farms cover at least an area of 20 hectares. For example, Solai Roses expanded from 25 hectares to 40 hectares, and Red Lands Roses expanded its greenhouse area to 35 hectares.

The Kenyan rose sector is not only important for its economy but also for its formal employment. The rose sector provides significant employment opportunities, not only at the farm, but also in related areas such as transportation, packaging, and export logistics. The demand for inputs such as farm equipment, fertilizers, and logistics services has encouraged the growth of specialized local businesses that support the floriculture industry. Logistics firms managing cold chain needs, sustainable farm input suppliers, and horticulture training institutions all play a key role in strengthening Kenya's economy by creating jobs and driving development (KFC, 2024).

The flower sector in Kenya plays a significant role in promoting gender equality and women's empowerment. Women account for at least 50% of the workforce in the floriculture sector, making them a critical component of the industry's labour force (Table 2). Their roles primarily involve flower harvesting, sorting, and bouquet making, which not only provides them with financial independence but also offers opportunities for skill development. This, in turn, contributes to broader social changes and advances gender equality in rural areas. The industry's impact on local communities, especially around production hubs like Lake Naivasha, extends into education and healthcare. Many farms invest in local schools, healthcare facilities, and other essential services that enhance the quality of life for workers and their families.

Table 2. Number of workers from growers audited under KFC's certification scheme (2019-2023). Source: KFC.

Year	Number of Farms	Male	% Male	Female	% Female	Total
2023	77	23,441	49%	24,175	51%	47,616
2022	83	20,207	48%	21,836	52%	42,043
2021	77	21,894	49%	23,084	51%	44,978
2020	67	18,101	49%	19,216	51%	37,317
2019	60	14,462	47%	16,387	53%	30 849

The rose industry, in particular, has fostered a range of specific skills across the workforce. Employees are trained in advanced greenhouse management, integrated pest control, precision irrigation, and efficient harvesting techniques, which enhance product quality while maintaining environmental standards. These skills have positioned Kenyan workers as highly competent in floriculture practices, which are essential to sustaining competitiveness in global markets (KFC, 2024).

Beyond employment, Kenya's floriculture sector has been a leader in sustainability and environmental responsibility. The Kenya Flower Council (KFC) certification is internationally recognized, underscoring the industry's commitment to eco-friendly practices, including water conservation, reduced pesticide use, and carbon footprint reduction through initiatives like solar energy adoption. These sustainability measures not only meet global market demands but also align with the broader push for environmentally conscious production in Kenya, further bolstering the industry's global reputation (KFC, 2024).

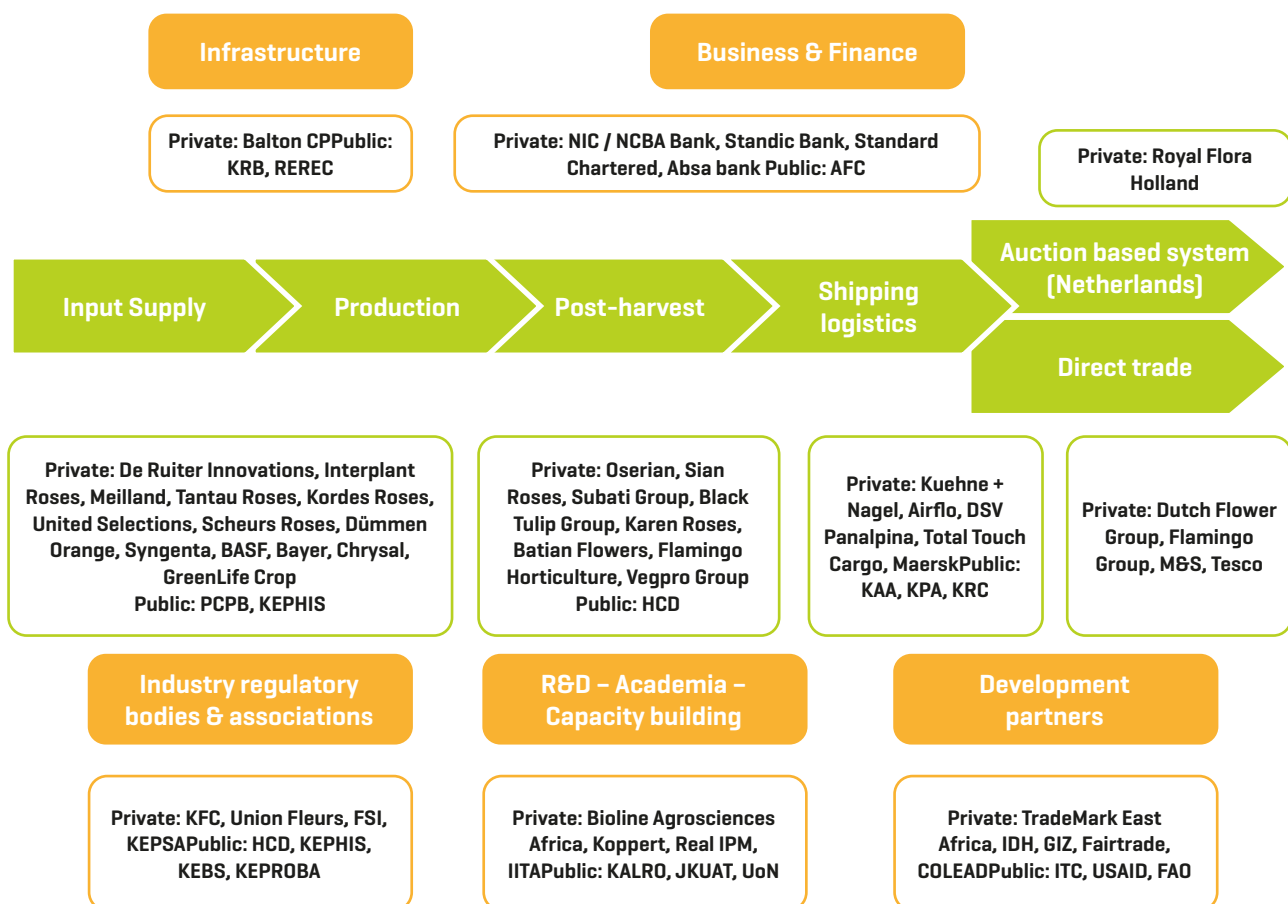
The Kenyan flower sector has attracted significant interest from external investors, as evidenced by recent private equity investments. Firms like Adenia Partners, AgDevCo, and AfricInvest have made notable investments in Kenyan flower companies, recognizing the sector’s strong growth potential and profitability. These investors are drawn to the high demand for (more premium) Kenyan roses and the industry’s established export channels, particularly to Europe (Africa Private Equity News, 2023).

In sum, Kenya’s floriculture sector is not only a key contributor to its exports but also offers a model of sustainable products that supports employment, skill development, community growth, and environmental stewardship.

## 1.2 Value chain description

The rose value chain in Kenya is defined by its integration of large flower breeders and growers, supported by a sophisticated infrastructure and robust supply chain. Leading breeders, provide high-quality rose varieties that are cultivated by prominent farms, leveraging Kenya’s favourable growing conditions. The chain is strengthened by efficient post-harvest handling, reliable shipping logistics, and regulatory oversight, ensuring quality and timely delivery to global markets. Roses are primarily exported through auction systems in the Netherlands or via direct trade with for example major retailers. The sector benefits from access to business financing, research and development institutions, and partnerships with development organizations, which collectively drive innovation, sustainability, and market growth. This integrated structure underscores Kenya’s position as a leading global exporter of roses.

Figure 1. The rose flower value chain is composed of five main steps (in green) and is surrounded by an enabling environment consisting of five pillars (in orange).






## 1.3 Main types of roses in Kenya

Kenya is one of the world's leading producers of roses, with a wide range of types grown across the country, including:

- **Hybrid tea roses:** These are some of the most popular roses grown in Kenya, known for their large, single blooms on long stems. Varieties like Rhodos, Madam Red, and Ever Red fall into this category and are particularly popular in the European market due to their long vase life and vibrant colours.
- **Spray roses:** These are smaller, multi-headed roses that are often used in floral arrangements for their delicate appearance. Varieties like Snow Bubbles and Moonstone Gem are popular spray roses grown in Kenya.
- **Floribunda roses:** These roses produce clusters of blooms, offering a more abundant display. They are often used in gardens and for bouquets. Varieties like Pomarosa and Mandala are examples of this type.
- **Garden roses:** Known for their old-fashioned, full-petaled blooms, these roses are often fragrant and are used in premium bouquets and events. Varieties like Constance and Belle Romantica are examples.
- **Climbing roses:** Although not as commonly grown as the other types, some farms in Kenya also cultivate climbing roses, which are popular for use in landscaping and large floral installations.
- **Standard roses:** These are the classic, long-stemmed roses that are often seen in high-end floral arrangements. They include varieties such as Osiana (Oceana), known for their large blooms and strong stems.

## 1.4 Main rose varieties in Kenya

In 2023, Kenya continued to be a leading global producer of roses, with several varieties gaining popularity due to their exceptional quality, vibrant colours, and long vase life. Some of the top rose varieties produced in Kenya are illustrated below:

Photo	Variety	Description
	Rhodos	This red rose variety is highly favoured for its deep red colour and large buds. It is widely grown across many regions in Kenya and remains one of the best-selling varieties globally.
	Madam Red	Known for its sturdy stems and long vase life, Madam Red is another popular variety that is sought after both locally and internationally.
	Revival Sweet	A premium pink rose with a large head and appealing aesthetic, making it a favourite among florists and designers.



	<p>Ever Red</p>	<p>This velvety red rose is renowned for its beauty and charm, with a good head size and strong stems.</p>
	<p>Confidential</p>	<p>This orange-coloured rose is unique for its strong stems and versatility across different growing altitudes in Kenya.</p>
	<p>Deep Purple</p>	<p>A lavender-coloured rose with purple edges, known for its regal appearance and suitability for elegant arrangements.</p>
	<p>Osiana (Oceana)</p>	<p>A sweetly scented rose that is available in white, peach, or cream, has become a staple in Kenyan rose production.</p>
	<p>Pomarosa</p>	<p>A pale pink rose with a strong stem and large flower heads, popular for weddings and events due to its extended vase life.</p>
	<p>Mandala</p>	<p>This pink rose features pretty ruffled edges and is highly versatile, fitting well into various colour schemes.</p>
	<p>Basanti</p>	<p>A vibrant yellow rose with a large bud size and excellent vase life, bringing a ray of sunshine to any floral arrangement.</p>

These varieties in rose production highlight Kenya's strength in producing high-quality roses that meet diverse market demands across the globe.

## 1.5 Rose breeding in Kenya

### *Dominance of large rose breeders*

Rose breeding companies are innovators in the floriculture industry, developing new rose varieties with specific traits like colour, fragrance, disease resistance, and shelf life. Through extensive research and development, breeders cross-pollinate different varieties, cultivating hybrids that meet market demands and adapt to environmental challenges.

A key part of their model is intellectual property. Breeders often register new varieties, securing plant patents or breeders' rights to protect their work. These companies typically license their patented roses to production companies or nurseries, earning royalties from the sale of plants or cut roses. This approach not only sustains breeding innovation but also supplies producers with high-quality roses that align with consumer preferences.

The difference between a rose breeder and a rose grower lies in their roles. Growers are responsible for cultivating rose varieties on a large scale for the consumer market. They purchase or license varieties from breeders and focus on optimizing growth, harvest, and distribution to meet market demands. Rose breeders focus on research and development to develop new rose varieties. The rose breeding landscape in Kenya is dominated by several international key players, each contributing to the diversity and quality of roses produced in the country:

- **De Ruiter Innovations:** This Dutch breeder is one of the most prominent in Kenya, known for its wide range of rose varieties such as Rhodos, Ever Red, and Deep Purple. De Ruiter focuses on developing roses that meet the demands of the international market, including long vase life and robust stems. <https://deruiter.com>
- **Interplant Roses:** Specializing in spray roses and other innovative varieties, Interplant is another major player in Kenya. Their roses are popular for their resilience and the aesthetic appeal of their blooms, with varieties like Snow Bubbles and Moonstone Gem being highly regarded. <https://www.interplantroses.nl/>
- **Meilland:** Known for classic and garden rose varieties, Meilland has introduced several successful roses in Kenya, including Madam Red and Belle Romantica. These varieties are favoured for their beauty and fragrance. <https://meilland.com/en>
- **Tantau Roses:** This German breeder offers a range of roses that thrive in Kenya, with a focus on disease resistance and long-lasting blooms. Paco Rabanne and Golden Mustard are notable varieties from Tantau. <https://www.rosen-tantau.com/en>
- **Kordes Roses:** Kordes is renowned for breeding roses that are both beautiful and resilient. They contribute to the diversity of roses grown in Kenya, with varieties that are particularly valued for their durability. <https://www.rosen.de/en>
- **United Selections:** United Selections is a global rose breeder with a strong presence in Kenya. They are known for developing roses that are well-suited to the local climate and market demands. Their varieties are celebrated for their vibrant colours, durability, and high yield. United Selections actively works with local growers to ensure that their roses meet international standards. <https://united-selections.com>
- **Schreurs Roses:** Schreurs is another leading breeder with a significant influence in Kenya. They specialize in high-quality roses with a strong emphasis on innovation and market trends. Their varieties are popular among Kenyan growers for their aesthetic appeal and robustness, making them a preferred choice for export markets. <https://www.schreursroses.com>
- **Dümmen Orange:** Dümmen Orange is a global leader in breeding flowers, including roses, with a growing presence in Kenya. They are known for their innovative breeding programs that produce roses with excellent vase life, disease resistance, and striking colours. Their presence in Kenya has contributed to the diversification and quality improvement of roses produced in the country. <https://emea.dummenorange.com>

## *Research breeding programs*

These breeders collectively enhance Kenya's reputation as a top global exporter of roses, contributing to the country's ability to supply a diverse array of high-quality roses to markets worldwide. Key focus points in their breeding programs are:

- **Disease resistance:** including resistance to botrytis, mildew, rust, and other diseases. This is considered to be of great importance to reduce pesticide usage in the cut flower sector.
- **Robust production:** yield per square meter is of increased importance due to pressure on the margins, especially from the retail sector in target markets.
- **Transportability of flowers:** with an increased focus on sea freight and its transportation time of 28-32 days, cut flowers are required to have a longer shelf life ensuring the roses are still of high quality when reaching the target markets.

