

Chapter 6

Kenya—Supplying to multinationals exposed local firms to international horticulture markets

ULLA HEHER AND VICTOR STEENBERGEN

Summary

This case study focuses on the rise of Kenya's horticulture industry, which illustrates how pioneering foreign investment helped create a route to international markets for local firms.

By providing access to foreign expertise, technology, and capital, foreign direct investment (FDI) was critical to launching Kenyan producers into the horticulture global value chain (GVC). Pioneering FDI and entrepreneurs of foreign origin living in Kenya (who had strong, often kinship connections to markets in Europe) ignited the growth of the sector. Subsequently, economies of scale made possible crucial investments in the local infrastructure and enabled commercial-scale production. Sourcing strategies along the value chain adapted over time to favor contract farming over original plantation production. Thus, FDI plays a less direct but no less important role in horticulture compared with other GVCs (Kaiser Associates Economic Development Partners 2014; Moran 2018). The sector's strong growth in the 1990s reflected the export push from foreign investors and the simultaneous demand pull from retailers in their home markets. Kenya's revealed comparative advantage in horticulture took off from there, and horticulture's share in the country's total exports doubled within a decade.

Linkages between domestic horticulture producers and the GVC's lead firms have increased Kenyan firms' competitiveness and supported their internationalization. Competing at the high-value end of the market requires firm-level sophistication. Changing consumer demand, constantly evolving food standards, and the just-in-time delivery required by perishable produce necessitates careful supply chain management and close cooperation with overseas clients (English, Jaffee, and Okello 2004). Global buyers abroad coordinate the sector's supply chain through preprogramming and standards-setting. Through contract-farming schemes with horticulture exporters, Kenyan farmers were encouraged to organize and upgrade their capabilities. As part of these contracts, lead producers provided necessary production inputs, training, and market information and access. Moreover, public-private models have delivered critical extension services and workforce training to Kenyan farmers (World Bank 2020). The gradual improvement of GVC suppliers also helped expand regional value chains in East Africa (Krishnan 2017).

Kenya's case reflects how GVC participation may contribute to economic upgrading in low-income countries and kick-start structural transformation. The knowledge and technology spillovers from Kenya's GVC participation set off a trajectory of economic upgrading that allowed the country to move from commodities to limited manufacturing between 1990 and 2015. GVC participation rose significantly in the agribusiness sector, by about 10 percent over this time frame (World Bank 2020). Kenya's horticulture GVC development is primarily a story of a dynamic private sector in which entrepreneurs and farmers innovated and took chances. The government at first played an ambiguous role in the process, but it gradually learned to be a facilitator (English, Jaffee, and Okello 2004).

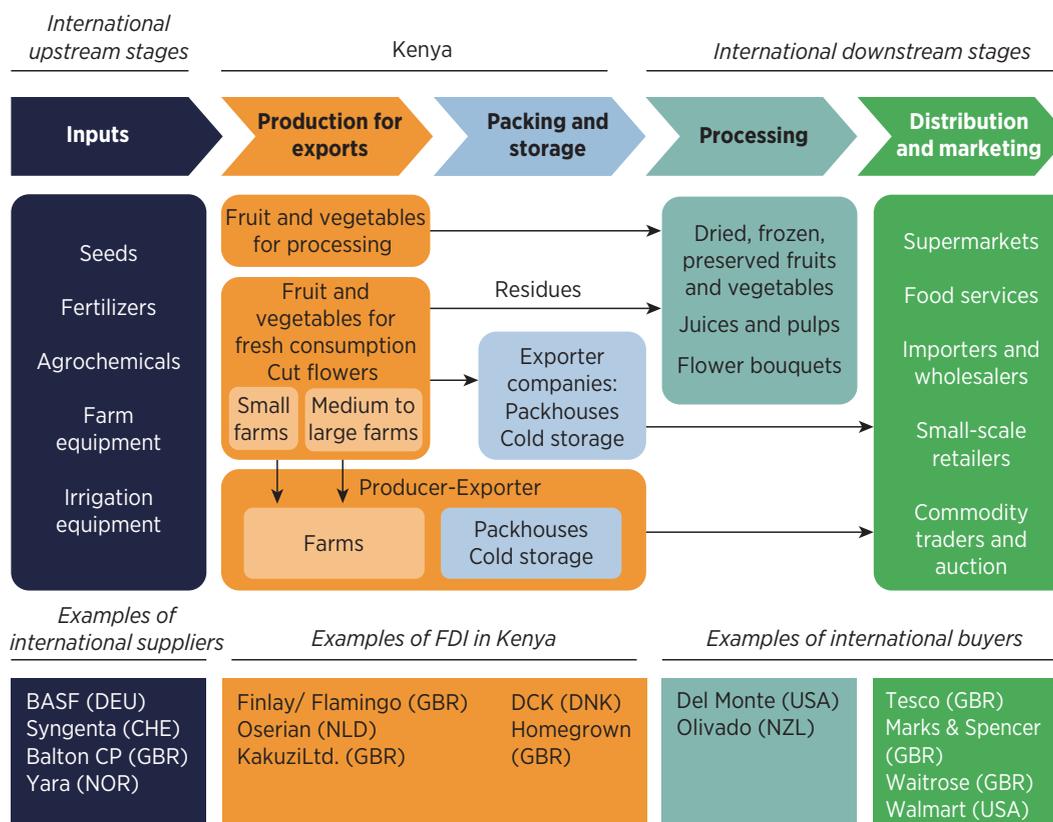
The horticulture global value chain and Kenya's position in it

Agribusiness is the largest sector in Kenya's economy, and the sector has transformed considerably over the past several decades.¹ As of 2019, agricultural production generates 29 percent of Kenya's gross domestic product (GDP), provides nearly 60 percent of employment, and accounts for 57 percent of all exports; and downstream agriprocessing generates an additional (and comparatively low) 3.2 percent of GDP and 2.4 percent of employment (IFC 2019; Kenya HCD 2019). Horticulture, as a subsector of agriculture, comprises fruit and vegetables, fresh or processed, as well as cut flowers. Although tea is Kenya's single largest export product, horticulture products constitute about 20 percent of the country's exports, making it an important source of foreign exchange. Within horticulture, flowers are the biggest contributor, in both production and export share, followed by vegetables and fruit. The European Union is by far the most important export market for these products.