These breeding programs are driven by research. As research is very expensive, companies like Dümme Orange, Interplant, Meiland, and United Selections conduct joint research into botrytis resistance in cooperation with Wageningen University & Research (WUR), under the Centre for Biotesting.

## *Market penetration smaller breeders*

Given the dominance of these large-sized breeders on the Kenyan rose market, market penetration for small and medium-sized breeders could be challenging. The three main challenges for such breeders are as follows:

- **High capital investment:** Breeding roses or entering the rose production industry requires significant investment in land, greenhouse infrastructure, irrigation, and disease control systems.
- **Research and development:** Developing new rose varieties requires a long-term commitment to research, often over several years. This is an area dominated by larger breeders with access to greater financial and technological resources.
- **Intellectual property:** Breeding is closely tied to intellectual property rights, with breeders filing for Plant Variety Protection (PVP) to ensure exclusive rights to the sale of their varieties. This can make it difficult for new breeders to enter the market unless they innovate new varieties or license existing ones.



## 1.6 Export destinations

Independent of the export destination, the Kenyan rose market is seasonal, with demand peaking around major holidays like Valentine's Day and Mother's Day. These dates are critical for growers, as they align with the highest global sales of roses. During these times, demand increases, especially in key export markets like Europe, which leads to higher prices and greater revenue potential. For Kenyan growers, timing production to match these peak seasons helps maximize profits and meet increased demand. To succeed, careful planning in cultivation and logistics is essential to ensure flowers are of top quality and reach consumers on time. This highlights the need for precise scheduling and effective supply chain management.

### 1.6.1. Trade channels

The flower trade from Kenya is primarily divided between two main channels: sales through the Dutch auction system and direct sales to supermarkets or retailers via wholesalers or flower providers.

The Dutch auction-based system, particularly through Royal FloraHolland, has long been a key route for Kenyan flower exports. At Royal FloraHolland, growers have access to multiple sales methods:

- The traditional auction clock sale, where buyers bid via a descending clock with the option for growers to set minimum prices.
- Pre-auction sales allow buyers to purchase products before the main auction.
- Direct bidding is where growers set an asking price that buyers can either accept or negotiate.
- Direct sales via Floriday, giving growers full control over pricing and availability.

Most of the flowers and plants purchased at Royal FloraHolland do not remain in the Netherlands. These products travel abroad by truck, plane, and train or by sea. The principal destinations are Germany, the United Kingdom, France, and Belgium (Florist Review, 2023).

All of these methods provide flexibility and come with a 100% payment guarantee from Royal FloraHolland, ensuring growers are always assured of payment. This system offers growers notable financial benefits by aggregating demand from various buyers, thus providing consistent demand and reducing the unpredictability of retail-focused sales. Furthermore, the auction's prompt payment structure allows growers to receive earnings before the week's end, minimizing financial risk and supporting cash flow stability, reducing reliance on extended credit terms or delayed payments.

Over the past decade, there has been a significant shift towards the direct sales of flowers grown in Kenya, particularly to supermarkets in the European Union (EU) and the United Kingdom (UK). This model has become popular because it allows growers to bypass auctions and potentially secure higher prices through direct dealing with retailers. However, it requires a strong focus on quality, delivery reliability, and traceability, often operating on a just-in-time delivery basis. Growers must align production with market demands to ensure flowers reach their destinations precisely when needed. This can introduce challenges, such as fluctuating demand due to public holidays and festive events in target markets. Direct sales therefore primarily benefit larger growers with the marketing and logistical capabilities to scale production and streamline logistics efficiently.

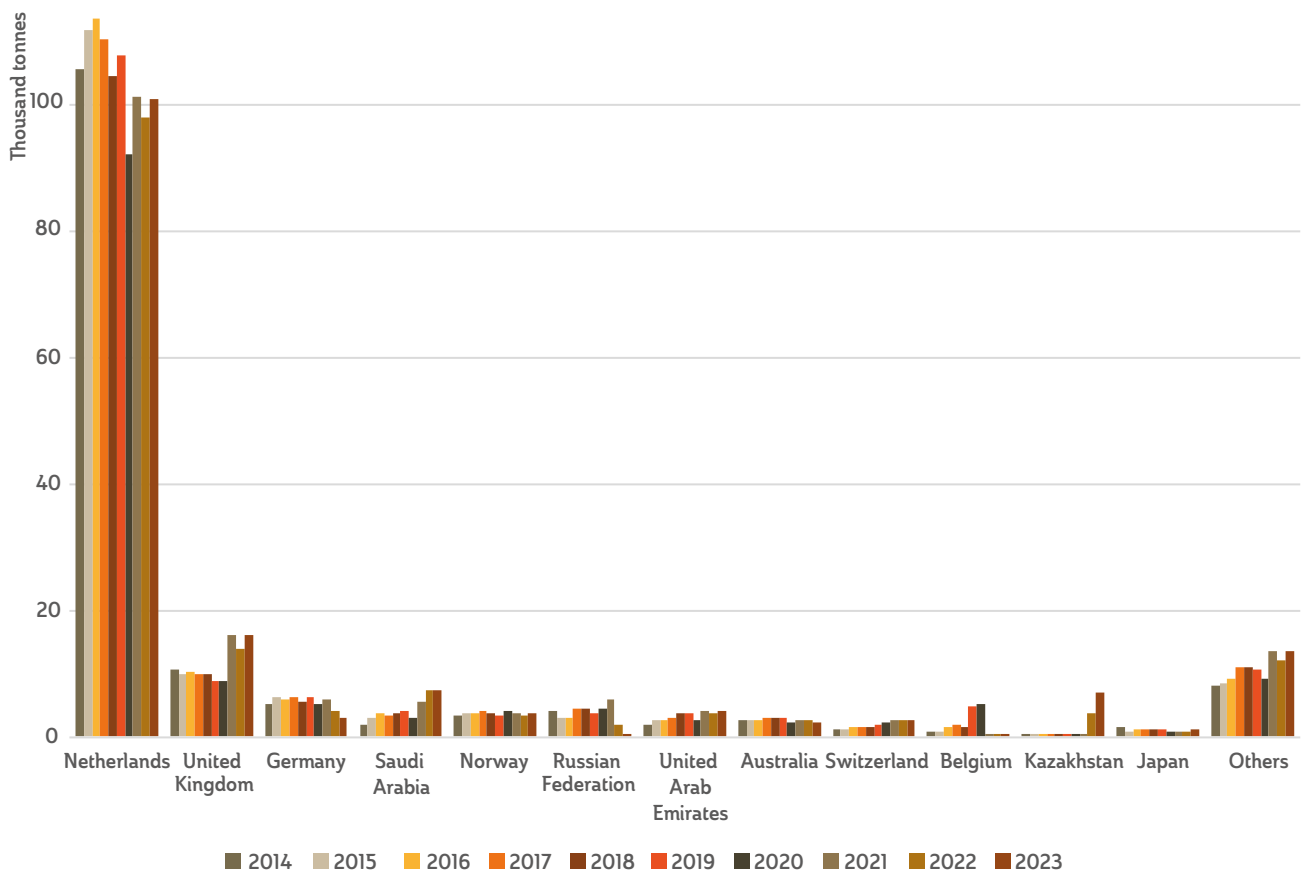
In the direct sales model, particularly with supermarket sales via wholesalers, in some cases, there is no immediate payment security as offered by the auction system. Supermarkets often operate with payment terms extending to 60 or even 90 days. Conversely, for markets like Asia and the Middle East, buyers are often willing to pay in advance, reducing financial risk for the flower producer.

To support farmers with direct sales, the Import Promotion Desk (IPD) connects small and medium-sized Kenyan flower farms with European markets. This gives farmers a chance to sell directly to buyers, avoiding intermediaries. IPD ensures that the farms meet international standards like GLOBALG.A.P. and SEDEX, making it easier for buyers to trust the quality and sustainability of the flowers. Their cost-free matchmaking services, such as organizing B2B meetings and direct introductions, help Kenyan farmers find new buyers and expand their market access (IPD, 2024). These connections provide farmers with better and more stable incomes by linking them with buyers who value high-quality, sustainable flowers. IPD's emphasis on international standards helps farmers enhance production standards, improving both product marketability and environmental sustainability (IPD, 2024).

## 1.6.2. Main destination markets

Traditionally, the main market for roses has always been and still is through the EU. In 2023, even 62% of all Kenyan roses were exported to the Netherlands. Another important destination country is the UK accounting for 10% of the export of Kenyan roses (Figure 2).

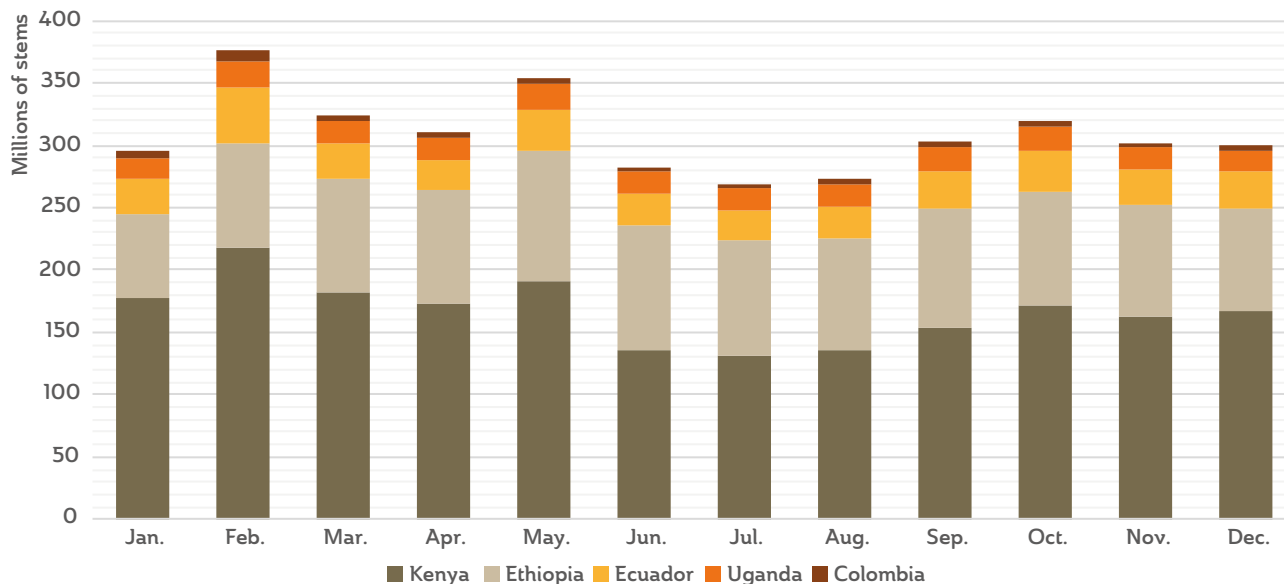
Figure 2. Main Destination countries for Kenyan exports of fresh cut roses (HS Code 06031100) in 2014-2023, by volume (Tonnes). Source: COLEAD based on Eurostat, UK Trade Info, and ITC Trade Map.



# 1. Introduction

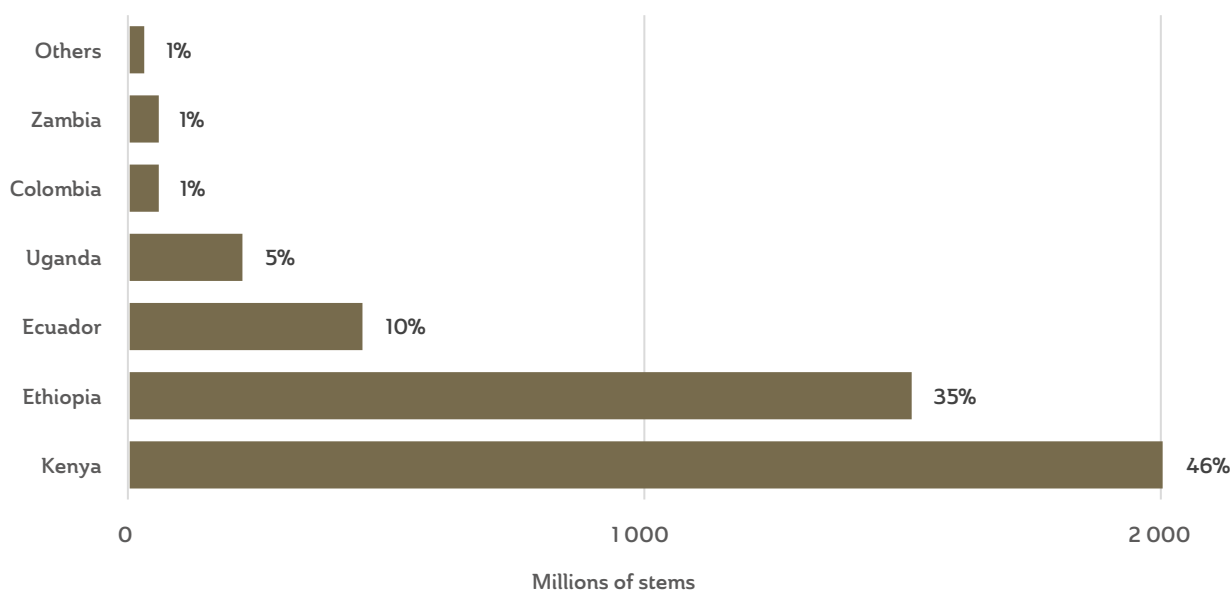
Regarding seasonality throughout the year, the supply of Kenyan roses to the EU can be considered relatively constant, compared to other exporting countries as can be seen in the figure below with the Dutch roses imports, which are representative for the EU imports as a whole (Figure 3). The relatively stable supply of Kenyan roses can be explained by the location of the rose farms. These farms are often located at a wide variety of altitude levels, providing opportunities to grow and supply roses throughout the year.

Figure 3. Average export seasonality to the Netherlands for fresh cut roses (HS Code 06031100) in the period 2019-2023 by top 5 exporting countries (units in millions of stems). Source: COLEAD based on Eurostat.



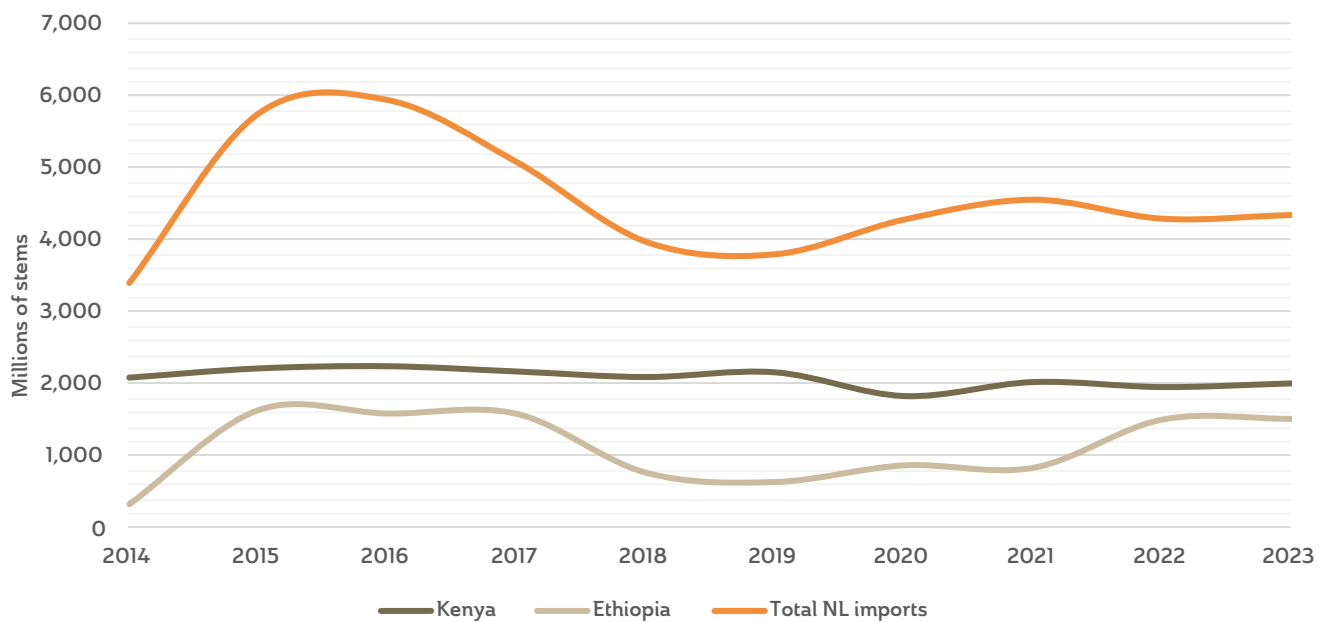
As noted earlier, the Netherlands is a key export market for Kenyan cut roses, making it the primary trading partner for Kenya in this sector. In fact, 46% of all fresh cut roses imported into the Netherlands come from Kenya, reinforcing its role as the Netherlands' leading supplier of roses (Figure 4).

Figure 4. Exporters share of fresh cut roses (HS Code 06031100) imported by the Netherlands (2023), in volume (units in number of stems). Source: COLEAD based on Eurostat.



The supply of Kenyan fresh cut roses to the Netherlands has remained relatively stable over the past decade, despite occasional fluctuations in imports. These fluctuations have had a more noticeable impact on the supply of Ethiopian roses, as shown in the figure below (Figure 5).

Figure 5 Evolution of Dutch imports of fresh cut roses from Kenya (2014-2023) in volumes (millions of stems).  
Source: COLEAD based on Eurostat.



Although the Netherlands and Kenya remain important trading partners to each other for fresh cut roses, the Compound Annual Growth Rate (CAGR) provides additional information. The exported volume of Kenyan roses to the Netherlands in the period of 2014-2023 slightly decreased, while the total exported volume of Kenyan roses to the world in the same period slightly increased (Table 3). This implies that while the total market for Kenyan roses is growing, the share or volume of exports specifically to the Netherlands is slightly declining, which could be declared by stronger growth in other countries.

Table 3. CAGR for main destination countries of Kenyan fresh cut roses (2014-2023).  
Source: COLEAD based on Eurostat, UK Trade Info and ITC Trade Map.

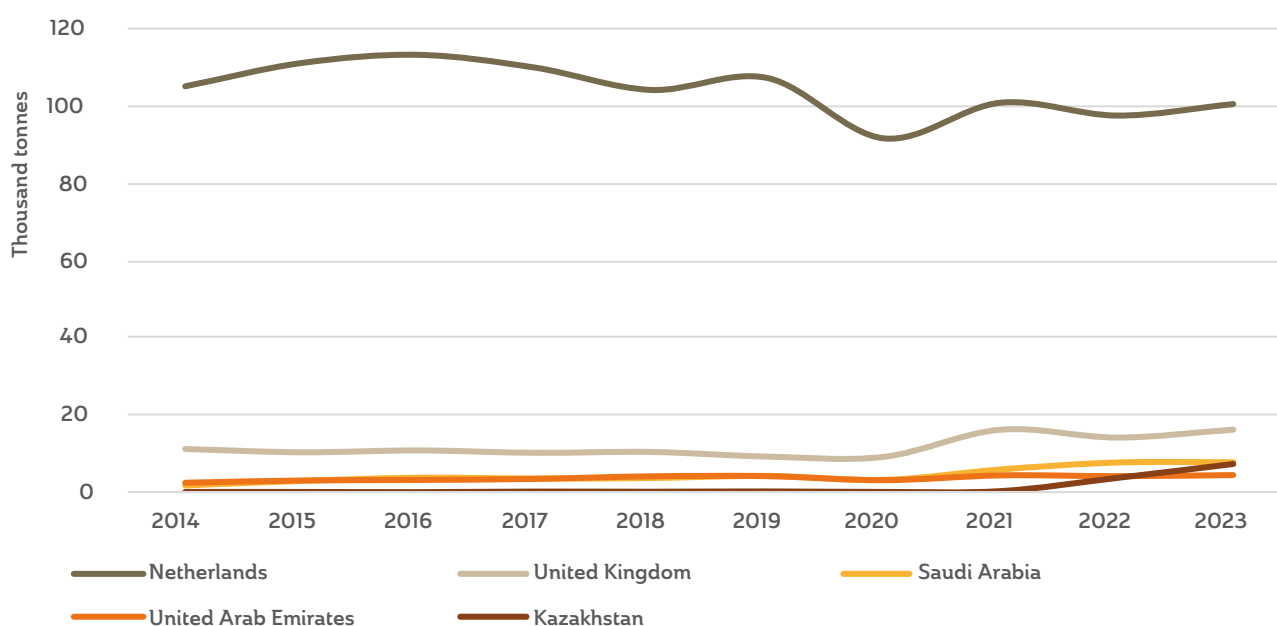
Country	CAGR (2014-2023)
Netherlands	-0.4%
United Kingdom	4.1%
Germany	-4.8%
Saudi Arabia	15.2%
Norway	1.4%
Russian Federation	-27.3%
United Arab Emirates	8.0%
Australia	-0.4%
Switzerland	9.4%
Belgium	-9.5%
Kazakhstan	49.3%
Japan	-3.3%
Others	5.4%
Grand total	1.0%

## 1.6.2. Emerging markets

In the past years, direct exports to the UK, the Middle East and Kazakhstan have seen an increase. The increased exports to the UK are a direct consequence of the Brexit. While the increased exports to Kazakhstan are aligning with a strong reduction of exports to the Russian Federation from 2022 onwards. This is most likely caused by the exclusion of Russia from the Society for Worldwide Interbank Financial Telecommunication (SWIFT) payment platform due to the ongoing Russia-Ukraine conflict which caused that Kenyan roses exporters could no longer receive payments from Russia. Apparently, an alternative route to Russia via Kazakhstan was found.

A real growing market is observed for the Middle East. More specifically, in the period 2014-2023, the export of Kenyan roses increased to Saudi Arabia and the United Arab Emirates (Table 4). These increases might be the outcomes of Kenya’s efforts to diversify its exports destinations. Among others, recently a MoU was signed with Saudi Arabia to improve the balance of trade between both countries. Flowers were among the focus products. Kenya has been negotiating bilaterally with several other Gulf countries to remove tariffs and logistics constraints to increase export volumes<sup>1</sup>. Figure 6 illustrates the trends for Kenyan exports of fresh cut roses to these destination countries, as well as for the countries the Netherlands, the UK, and the United Arab Emirates (UAE).

Figure 6. Trends for destination countries for Kenyan exports of fresh cut roses (HS Code 06031100) for the period 2014-2023, by volume (Thousands of tonnes). Source: COLEAD based on Eurostat, UK Trade Info and ITC Trade Map.



With the rise in direct exports to the Middle East, it’s important to determine whether the overall import of fresh cut roses has increased, or if the import of Kenyan roses specifically has grown. The share of Kenyan roses in total rose imports has grown significantly in both countries—rising from 59% to 78% in the UAE and from 28% to 47% in Saudi Arabia between 2014 and 2022 (Table 4) (estimations based on ITC TradeMap data). Also in Kazakhstan we see an enormous increase in 2022 but that is, as explained before, a particular case which might be temporary.

<sup>1</sup> <https://kenyanwallstreet.com/kenya-seeks-to-increase-tea-coffee-flower-exports-to-saudi-arabia/>  
<https://www.businessdailyafrica.com/bd/markets/commodities/kenya-eyes-direct-flower-exports-to-gulf-countries-3717840>



Table 4. Import trends for in the countries UAE, Saudi Arabia, and Kazakhstan of fresh cut roses (2014-2022), by volume (Tonnes). Source: COLEAD based on ITC Trade Map.

Country	Imported from	2014	2015	2016	2017	2018	2019	2020	2021	2022
UAE	Total import	3,113	3,874	4,301	4,391	5 046	4,965	3,604	5,130	4,757
	Imported from Kenya	1,850	2,489	2,640	2,934	3,663	3,708	2,578	3,922	3,711
	% Kenyan roses	59%	64%	61%	67%	73%	75%	72%	76%	78%
Saudi Arabia	Total import	6,342	8,617	9,350	10,519	10,814	11,827	10,022	14,004	15,646
	Imported from Kenya	1,790	2,878	3,649	3,452	3,577	4,072	3,114	5,623	7,291
	% Kenyan roses	28%	33%	39%	33%	33%	34%	31%	40%	47%
Kazakhstan	Total import	1,989	2,003	2,270	3,423	3,579	3,998	2,725	3,782	7,576
	Imported from Kenya	130	131	83	224	188	259	137	331	3,638
	% Kenyan roses	7%	7%	4%	7%	5%	6%	5%	9%	48%

These results indicate a diversification in the market destinations for Kenyan fresh cut roses, highlighting an opportunity to reduce reliance on the EU, which has traditionally been the primary market. This shift suggests a broader customer base and potentially greater stability for the industry.

## 1.7 Main messages rose cultivation Kenya

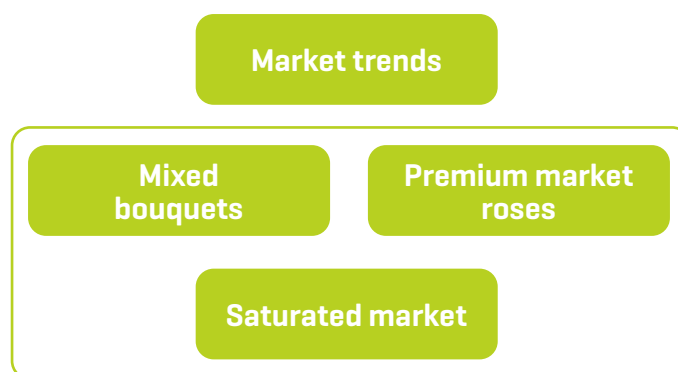
- Kenya’s commercial flower production began in the late 1960s and grew significantly in the 1990s. Fresh cut roses are now the main export product, contributing 66% of Kenya’s total flower export value.
- Flower production transitioned from open fields to large-scale greenhouses at higher altitudes to improve quality and meet market demands.
- Kenya’s floriculture sector remains a key economic driver, with roses as the primary export crop, benefiting from advanced production techniques and a strong global presence.
- The sector offers significant employment opportunities with women representing at least 50% of the workforce in the floriculture industry.
- Kenya grows a variety of roses, including hybrid tea roses (e.g., Rhodos, Madam Red), spray roses (e.g., Snow Bubbles), floribunda roses (e.g., Pomarosa), and garden roses (e.g., Belle Romantica). Each type has unique qualities suited for different markets, from long vase life to vibrant colours.
- Main rose breeders in Kenya include De Ruiters Innovations, Interplant Roses, Meilland, Tantau Roses, and Dümmer Orange, each contributing to the development of new rose varieties.
- The main export markets are the EU, particularly the Netherlands. The Netherlands is the largest importer of Kenyan roses, accounting for 62% of exports in 2023.
- The Gulf countries are emerging export destinations, with an increase in exports, particularly to Saudi Arabia and the United Arab Emirates.

## 2. Market

### 2.1. Market trends

Several market trends can be identified influencing the Kenyan fresh cut rose sector. These trends are illustrated in the figure below and explained in more detail (Figure 7).

Figure 7. Main market trends influencing the Kenyan fresh cut rose sector.



#### Mixed bouquets

Over the past five years, there has been a noticeable shift in demand from mono bouquets to mixed bouquets that include both roses and summer flowers. This trend, primarily driven by the EU and the UK markets, has led rose growers to expand their offerings by incorporating summer flowers into their product range. This adaptation not only meets consumer preferences but also enhances the variety available in the market.

#### Premium market roses

Another notable market trend in the past few years is the increasing demand for premium market roses from Kenya. Traditionally, these high-quality roses were primarily produced in Ecuador and Colombia. Although Kenyan roses are mostly still considered less premium than those in Colombia, it offers opportunities for the Kenyan rose sector to move towards more premium roses. These roses are characterized by their larger head sizes and are typically not used in mixed bouquets. The rising demand for both premium market roses and roses suitable for mixed arrangements creates opportunities for cultivating a diverse range of rose varieties with varying head sizes and unique characteristics. In particular, sweetheart and spray roses have seen a significant surge in popularity.

#### Saturated market

Finally, it should be noted that competition in the cultivation of Kenyan fresh cut roses has intensified over the last five years, with large rose growers dominating the market. This trend contributes to a greater saturation in the global market for Kenyan fresh cut roses. Developing

a rose farm requires significant investment due to the higher costs associated with the specialized infrastructure necessary for optimal growing conditions, such as greenhouses, irrigation systems, and temperature control. Additionally, the advantages of scale make it challenging for new entrants, as starting a rose farm with less than five hectares is generally considered unviable. These high investment requirements and the competitive landscape present considerable hurdles for emerging rose growers looking to establish themselves in the market.

## 2.2. Main competitors in production

Given that the main market of Kenyan fresh cut roses still is the EU, competition in that market can be most impactful. The main fresh cut rose suppliers in the EU market are Kenya, Ethiopia, Ecuador, Uganda, and Colombia. Both in terms of volumes (Thousand Tonnes) and value (Million Euro) of roses supplied to the EU market, Kenya can be considered its main supplier (Figure 8 and Figure 9).

Figure 8. Top 5 suppliers of fresh cut roses based on total volume (Thousand Tonnes) of exports to the EU27 over the period 2014 - 2023. Source: COLEAD based on Eurostat.

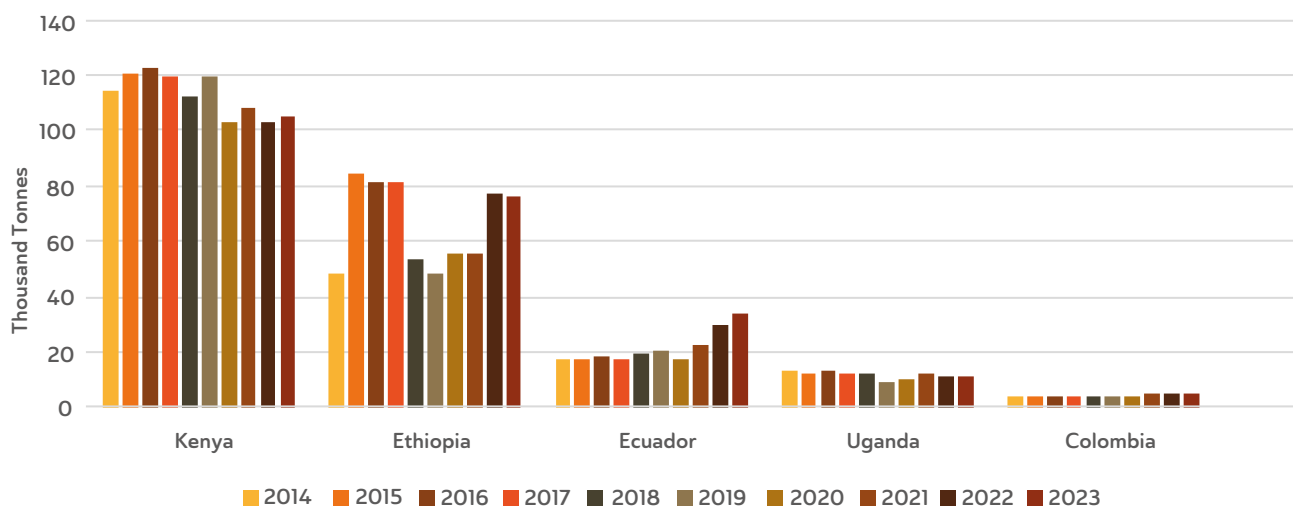
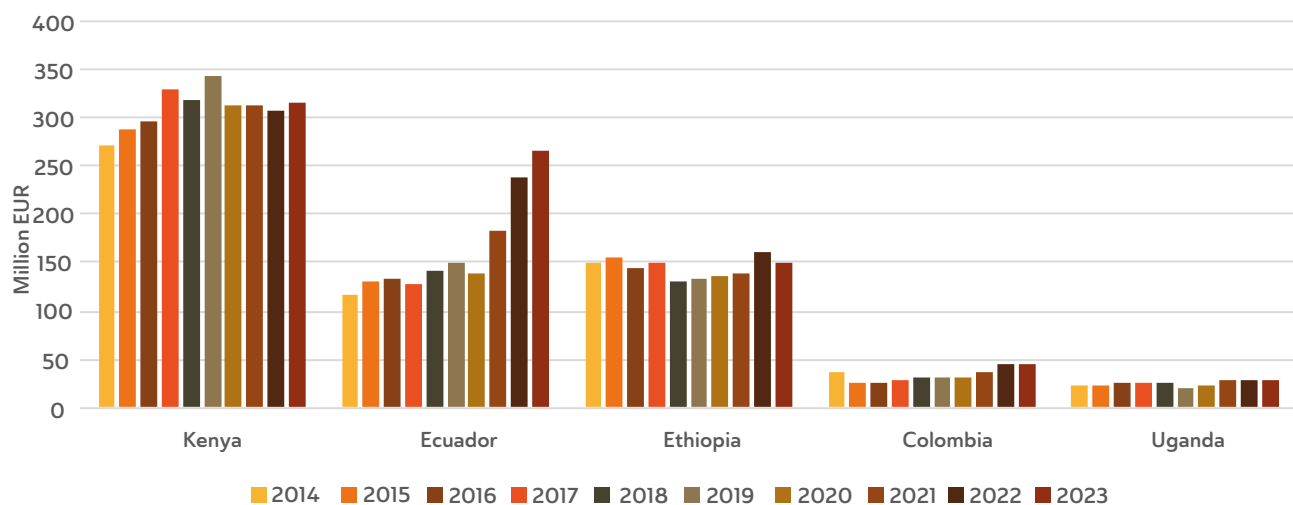


Figure 9. Top 5 suppliers of fresh cut roses based on total value (Million Euro) of exports to the EU27 over the period 2012 - 2023. Source: COLEAD based on Eurostat.



## 2. Market

The Kenyan fresh cut roses experienced a steeper increase in value in the period 2014-2023, compared to regional countries Ethiopia and Uganda. Although specific reasons were not determined, a possible explanation for the overall increased value could be the increased demand for premium roses from Kenya, also coming with more premium prices.

The drop in sales of flowers from Kenya to the EU in 2022-2023 (volumes) likely stemmed from multiple factors, including Brexit's trade disruptions, ongoing global supply chain issues due to the COVID-19 pandemic, such as delays, increased transportation costs, and workforce shortages.

The CAGR of volume and value for the main suppliers in the EU market is indicated in the table below (Table 5). A positive difference between the growth of value compared to the growth of volume is seen for Kenyan fresh cut roses which is opposite to the evolution in neighbouring Ethiopia. While Ethiopia competes for lower prices, helped so by its government, Kenya aims for the premium segment. The value of the fresh cut roses from Ecuador and Colombia also relatively increased more compared to their volume. Both countries are therefore considered strong competitors for Kenya because of their diversified flower industry and delivery of premium roses.

Table 5. Compound Annual Growth Rate (CAGR) for fresh cut roses exported to the EU market in volume and value between 2014 and 2023 and Difference in percentage points between these growth rates.  
Source: COLEAD based on EUROSTAT.

Country	CAGR volume	CAGR value	Difference
Kenya	-0.66%	1.23%	1.89
Ethiopia	3.86%	-0.02%	-3.88
Ecuador	5.69%	6.97%	1.28
Uganda	-1.22%	1.31%	2.53
Colombia	3.78%	1.58%	-2.21

### 2.3. Main message market

- There is an increasing demand for mixed bouquets, especially from the EU and UK. This trend is encouraging rose growers to diversify their product range with summer flowers.
- There is growing demand for different types of roses, such as premium roses, which are characterized by their larger head sizes. Traditionally, these high-quality roses were primarily produced in Ecuador and Colombia.
- The rose cultivation market in Kenya is becoming increasingly saturated, with larger growers dominating the market.
- High initial investment costs and advantages of scale make it challenging for new and emerging growers to successfully establish themselves in the market.
- The main competitors for Kenyan fresh cut roses in the EU market include Ethiopia, Ecuador, Uganda, and Colombia. Kenya remains the largest supplier of fresh cut roses to the EU in terms of both volume and value.
- From 2012 to 2023, the value of Kenyan fresh cut roses in the EU market grew at a faster rate compared to the volume. The growth in value for Kenyan roses outpaced that of Ethiopia. Ugandan roses had even stronger price increases but for Uganda this resulted in a stronger decrease of exported volumes to the EU compared with Kenya. Ecuador and Colombia experienced higher growth rates in both volume and value compared to Kenya.

## 3. Regulatory and standards

### 3.1. SPS compliance

The Kenyan floriculture industry, especially in rose cultivation, is currently navigating challenges related to meeting requirements for Sanitary and Phytosanitary (SPS) measures. This is especially critical to retain access to important export markets like the EU and the UK. While the industry has established a solid reputation for quality and compliance, it now faces pressures due to emerging pest risks and evolving regulatory standards.

In ten years, the number of interceptions has increased, as specified for the EU in Table 6. Multiple causes can be identified such as stricter regulations by importing countries on certain crops and pests or diseases, more (required) sampling, a push from the market to reduce pesticide use, and climate change effects increasing certain pests and diseases. A lot of pressure is perceived from the market on growers to move away from pesticides in class I and class II. Growers are left with limited Plant Protection Products (PPPs) options to use which are not always as effective, especially in case of a massive outbreak of a certain pest or disease, such as Powdery Mildew, Downy Mildew, Fusarium Wilt, Botrytis (Grey Mold), Thrips, Spider Mites, Aphids, False Codling Moth (FCM).

Table 6. Number of interceptions in the at that year EU member states and Switzerland for fresh cut flowers from Kenya. Source: EUROPHYT.

Number of interceptions			
Year	Fresh cut roses	Other fresh cut flowers	Total
2024*	41	12	53
2023	22	3	25
2022	22	4	26
2021	39	7	46
2020	34	1	35
2019	40	11	51
2018	40	12	52
2017	2	8	10
2016	1	6	7
2015	2	11	13
<b>Total</b>	<b>243</b>	<b>75</b>	<b>318</b>

\*Data for 2024 is incomplete and contains an overview of January-September.

Importing countries and regions such as the EU and the UK have been tightening plant health regulations, for example under the Regulation (EU) 2016/2031 and the Commission Implementing Regulation (EU) 2019/2072. These regulations demand increased inspection and sampling at the border of the importing country and more from inspection services and national plant protection organizations like Kenya Plant Health Inspectorate Service (KEPHIS). These evolving regulations are increasingly complex, affecting not only compliance but also the overall cost and efficiency of the supply chain.

### 3. Regulatory and standards

While Kenyan roses remain competitive in international markets, maintaining this position requires addressing the SPS compliance challenges through coordinated efforts, innovation, and adherence to evolving regulatory and sustainability standards.

#### 3.2. False Codling Moth

The classification of the FCM (*Thaumatotibia leucotreta*) as a quarantine pest by the EU in 2017 has led to increased interceptions of Kenyan roses at EU borders (Table 7).

Table 7. Number of interceptions in the at that year EU member states and Switzerland for roses from Kenya, including the number of interceptions due to the presence of FCM. Source: EUROPHYT.

Number of interceptions			
Year	Fresh cut roses	FCM cause of interception	% FCM cause of interceptions
2024*	41	39	95%
2023	22	19	86%
2022	22	19	86%
2021	39	39	100%
2020	34	33	97%
2019	40	36	90%
2018	40	37	93%
2017	2	0	0%
2016	1	0	0%
2015	2	0	0%
<b>Total</b>	<b>243</b>	<b>222</b>	<b>91%</b>

\*Data for 2024 is incomplete and contains an overview of January-September.

The EU enforces strict sampling requirements for fresh cut roses from Kenya, with at the moment (October 2024) a required sampling percentage of 25%, which was at 10% before. The FCM is not perceived as a significant issue in the entire EU, but due to its varying climate and an increased risk in the Southern countries such as Spain and Italy, strict sampling was deemed necessary. It is expected that other markets like the United States of America (USA) and Australia will follow with such strict measures. The EU has found continued non-compliance of the cut roses due to the presence of FCM and therefore is going to enforce special requirements, also applying to cut roses from Kenya. These new rules will take effect on the 26<sup>th</sup> of April, 2025 and include the following for the cut roses (Table 8).

Table 8. Summary of specific requirements whereby cut roses have to comply with at least one of the four options.  
Source: Regulation (EU) 2024/2004. For details and to ensure accuracy, please refer to the source.

Option	Requirements
Option 1	Free from FCM, provided that this freedom status is communicated in advance in writing to the EU Commission by the National Plant Protection Organisation (NPPO) of the country of origin.
Option 2	Originate in an area established by the NPPO in the country of origin as being free from FCM.
Option 3	<ul style="list-style-type: none"> <li>▪ Originate in a place of production established by the NPPO in the country of origin as being free from FCM, AND</li> <li>▪ Subjected to official inspections carried out in the place of production at appropriate times during the growing season and before export, AND</li> <li>▪ Accompanied by a phytosanitary certificate indicating the place of production</li> </ul>
Option 4	<ul style="list-style-type: none"> <li>▪ Produced in an approved site of production, which is included in the list of production site codes that has been communicated in advance in writing to the EU Commission by the NPPO</li> <li>▪ Subjected to (a) an effective systems approach to ensure freedom from FCM OR (b) an effective stand-alone post-harvest treatment to ensure freedom from FCM. Both (a) and (b) have to be communicated with evidence of their effectiveness in advance to the EU Commission by the NPPO. The post-harvest treatment has to be assessed by the European Food Safety Authority.</li> <li>▪ Before export, have been subjected to official inspections for the presence of FCM.</li> <li>▪ Accompanied by a phytosanitary certificate that indicates the production site codes and mentions the details (a) or (b).</li> </ul>

Currently, FCM thus presents ongoing challenges for the Kenyan rose sector, necessitating rigorous control measures and sampling protocols. The FCM, along with potential new pest threats exacerbated by climate change, presents challenges to the effectiveness of Kenya’s phytosanitary systems.

Therefore, the rose industry responded by developing a comprehensive protocol for managing FCM in Kenyan roses in August 2020 (COLEAD, 2020). The protocol was developed by key industry stakeholders, including KFC, Fresh Produce Exporters Association (FPEAK), Kenya Agricultural and Livestock Research Organization (KALRO), and KEPHIS, with support from COLEAD under funding from the EU-financed NExT (New Export Trade) Kenya programme. In the NExT programme, the protocol has also been updated and training regarding FCM management was provided. The protocol emphasizes an integrated approach, utilizing effective scouting programs, traps, monitoring systems, and physical barriers such as double doors.

Another effort in the sector was applied in 2023 when KFC and its members addressed the issue of FCM. Training and preventive measures were implemented in the industry, attempting to reduce the number of interceptions related to FCM. KFC, KEPHIS, and other stakeholders focused on improving pest surveillance, conducting thorough physical checks, and utilizing mass trapping methods both inside and outside the greenhouses.

Despite the efforts, FCM continues to challenge the sector. Such initiatives are thus still crucial in maintaining access to key markets like the EU and UK, where phytosanitary regulations are

## 3. Regulatory and standards

becoming increasingly stringent and compliance more important. The sector thus continues to require a proactive and risk-based approach and ongoing vigilance and collaboration to sustain its progress and reduce the risk of interceptions.

### 3.3. Tax environment

The Kenyan floriculture industry, a significant contributor to the country's economy and one of its largest foreign exchange earners faces a complex and burdensome tax environment. Not only does it provide significant employment opportunities and generate foreign exchange earnings, but it also contributes to government revenues through various tax channels. Below are key ways in which the floriculture sector supports government revenue generation (KFC, 2024):

- **Corporate Income Tax:** Flower farms in Kenya are required to pay corporate income tax on their profits. As the floriculture industry has grown, so has its taxable income, leading to a notable increase in government revenue from this sector.
- **Value-Added Tax (VAT):** VAT is another significant source of government income from floriculture businesses. Flower farms apply VAT to their products, and this tax is collected and remitted to the government. Given the export-driven nature of the sector, much of the VAT collected comes from foreign currency transactions, which also strengthens the country's foreign exchange reserves.
- **Customs Duties:** The floriculture sector depends heavily on the import of machinery, equipment, and other inputs. Customs duties on these imports generate additional revenue for the government. As the sector continues to grow, the volume of taxable imports increases, contributing further to government income.

Through these taxation avenues, the floriculture sector remains a vital contributor to Kenya's fiscal health.

The high and often unpredictable tax environment significantly impacts decisions regarding investment in the Kenyan floriculture sector. The complex tax structure, which includes decentralized taxation leading to double taxation at both national and county levels, deters local and foreign investors. In 2024, 51 different taxes and levies were recorded to apply to the flower industry, see the table in Annex I. Furthermore, the VAT refunds by the Kenya Revenue Authority (KRA) are perceived to be slow, with an average waiting time of 16-20 months. The tax environment therefore strains the working capital of flower farms, stifling growth and investment.

This heavy tax burden raises the overall cost of doing business in Kenya, making the sector less competitive compared to neighbouring countries like Ethiopia, Tanzania, Rwanda, and Uganda, which offer more favourable tax regimes. In Ethiopia, Ethiopian Airlines, its national carrier, offers subsidized airfreight rates, giving Ethiopian flowers a cost advantage in logistics. The floriculture sector in Kenya would thus highly benefit from more coherent and supportive tax policies, making the sector more competitive and opening opportunities for further growth and investments.

Despite these challenges, the tax environment also poses opportunities for companies in the Kenyan rose sector. The government has implemented agricultural tax policies aimed at attracting investment, promoting the use of underutilized resources, improving productivity, generating employment, and reducing poverty. These policies can offer incentives for production investments, particularly in areas like irrigation equipment, energy-efficient technologies, and environmental conservation, which can help companies reduce costs and improve competitiveness.



## 3.4. Standards

Kenyan flower growers are among the most certified and audited globally, adhering to numerous international standards. Over the years, the number of certified growers has remained relatively stable while the number of certifications increased. This increase can largely be attributed to the expansion of existing growers. This includes setting up new locations at different altitudes to offer a broader range of flowers, or rose growers diversifying by cultivating summer flowers at additional sites.

To benchmark standards and mainstream sustainability, the Flower Sustainability Initiative (FSI) Basket was developed. The FSI Basket includes 16 voluntary sustainable standards and schemes which are benchmarked against international criteria for Good Agricultural Practices (GAP), environmental sustainability, and social responsibility. Compliance with one of these standards ensures transparency and compliance with global practices. All standards and schemes in the basket are shown in Figure 10, indicating for each standard or scheme whether it complies with GAP, environmental, and/or social basic requirements. The FSI has the major benefit that all standards falling under the basket are perceived as equal. In practice, however, particular customers still request a specific standard, even though the grower is certified under an equal standard. Royal Flora Holland wants to source flowers that are fully FSI compliant by the 1st of January 2026, to demonstrate again the importance and benefits of the FSI basket of standards.

Figure 10. Standards and schemes in the FSI basket indicate whether each standard complies with GAP, Environmental, and/or Social basic requirements (FSI, 2024). Retrieved from <https://www.fsi2025.com/basket/>



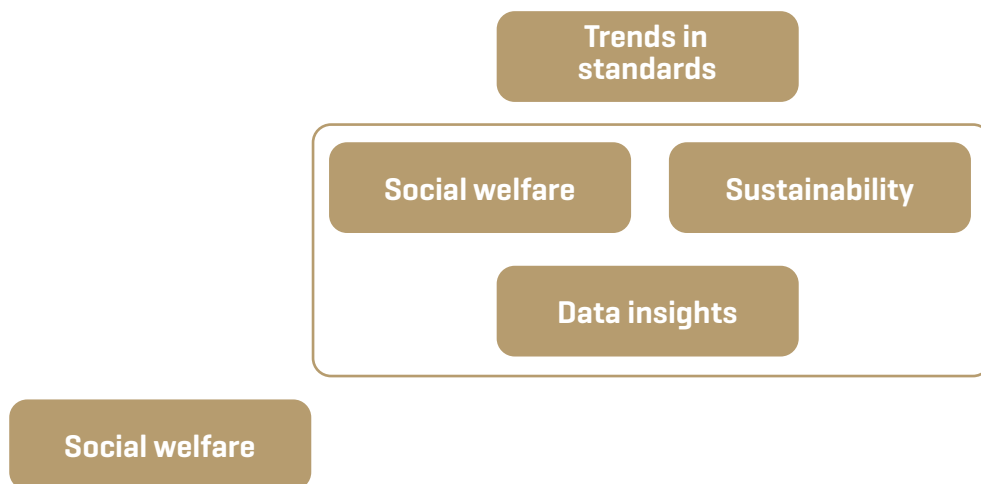
The standard for which most growers in the floriculture sector are certified is the standard of KFC. This is the Flowers and Ornamental Sustainability Standard (F.O.S.S) that includes all three pillars and is perceived as the most complete standard. Of KFC's members, about 70% are certified against the KFC F.O.S.S standard (KFC, 2023).

In addition to these standards, there is the KS1758:2016 certification scheme which is a code of practice focusing on hygiene and safety requirements during the production, handling, and marketing of flowers and ornamentals. Compliance with this standard is mandatory to receive an export license. An additional audit for the KS1758 standard is not necessary as it can be merged into an audit for one of the international standards. However, costs for certification should be covered (KS1758, 2024).

### 3. Regulatory and standards

The focus of standards has shifted throughout the years, for which three main trends can be determined (Figure 11), which are also integrated into the standards that are part of the FSI basket.

Figure 11. Trends shifting the focus of standards.



Currently, there is increased focus by export markets, especially the supermarkets and consumers, on good labour practices and social welfare. These requirements are increasingly incorporated into the standards. To incorporate the perspective of social welfare in business management, many large-scale rose growers provide all sorts of benefits to their employees, ranging from paying double wages and offering medical care to offering transportation.

#### Sustainability

Another shift is an increased focus on sustainability of which a well-known example is the FSI. FSI, besides benchmarking standards, is a global initiative that aims to make sustainability a standard practice within the floriculture industry, with a specific goal to advance sustainability in the floriculture industry by the year 2025 through its FSI 2025 basket (FSI, 2024). The FSI acts as a benchmark for sustainable flower production, with the ambitious goal of ensuring that 90% of flowers and plants traded by FSI members are sustainably sourced by 2025. This robust approach empowers stakeholders throughout the floriculture supply chain to reliably source flowers and plants that meet high sustainability standards, thereby contributing to the overarching goal of making sustainable sourcing the norm by 2025.

The international markets show increased demand for transparency and environmental responsibility. Over recent years, the emphasis has shifted towards comprehensive lifecycle analysis and carbon footprinting, pushing growers to adopt more sustainable practices. This includes meticulous reporting on the use of chemical fertilizers, water consumption, waste management, and the application of agrochemicals. Growers are now required to provide detailed accounts of their sustainability efforts, demonstrating their commitment to reducing the environmental footprint of their products. This shift not only addresses global concerns about climate change but also aligns with the growing consumer preference for eco-friendly products, thereby enhancing the competitiveness of Kenyan roses in international markets. The sector's ability to adapt to these evolving standards is crucial for maintaining market access and fostering long-term growth.

These sustainability demands do not only come from the market directly but also from the international regulatory context. The EU Green Deal requirements, including mandatory carbon footprint labelling, signal a significant shift in the industry's operational landscape. This development underscores that sustainability is no longer just a secondary topic of concern but must be fully integrated into the core of business operations. Kenyan rose growers and exporters will need to embed sustainable practices into every aspect of their production processes, from cultivation to distribution, ensuring that sustainability is a fundamental part of the business's DNA. This integration will be crucial not only for meeting regulatory requirements but also for maintaining competitiveness in the increasingly eco-conscious European market. As the EU Green Deal takes effect, businesses that proactively adopt and transparently report on sustainable practices will be better positioned to thrive in this evolving market environment.

Tools, such as the HortiFootprint Calculator of MPS, are developed to help horticultural producers, including flower growers, measure their environmental footprint by analysing various inputs such as energy use, fertilizers, and packaging (MPS, 2024). A harmonised methodology (FloriPEFCR) has been developed by a consortium of industry stakeholders and approved in 2024 by the EU (HortiFootprint Calculator, 2024). This methodology provides for harmonised rules to ensure standardised calculations across the global flower industry whichever tool is being used. These developments underscore the growing importance of sustainability in the horticultural sector, pushing it to become an integral part of business operations rather than just a separate department (MPS, 2024). First results from carbon footprinting calculations showed that agrochemicals and packaging had minimal effect on the carbon footprint, whereas nitrogen-based fertilisers were found to have the biggest footprint in the fertilizer category.

Practical examples of efforts growers are taking to reduce their carbon footprint are establishing a dam for rainwater harvesting, managing wastewater through a natural wetland, installing solar panels to support their cold stores, pumps, and offices, and using vehicles on the property that are running on solar power.

#### Data insights

Besides social welfare and sustainability, another trend in certification is more attention to data insights to increase the relevance of certification. Because of the standards, more and more data is collected allowing the growers to analyse the data they provide the scheme holders. With continuous data collection, robust data trends can be established over the years, allowing for more precise and actionable insights. MPS-ECAS and similar scheme holders have enhanced their services by offering Key Performance Indicators (KPIs) to stakeholders, enabling them to track performance over time. These KPIs provide benchmarks, showing how individual businesses compare to their peers within the industry. By leveraging these insights, stakeholders can identify areas for improvement, set more targeted sustainability goals, and enhance their overall operational efficiency. This approach not only fosters transparency but also encourages continuous improvement across the sector, aligning with global sustainability standards.

With the broadened scope of private standards, certification is not anymore just something you have to comply with, but it has become a way for continuous improvement and integrating its practices (GAP, environmental, and social) as a part of the daily operations.

### 3.5. Main message regulatory and standards

- Increased challenges in meeting SPS requirements are faced by the Kenyan floriculture sector, also indicated by the increase in the number of interceptions of Kenyan roses in the EU.
- The increased interceptions are caused by stricter regulations, climate change-induced pest increases, and market pressure to reduce pesticide use.
- The FCM was classified as a quarantine pest by the EU in 2017, leading to increased interceptions of Kenyan roses at the EU border.
- A comprehensive FCM management protocol was developed in 2020 by various actors in the sector.
- Despite efforts like training, the developed protocol, and preventive measures, FCM remains a persistent challenge, necessitating ongoing vigilance and control measures to maintain market access.
- Kenya's floriculture industry operates under a complex and high-tax environment, which includes decentralized taxation and slow VAT refunds, leading to financial strain. The heavy tax burden makes Kenya less competitive compared to neighbouring countries with more favourable tax regimes, like Ethiopia.
- Kenyan flower growers are among the most certified globally, with certification playing a key role in maintaining market share.
- The FSI Basket benchmarks growers against international criteria for GAP, environmental sustainability, and social responsibility.
- Royal Flora Holland aims to source 100% FSI-compliant flowers by 2026, highlighting the importance of sustainable standards.
- Export markets increasingly demand transparency in the GAP, social welfare and environmental sustainability practices performed by growers.
- Lifecycle analysis, carbon footprinting, and compliance with initiatives like the EU Green Deal emphasize an increased focus on sustainability.
- Developed tools like the HortiFootprint Calculator help growers measure and reduce their environmental impact.
- Certification emphasizes continuous improvement, pushing a need for increased data insights to track performance over time and make more informed decisions.
- KPIs provided by certification bodies help businesses benchmark their operations and enhance sustainability efforts.
- Overall, the Kenyan floriculture sector must navigate evolving regulatory requirements, manage pest risks, and adapt to sustainability-focused market demands to remain competitive in international markets.

## 4. Cold chain developments

### 4.1. Cold chain of flowers

Research into optimal conditions for flower transport and storage is well-established, with findings on the necessity of cooling dating back over 30 years. Significant contributions were made in the 1980s by the Sprenger Institute (later ATO, now part of Wageningen University & Research), which conducted extensive studies on temperature management to preserve flower quality during transport. Additionally, the University of California, Davis, has been a prominent contributor in this field, examining various factors that impact the postharvest life of flowers. These foundational studies underscore the critical role of cooling in maintaining quality and extending the shelf life of flowers during transit.

The cold chain for transporting cut flowers, particularly roses and other non-tropical flowers, is critical to maintain quality and extend the shelf life. Immediately after harvest, flowers begin to degrade due to the cut stems halting nutrient supply. To slow this process, flowers must be cooled immediately (Vijayakumar, Singh, Pandiyaraj & Sujayasree, 2021). The sooner flowers are cooled after harvest, the longer the vase life and transporting time can be (Sharma & Thakur, 2020). Roses are recommended to be cooled to 1-3°C (Sharma & Thakur, 2020; Vijayakumar et al., 2021). Rapid cooling reduces respiration rates, delays wilting, and minimizes the risk of fungal infections like *Botrytis Cinerea*. Not just the storage, but also processing and packing are recommended to be performed in a cold environment to prevent any early decay (Vijayakumar, Singh, Pandiyaraj & Sujayasree, 2021).

Flowers are sensitive to even slight temperature changes and deviations from the recommended temperature range can lead to accelerated ageing, wilting, and fungal growth. It is thus crucial to maintain a stable temperature during storage, processing, packing, and transportation. Hence, the term “cold chain” where flowers move through the chain as much as possible in a cold environment, to reach the destination market. The cold chain is not just about temperature, but proper humidity control is equally important. Excess moisture could lead to the development of mould, while overly dry conditions could cause petals to desiccate, even in a cooled environment (Vijayakumar, Singh, Pandiyaraj & Sujayasree, 2021).

The cold chain is consistently crucial for flower transport, but during peak seasons like Valentine’s Day and Mother’s Day, its importance is heightened. To meet increased demand, distributors often stock higher quantities, which may extend the duration between harvest and arrival at the destination market. This requires careful handling to maintain quality, as any spoilage or delays during these high-demand periods can lead to substantial disruptions. Sea freight is becoming an increasingly viable option due to advancements in cold chain technology, providing a cost-effective and environmentally friendly alternative to airfreight. Within sea freight, it is now possible to maintain precise control of temperature and humidity over extended transit times, ensuring that flowers arrive at their destination in optimal condition.

### 4.2. Airfreight

Kenya’s flower industry has historically depended on airfreight to meet the demand for “day fresh” exports. Key calendar events, such as Valentine’s Day and Mother’s Day, amplify the need for rapid, reliable transportation, as delays would result in unsellable products and missed market opportunities (TradeMark Africa & Flying Swans, 2024).

## 4. Cold chain developments

The country's competitive position relies heavily on the efficiency, flexibility, quality, cost, and availability of its logistics, as flowers are highly sensitive to delivery timelines.

There are notable differences between Ethiopia and Kenya in the organization of air freight for flower exports. Ethiopia operates a highly integrated system, with Ethiopian Airlines playing a central role in supporting the floriculture sector. The airline has invested in advanced cargo facilities, including a state-of-the-art terminal comparable to those at Schiphol, Singapore Changi, and Hong Kong (Afriflora, 2017). During the COVID-19 pandemic, Ethiopian Airlines maintained and even expanded its cargo capacity, supporting the continuity of flower exports.

In contrast, Kenya's air freight infrastructure is less centralized, relying on multiple airlines and logistics providers, which has led to higher transportation costs and logistical inefficiencies. These challenges were especially present during the COVID-19 pandemic, resulting in limited freight capacity and increased costs for flower exports. Additionally, the Kenyan government is less directly involved in the air cargo sector than in Ethiopia, where government collaboration with Ethiopian Airlines provides consistent support to the floriculture industry.

As stressed before, the flower sector relies on the timely delivery of the flowers, as the vase life of flowers directly impacts the returns for growers and retailers. Recent global events like the COVID-19 pandemic, Russia's invasion of Ukraine, and disruptions by rebels in the Red Sea have highlighted the critical need for resilient supply chains capable of absorbing shocks while controlling costs. These challenges underscore the continuing importance of airfreight for Kenya's exports, especially in delivering fresh produce to international markets on time.

However, increasing environmental concerns and rising costs associated with airfreight have prompted a shift towards more sustainable logistics. Sea freight, already utilized for fruits like avocados and mangoes, is now being considered a viable alternative for exporting flowers. While this transition requires careful planning, it offers a more balanced and cost-effective logistics strategy, helping to maintain Kenya's competitiveness in the global flower market while addressing sustainability goals.

### 4.3. Sea freight

The shift towards more sustainable logistics has led the Kenyan cut flower industry to, in recent years, focus on sea freight as a viable transportation alternative to airfreight. In 2021, two containers of flowers a week were sent from Kenya and by December 2023, about 25 containers a week were sent. Fresh cut roses were the dominant flower exported by sea (KFC, 2023). Several economic, logistical, and environmental factors are contributing to the implementation of a hybrid approach using both airfreight and sea freight for Kenyan flowers, and roses in particular.

Recent geopolitical tensions in the Red Sea region have disrupted traditional shipping routes for Kenyan flower exports, leading to increased transit times and freight costs. This situation has compelled exporters to seek alternative routes, notably around the Cape of Good Hope (Logistics Update Africa, 2024). However, rerouting via the Cape has presented significant challenges. The extended journey increases the risk of quality degradation, even with advanced cold chain technologies. To mitigate these issues, stakeholders are exploring alternative solutions, including the development of new shipping routes and the enhancement of cold chain infrastructure to ensure the freshness of flowers upon arrival.

### *Economical, logistical, and environmental factors*

Sea freight offers significant cost savings, reducing transportation costs by about 50% compared to airfreight. This is especially critical as transportation costs can constitute 30-40% of the total costs for exporters. Such a cost reduction is particularly interesting for those exporters supplying European big-box retailers who prioritize cost efficiency and sustainability (Rabobank, 2024).

In terms of logistics, sea freight offers a significant advantage for Kenya’s horticulture industry by providing far greater capacity compared to airfreight, making it ideal for handling the high export volumes typical of the sector. Unlike airfreight, which is limited by the smaller cargo space of aircraft, sea freight can accommodate much larger shipments, reducing the cost per unit and making large-scale exports more economically viable. Additionally, this increased capacity enhances supply chain resilience by offering an alternative when global disruptions—such as pandemics or geopolitical conflicts—restrict air transport options (TradeMark Africa & Flying Swans, 2024).

Sustainability is becoming a top priority causing the floriculture industry to face growing pressure from European regulations and consumer expectations to reduce its carbon footprint. In response, sea freight is gaining traction as a more environmentally friendly alternative to airfreight, offering lower greenhouse gas emissions (Rabobank, 2024).

### *Market channel potential sea freight*

Sea freight is particularly important in high-volume, low-cost markets where transportation costs have a greater impact on prices. Big-box retailers, who prioritize sustainability and sell large volumes at lower prices, are leading the move toward greener shipping methods. Their focus on reducing carbon footprints has created a strong demand for sea-freighted roses, which offer a cost-effective and eco-friendly solution. It is expected that these retailers will rely more on sea freight, especially outside peak seasons as can be seen in Table 9 (Rabobank, 2024). Although these retailers are expected to rely more on sea freight, for other market channels it is anticipated that their reliance on sea-freighted imports of cut roses will remain low in the near future (Rabobank, 2024).

Table 9. Potential for sea-freight imports of cut roses into the EU-27 + UK by 2030 in relative volumes by market channel. Source: Rabobank (2024).

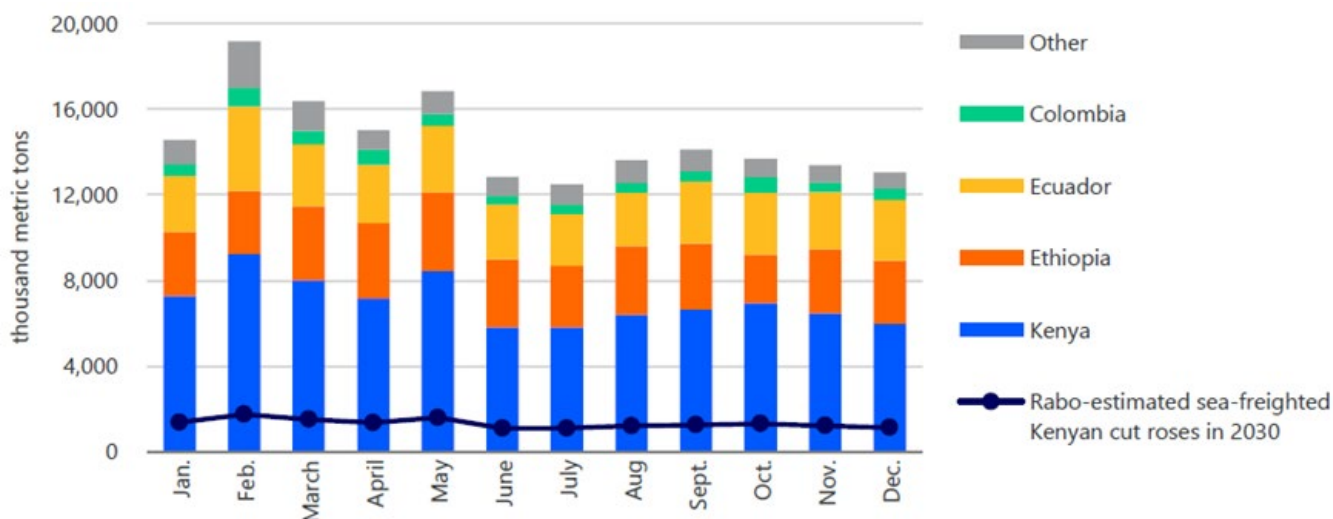
Potential	Big box	Big box	Florist	E-commerce	E-commerce	Street market/ other
	Flowers as a nice-to-have category	Flowers as an integral store element	Independent and shop-in-shop stores	As a service provider for big-box retail	As a fulfilment business	
Peak-season demand	Medium	Low	Very low	Very low	Very low	Low
Baseline demand	High	Low	Very low	Low	Low	Low

Note: High potential: >75%; share of sea-freighted roses per category; medium potential: between 50% and 75%; low potential: between 25% and 50%; very low potential: <25%.

## 4. Cold chain developments

Ambitious targets have been set by KFC to have 50% of the industry's cut flowers exported by sea freight by 2030 (KFC, 2023). Although these are ambitious targets, research estimates that the share of sea freighted Kenyan roses bound for EU-27 and UK markets will increase from the current 5% to about 19% by 2030 (Figure 12). This would mean 30 to 35 (40-foot) reefer containers filled with roses from Kenya exported per week (Rabobank, 2024). Included in these predictions is the expectation that not all farms can fill entire reefer containers. Farms in the 10 – 35-hectare range will have to rely on consolidated shipments, which increases quality control risks (Rabobank, 2024).

Figure 12. EU-27 and UK monthly net weight import of cut roses (HS 060311), 2023. Source: Rabobank (2024).



### Key challenges of sea freight

The ambitious targets are thus not fully in line with the estimations of the Rabobank which could be explained by several significant challenges of sea freight for the Kenyan rose sector.

- Transporting roses by sea can take between 28-35 days to reach European markets, meaning that peak production must start well in advance of peak demand periods. So in case of sea freight, roses for Valentine's Day, for example, need to be harvested 4-5 weeks before the sales date, requiring companies to be in full production by the first week of January to ensure timely delivery for Valentine's Day. Achieving this timeline can be challenging for growers in Kenya, as their peak production typically aligns with the European winter season. The variability in transit times adds further complexity to meeting precise delivery dates during high-demand periods like Valentine's Day and Mother's Day.
- The long transit times increase the risk of quality degradation, including flower opening failures, leaf desiccation, and fungal infections. These issues are exacerbated by the need for consolidated shipments from smaller farms, which may not always fill an entire reefer container, thus increasing the complexity of quality control.
- Recent disruptions in the Red Sea and Suez Canal have highlighted the fragility of sea transport routes, due to which momentum was lost to increase sea freight further. Such disruptions lead to delays and increased uncertainty. The variability in transit times hampers flower marketing efforts, making it difficult to meet specific customer demands and timelines (Rabobank, 2024).

Given the benefits and challenges, most traders recognize the need for a hybrid approach, combining both sea and airfreight to mitigate risks. While airfreight remains more reliable,



its capacity constraints and environmental impact make sea freight an increasingly attractive option. The industry expects the share of sea-freighted roses to continue growing, taking into consideration the required adaptations for sea freight to succeed.

### 4.4. Post-harvest management techniques

Overall, there are three primary methods for storing flowers: simple refrigerated storage, controlled atmosphere storage, and low-pressure (hypobaric) storage.

- Simple refrigerated storage is widely used for cut flower storage, comprising two types: wet storage and dry storage. In wet storage, the stems are stored with their base submerged in water or a preservative solution. The temperature is maintained at 2-3°C, making it suitable for short-term handling. Dry storage, on the other hand, involves sealing flowers in plastic bags, which reduces oxygen (O<sub>2</sub>) levels and increases carbon dioxide (CO<sub>2</sub>) levels due to respiration. This process minimizes moisture loss and allows for longer storage compared to wet storage (Sharma & Thakur, 2020). However, in practice, dry storage is not commonly used.
- Controlled atmosphere storage uses gas-tight chambers with low temperatures and altered gas compositions, reducing O<sub>2</sub> and increasing CO<sub>2</sub> levels. It should be noted that CO<sub>2</sub> levels higher than 4-5% can create anaerobic conditions, affecting the rose quality and should thus be avoided (Rabobank, 2023; Sharma & Thakur, 2020).
- Low-pressure (hypobaric) storage involves storing flowers at a low atmospheric pressure (40-60 mm Hg) with continuous ventilation and a high humidity (90-95%). While it facilitates rapid gas removal from tissues, it also causes faster moisture loss (Rabobank, 2023; Sharma & Thakur, 2020).

Advancements and practices in post-harvest management have been implemented to ensure the roses maintain quality during the relatively long sea journey to the destination markets, mainly the EU (Rabobank, 2023).

- The flowers are treated with ethylene inhibitors to prevent premature ageing and wilting. Ethylene is a natural plant hormone that promotes senescence (ageing), and blocking its effects is critical for maintaining the freshness of the roses over extended periods (NLAgrriKenya, 2022).
- Flower buds are dipped in a solution designed to suppress the development of *Botrytis cinerea*, a common fungal pathogen that can cause significant spoilage during transport. Recent formulations have improved the effectiveness of these treatments, offering better protection against fungal infections (Embassy of the Kingdom of the Netherlands Kenya, 2021).
- Vacuum cooling is used in the cooling of flowers, such as roses, to quickly bring them to the right temperature for transport. This process allows the flowers to stay fresh for longer. Specially designed boxes also ensure good air circulation, which helps to efficiently distribute the cooled air. This method is effective in keeping flowers fresh and minimizing quality loss during long-term transport (KFC, 2023).
- The roses are loaded into refrigerated containers, known as reefers, which are set to optimal conditions of 0.5°C, 4% CO<sub>2</sub>, and 4% O<sub>2</sub>. These conditions are carefully controlled to slow down metabolic processes in the flowers, thereby extending their shelf life (Rabobank, 2023).
- To ensure that the conditions inside the containers remain stable throughout the journey, loggers are placed inside the boxes to continuously monitor temperature, humidity, and gas levels. This data is crucial for identifying any deviations that could affect flower quality (NLAgrriKenya, 2022).

### 4.5. Projects and initiatives

The embassy of the Kingdom of the Netherlands and KFC together worked on a project to improve opportunities for sea freight. Its objective was to make a green channel, to move products from a consolidation centre through a cooled railway to Mombasa. Once arrived in Mombasa, fresh produce was meant to skip the queue, to enhance its freshness. A more long-term objective was to make the shipping lines shorter, with a direct connection to Europe. Although the project has slowed down due to the recent disruptions in the Red Sea, fresh produce does not have to wait in line anymore at the port in Mombasa. The slowdown of improving sea freight also shifted focus to innovations making airfreight less polluting and investing in more carbon-friendly fuel. Although such innovations would require more extensive research and optimisation, the combination of these ongoing initiatives could benefit a hybrid approach, whereby sea freight is combined with airfreight.

A current project focusing on the logistics of, amongst others, the flower trade is the Business Environment and Export Enhancing Programme (BEEEP). It is a 25 million euro EU-funded project that seeks to close the negative balance of trade by stimulating export growth, enhanced productivity, economic development and job creation, all sustainably and inclusively. BEEEP focuses on solutions that resolve supply chain constraints, and storage and logistics challenges; improve processing, value addition and information access; and enable reforms that will enhance the business environment. Interventions will include increasing the supply of locally produced goods that meet export market requirements, reducing trading times and costs, and helping export supply chains implement a hybrid model using both sea and airfreight.

### 4.6. Main message cold chain

- The export of Kenyan cut flowers, especially roses, is increasingly shifting from airfreight to sea freight due to economical (50% transport cost reduction), logistical (increased capacity), and environmental benefits (decreased carbon footprint).
- In 2021, two flower containers a week were shipped by sea freight, which increased to 25 containers in December 2023. Fresh cut roses were the dominant flower exported by sea.
- The shift is mainly driven by European markets and regulations with an increased focus on sustainability and the big-box retailers who prioritize cost-efficiency and reduction of carbon footprints.
- Sea freight is expected to grow, particularly for European markets, with targets set to increase the share of sea-freighted roses from 5% in 2023 to 19% by 2030.
- Challenges with sea freight are the long transport times (28-25 days) which increase the risks of quality degradation and the required consolidated shipments for smaller farmers that increase complexity to maintain consistent quality control. Also, disruptions in sea routes, like those in the Red Sea and Suez Canal, have affected the reliability of sea freight.
- To preserve the quality of roses during long sea journeys, several advanced post-harvest treatments are used such as ethylene inhibitors, fungal treatments, and vacuum-cooled packaging. Continuous monitoring of temperature, humidity, and gas levels ensures quality is maintained throughout the journey.
- A hybrid model using both sea and airfreight is perceived as necessary to balance cost, reliability, and environmental sustainability.

# 5. Proposed options for marketing strategy roses

## 5.1. Market strategies

Several marketing strategies were identified through discussions with important stakeholders, enhancing the competitiveness of Kenyan roses on the world market (Figure 13).

Figure 13. Proposed marketing strategies for the Kenyan rose sector.



In terms of marketing, the topics of quality and SPS requirements are crucial for the Kenyan rose sector. The sector faces intense scrutiny due to stringent global regulations that demand high standards in pest control, pesticide residue levels, and overall product quality. Certification standards are rigorous, requiring adherence to various international norms, which can be challenging for growers. Any issues related to quality or pest infestations can result in shipment rejections, damage to Kenya’s reputation in the global market, or even market restrictions. Given this heightened level of oversight, Kenyan rose growers must be exceptionally vigilant in their practices. This involves significant investment in advanced pest control measures and robust quality management systems. To successfully market Kenyan roses, there needs to be a sector-wide approach that emphasizes the country’s commitment to quality and safety. Promoting Kenya as a source of high-quality roses is essential, alongside highlighting the substantial benefits that the rose industry brings to the country, such as employment and social welfare improvements.

### Unified strategy

Moreover, a united marketing strategy that promotes Kenyan flowers collectively, rather than on an individual grower basis, is vital. Kenya’s flower sector has several competitive advantages, including abundant land, an equatorial climate that allows for year-round flower production, a skilled labour force with over 30 years of experience and technical expertise,

## 5. Proposed options for marketing strategy roses

and the ability to consolidate shipments efficiently. Unlike in Ethiopia, where sourcing from multiple growers requires multiple documents, Kenya's ability to streamline consolidation is a significant logistical advantage. This unified promotion can help maintain and enhance Kenya's standing in the global floriculture market, ensuring that its roses are recognized not only for their quality but also for the positive impact their production has on the country.

### Public-private coordination

Coordinated efforts between the private sector and government are needed to enhance the competitiveness of Kenyan flowers. Exporters in Kenya play a critical role in identifying and accessing markets for their flowers, while the Kenyan government has a responsibility to facilitate this trade by creating a favourable business environment. This includes offering competitive tax policies, advocating for lower import duties in destination markets, and possibly posing public sector investments for the promotion of Kenyan flowers, like the government of Colombia is doing. Such efforts will enhance the competitiveness of Kenyan roses on the global stage.

### Targeted market segmentation

Another marketing strategy is to carefully consider the specific market segments a grower is targeting. The wholesale market tends to prefer roses with larger head sizes and longer stems, while the retail market favours smaller heads and shorter stems. Notably, during the first 2-3 years of a rose crop, growers can produce roses with larger heads and longer stems. However, after 3-5 years, the stems naturally become shorter, and the head sizes reduce. Proper planning is thus required to continuously meet the requirements of the specific market segment.

### Packing-at-source solutions

The Kenyan rose sector can also explore more packing-at-source solutions. Increasing the technical capacity to design season-specific bouquets and improving packaging and quality control can enhance the marketability and diversification of Kenyan roses.

### AfCFTA

The African Continental Free Trade Area (AfCFTA) presents a significant opportunity for the Kenyan rose sector to explore new markets within Africa. Developing trade within Africa could diversify Kenya's export destinations, reducing reliance on traditional markets in the EU and the UK. Expanding intra-African trade can improve resilience and create new growth opportunities for Kenyan roses.

By focusing on these areas, the sector can continue to meet global market demands and maintain its competitive edge.

### 5.2. SWOT analysis

The Kenyan rose sector still is seen as competitive in the global market. To maintain this position, the opportunities and threats should be taken into account and market strategies executed. The Kenyan rose sector has been summarized in the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis (Figure 14), which will be discussed in more detail below.

Figure 14. SWOT analysis for the rose sector in Kenya.



#### Strengths

- Environmental sustainability and social responsibility practices, besides GAP, are well integrated into the daily business management of many Kenyan rose growers. Many large-scale rose growers provide all sorts of benefits to their employees and take measures to reduce their carbon footprint.
- The labour force in the Kenyan rose sector can be considered strong with over 30 years of experience and technical expertise, which serves as a competitive advantage compared to emerging flower-producing countries.
- The Kenyan rose sector also has the ability to consolidate shipments efficiently, which is a significant logistical advantage.
- A year-round flower production is another strength, due to Kenya's favourable equatorial climate and the usage of advanced greenhouses.
- Kenya offers the landscape to have farms located at a wide variety of altitude levels, providing the opportunity, in combination with the strongly present technical expertise, to grow a wide variety of roses.

## 5. Proposed options for marketing strategy roses

### *Weaknesses*

- Developing a rose farm requires significant investment due to the higher costs associated with the specialized infrastructure necessary for optimal growing conditions, such as greenhouses, irrigation systems, and temperature control. Additionally, the advantages of scale make it challenging for new entrants, as starting a rose farm with less than five hectares is generally considered unviable. These high investment requirements and the competitive landscape present considerable hurdles for emerging rose growers looking to establish themselves in the market.
- A limited coordinated approach across the value chain hinders market opportunities for Kenyan roses. The sector lacks a strong united marketing strategy that promotes Kenyan flowers collectively, rather than on an individual grower basis. Besides, coordinated efforts between the private sector and the government are limited.
- Limited communication with trading partners challenges Kenyan growers to continuously meet the requirements of the specific market segment. This is especially becoming of increased importance given the diversification in export destinations for Kenyan roses.
- Challenges in meeting requirements for SPS are emerging due to emerging pest risks, such as the FCM, and evolving regulatory standards. In the past ten years, the number of interceptions has increased for consignments to the EU.
- The rose cultivation market in Kenya is becoming increasingly saturated, with larger growers dominating the market.
- A final weakness in the sector is the limited amount of data available at sector level. Since emphasis increases on transparency and sector-level data, this is becoming increasingly important.

### *Opportunities*

- Expansion into new markets outside of the traditional markets of the EU and the UK. Data has shown that in the past years, direct exports to the Middle East have seen an increase, already indicating the feasibility of emerging in such markets (see Chapter 1.5).
- Direct trade of growers with retailers is an opportunity to deal better with the dominant role of retailers particularly in the EU and the UK. Bulk purchasing in these markets is common resulting in big-box market channels. Integrating the supply chains could reduce costs and improve time-to-market, bypassing the traditional wholesalers.
- Exploring more packing-at-source solutions could be seen as an opportunity for the Kenyan rose sector. Demand for mixed bouquets is increasing which provides the opportunity for the Kenyan rose sector to add more value already at the source of production. The assembly of mixed bouquets in Kenya continues to grow, catering to the demand of big-box retailers for ready-to-sell products.
- A combination of economic, environmental, and logistical factors indicates an opportunity for shifting towards sea freight. Advancements in sea freight technology make sea freight a more viable option for shipping fresh cut roses, significantly reducing transportation costs and carbon footprints. Recent disruptions on the sea transportation routes have, however, highlighted the fragility of sea transportation routes, so a hybrid approach could be beneficial.
- Ongoing (inter)national research in climate-smart agriculture, pest management, and post-harvest treatments can keep Kenyan roses growers competitive. Adopting new innovations can help improve quality and efficiency.

## 5. Proposed options for marketing strategy roses

### Threats

- Rapidly changing stringent quality and SPS standards pose a threat. Export markets like the EU and UK demand strict compliance with pesticide residues, pest control, and product quality. Failure to meet these sometimes rapidly changing standards could lead to shipment rejections, trade restrictions, and loss of market access.
- Additionally, higher expectations around social and environmental standards could raise operational costs and should be integrated to avoid loss of market access. For example, the demand for local sourcing and reduced carbon footprints is growing, influenced by environmental concerns and the push for sustainable practices. Consumers are becoming more aware of the environmental impact of imported flowers, particularly those transported by air, which has a high carbon footprint. This shift may threaten demand for non-local flowers and increase pressure on the industry to adopt lower-impact shipping methods. The Fairmiles initiative advocates for a balanced approach to achieving net zero without disproportionately impacting developing countries with low carbon footprints. As trade policies evolve, the flower industry could face challenges if import restrictions or carbon taxes are introduced, affecting competitiveness in the EU market.
- There is growing pressure from markets, consumers, and importing countries to reduce pesticide use, particularly class I and class II pesticides. These pesticides are effective against pests and diseases but are being restricted or phased out due to health, environmental, and safety concerns. In Europe, concerns about PPPs are increasing, as shown by recent media reports. For instance, Le Monde highlighted a tragic case where a French florist's daughter's death was possibly linked to pesticide exposure from flowers (Le Monde, 2024). Stories like this can fuel negative perceptions and push for stricter regulations. If not addressed, such concerns could harm consumer confidence in the safety and sustainability of flowers grown with PPPs. While alternatives exist, they may be less effective, especially during severe pest or disease outbreaks. KFC is advocating for a gradual phase-out of harmful pesticides in the EU, paired with the introduction of suitable alternatives.
- Erratic weather patterns and increased pest and disease prevalence due to climate change threaten productivity. Coupled with the pressure to reduce pesticide use without sufficient alternatives, this can severely impact rose production.
- Kenya's complex tax environment adds to the cost of doing business, making it less competitive compared to neighbouring countries like Ethiopia. High taxes could deter international investment and stunt growth in the sector.
- Low-cost producers, particularly in countries like Ethiopia and China, pose a growing threat. In China, advances in cultivation methods (such as soil-less farming) have increased domestic production quality, reducing the need for imports from Kenya.



### 5.3. Conclusion: main messages strategies

#### Key opportunities:

- Expansion beyond Europe: There is potential to increase supply to markets in regions like the Middle East, driven by rising demand for both bulk and speciality roses.
- Direct trade relationships: Strengthening direct trade between growers and retailers, particularly in the EU and UK could reduce costs and improve supply chain efficiency.
- Packing at source: Increasing the assembly of mixed bouquets in Kenya adds value and meets growing demand, especially from big-box retailers.
- Sea freight expansion: Sea freight offers a reduction in transportation costs and reduces carbon footprints, though a hybrid approach with airfreight may be needed due to logistical challenges.
- Research and innovation: Ongoing research in climate-smart agriculture, pest management, and post-harvest treatments provides opportunities to enhance competitiveness.

#### Key threats:

- Rapidly changing strict compliance requirements: stringent quality, SPS, social, and environmental standards, particularly in key export markets, can lead to shipment rejections or trade restrictions if not continuously met.
- Reduced pesticide options: Market pressure to reduce pesticide use limits growers' options, potentially challenging the effectiveness of pest and disease management.
- Climate change: Erratic weather patterns and increased pest prevalence, exacerbated by climate change, pose significant threats to production.
- Tax environment: The complex and burdensome tax structure in Kenya raises business costs, making it less competitive compared to countries like Ethiopia.
- Rising competition: Increased competition from lower-cost producers, such as China, is reducing Kenya's market share as other countries adopt advanced cultivation methods.

#### Market strategies:

- Focus on quality and compliance: Investment in pest control, quality management, and compliance with international standards is essential to maintain market access and reputation.
- Unified marketing strategy: A collective marketing approach highlighting Kenya's competitive advantages, such as its equatorial climate, skilled labour force, and efficient logistics, can strengthen its global position.
- Public-private collaboration: The government is suggested to strengthen the support for the rose sector through competitive tax policies, reduced import duties, and promotional investments, similar to Colombia's approach.
- Target market segments: Growers should tailor their production to specific market demands—longer stems and larger heads for wholesale markets, shorter stems for retail markets—and plan crop cycles accordingly.
- Innovation in packaging: Enhancing the technical capacity for bouquet design, packaging, and quality control at the source could increase the appeal of Kenyan roses globally.



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### List of interviewed organizations:

- KFC
- Royal FloraHolland
- Union Fleurs
- FlowerWatch
- Flamingo Horticulture
- Tambuzi
- KEPROBA
- Import Promotion Desk
- MPS
- Rabobank
- United Selections

# 7. Annex

## Annex I.

Table I. Licences, permits, and certificates relevant to the Kenya flower industry, and responsible ministries and issuing organisations (2024). Source: KFC.

	Licence/Permit/ Certificate name	Ministry in charge	Issuing organisation
<b>Applicable to all businesses</b>			
1	Single business permit application	Local Government	Local Authorities at county council
2	Single business permit	Local Government	Local Authorities at county council
3	Health & safety Audit	Labour	Directorate of Occupational Health & Safety
4	Training levy	Labour	NITA <sup>2</sup>
5	Premises licence	Agriculture	PCPB <sup>3</sup>
6	National Housing Development Fund	Treasury	KRA <sup>4</sup>
7	Affordable Housing Levy <sup>5</sup>	Ministry of Lands, Public Works, Housing & Urban development	KRA
8	Social Health Insurance Fund <sup>6</sup>	Ministry of Health	KRA
9	NSSF <sup>7</sup>	Labour & Social Protection	KRA
10	Value Added Tax	Treasury	KRA
<b>Applicable to manufacturers and producers</b>			
11	Water permit	Water	Water apportionment Board
12	Effluent discharge licence	Environment	NEMA <sup>8</sup> / WRA <sup>9</sup> - Double taxation
13	Environment impact assessment licence	Environment	NEMA

2 National Industrial Training Authority (NITA)

3 Pest Control Products Board (PCPB)

4 Kenya Revenue Authority (KRA)

5 1.5% of employee's monthly gross salary, employer matches and contributes 1.5% of each employee's monthly gross salary

6 2.75% of employees monthly gross salary

7 National Social Security Fund (NSSF). Contribution of 12% of Pensionable Earnings (split 6% by employees and 6% by employers)

8 National Environment Management Authority (NEMA)

9 Water Resources Authority (WRA)

## 7. Annex

14	Notification of transfer of impact assessment licence	Environment	Director General (NEMA)
15	Submission of project report	Environment	NEMA
16	Waste licence	Environment	NEMA
17	Quality inspection levy	Industrialization	KEBS <sup>10</sup>
18	Standards Levy	Industrialization	KEBS
19	Water sampling	Ministry of Health	Public Health Department
20	Registration of pest control products	Agriculture	PCPB
21	Approval of labels for pest control products	Agriculture	PCPB
22	Registration of existing operations involving pest control	Environment	NEMA
23	Registration of pesticides and toxic substances	Environment	NEMA
24	Registration of pesticides	Environment	NEMA
<b>Applicable to fresh produce producers and/or exporters</b>			
25	Registration for pack-houses & factories	Agriculture	HCD <sup>11</sup>
26	Annual environmental audit reports	Environment	NEMA
27	Laboratory Licence	Health	KMLTTB <sup>12</sup>
28	Licence to export horticultural produce	Agriculture	HCD
29	Export cess <sup>13</sup>	Agriculture	HCD
30	Produce Cess	Local Government	Local authorities at county council road blocks
31	Export health certificate for product inspection	Health	Nairobi City Council
32	Certificate of lease	Transport	CAA <sup>14</sup>
33	Seed importer's trading licence	Agriculture	KEPHIS <sup>15</sup>
34	Seed grower's licence	Agriculture	KEPHIS
35	Seed merchant licence	Agriculture	KEPHIS
36	Seed seller's licence	Agriculture	KEPHIS
37	Agrochemical stores permit	Agriculture	PCPB

<sup>10</sup> Kenya Bureau of Standards (KEBS)

<sup>11</sup> Kenya Bureau of Standards (KEBS)

<sup>12</sup> Kenya Medical Lab Technicians & Technologists Board (KMLTTB)

<sup>13</sup> 0.25% of value of exports

<sup>14</sup> Kenya Airports Authority (KAA)

<sup>15</sup> Kenya Plant Health Inspectorate Service (KEPHIS)

38	Import/export licence for pest control products	Agriculture	PCPB
39	Licence of dam contractors	Water	Water apportionment Board
40	Permit for abstraction of ground water	Water	Water apportionment Board
41	Permit involving irrigation of land	Water	Water apportionment Board
42	Permit for reclamation or drainage of land	Water	Water apportionment Board
43	Approval for any work in rivers, lakes or wetlands	Environment	Director General
44	IDF <sup>16</sup>	Finance	KRA
45	KAA parking fee	Transport	KAA
46	KAA charges/Airway bill	Transport	KAA
47	EURI Certificate per shipment	Trade	Ministry of Trade
48	Import Levy on cartons	Treasury	KRA
49	Export promotion levy	Treasury	KRA
50	UCR <sup>17</sup>	National Treasury	Kentrade
51	HCD Packhouse fee <sup>18</sup>	Ministry of Agriculture - AFA <sup>19</sup>	HCD

<sup>16</sup> Import Declaration Fee (IDF)

<sup>17</sup> Unique Consignment Reference (UCR). \$10 per consignment

<sup>18</sup> KES 5000 per packhouse annually

<sup>19</sup> Agriculture & Food Authority (AFA)

# THE FLOWER SECTOR IN KENYA: ROSES

**1. Roses**

**2. Summer flowers**



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