The structure of the horticulture GVC is highly product specific, but in general it comprises five segments (figure 6.1) (see Fernandez-Stark, Bamber, and Gereffi 2011; Kaiser Associates Economic Development Partners 2014; Otieno and Knorrington 2012; Whitaker and Kolavalli 2006). The following discussion describes this GVC from Kenya's perspective, highlighting the main difference between its major export product categories: floriculture (including cut flowers and bouquets) and fruits and vegetables (F&V). Kenya has focused mostly on primary agricultural products that pass through early forms of processing before arriving at the end consumer (Kaiser Associates Economic Development Partners 2014). Because many horticulture products are perishable, their GVCs require much coordination between all actors to ensure that products reach their destinations in good condition. Thus, logistics, transportation, and cold storage play key supporting roles in the GVC and have significant impacts on the products' value, as do the testing and grading of produce by regulatory bodies.

Investment in agribusiness GVCs allows participants to raise their productivity by adopting new knowledge, technology, and techniques. Linkages between foreign investors and local supply chains and labor markets are more prevalent in agriculture than in many other value chains, given the fundamental requirement of sourcing domestic agricultural products (Kaiser Associates Economic Development Partners 2014). However, significant differences exist between countries in value addition (especially that of processing and manufacturing), which is—as in other sectors' value chains—driven mainly by the sophistication of domestic firms and commercial-scale farms.

International investors participate at various points along the horticulture value chain in direct and indirect forms (UNCTAD 2009). In indirect nonequity participation (arm's length trade), farmers or firms in the host country produce according to the specifications of a foreign multinational corporation (MNC) involved in downstream or upstream activities. Coordination between these parties may be low or high, but it is grounded in compliance with standards. Direct nonequity participation is characterized by contract farming, in which host-country farmers or firms are tightly coordinated with and controlled by an MNC. Because of the more relational

FIGURE 6.1 Illustration of Kenya's horticulture global value chain

Source: Adapted from Fernandez-Stark, Bamber, and Gereffi 2011 and UNCTAD 2009.

Note: FDI = foreign direct investment.

and longer-term character of these contracts, the MNC is encouraged to support the farmers. A third type of participation, direct equity participation through FDI, fully internalizes coordination and control of transactions within the MNC. In the Kenyan horticulture GVC, this last form has been used most frequently in floriculture, which requires more up-front capital, involves specialized skills, and exports most of its production (Whitaker and Kolavalli 2006).

The horticulture GVC is driven and supervised by global buyers. International standards, codes of conduct, and certifications act as catalysts for knowledge transfer and as instruments governing the GVC. Lead firms, often international supermarkets, exert significant control over the entire value chain and dictate how output is produced, harvested, transported, processed, and stored. This control extends to the characteristics of products, including their quality, size, and exposure to pesticides, as well as the social and environmental conditions of cultivation and postharvest handling. Suppliers around the world are required to meet buyers' demands to maintain their access to export markets. In return, these

buyers enable farmers to market their produce and provide support for logistics, finance, and capacity building to comply with traceability requirements and product standards.

Inputs

Global MNCs are the main providers of inputs to Kenya's horticulture GVCs. The large majority of these MNCs are headquartered in developed countries but are also present in Kenya.² The most important inputs are seeds, fertilizers, agrochemicals (pesticides), farm equipment, and irrigation equipment. The power of these global input suppliers over their buyers working in the production stage can be significant, especially when they control key technologies (UNCTAD 2009). As the scale of local production in Kenya has increased, most of the main input providers have opened outlets in the country. The local supply market is characterized by weak competition and is heavily influenced by government interventions, which often serve important social objectives but also create unintended, negative distortions (IFC 2019).

Production

The organization of the production segment varies considerably among horticulture products and according to their final markets. Producers range from smallholders to large farms that supply exporters to producer-exporters that also offer packing and storage for export. The last group is made up of commercial farms that manage groups of contract farmers in addition to their own plantations but also keep direct contracts with international buyers. For smallholders, the commercial farms are important partners that provide certification and export licenses that would otherwise require significant investment from each farmer (Otieno and Knorringa 2012). These firms also help by sharing market risk because failure to supply supermarkets with the required volumes comes with high fines (Kaiser Associates Economic Development Partners 2014). The technology and facilities needed to produce a product determine whether it is suitable for contract farming. For F&V exports (such as avocados, French beans, and mangoes), 70–80 percent of products are grown by smallholder farmers and the remainder is supplied by large, exporter-owned farms. This ratio is inverted in the flower segment (including cut flowers and foliage), in which about 80 percent of products are produced at a few large commercial farms, several of which are foreign owned. Furthermore, the final market's consumption requirements determine what standards need to be applied during the production of each product.

Packing and storage

Grading is central for exporting and making use of economies of scale critical at this stage. Before produce is packed and shipped, exporters sort it into multiple grades and sizes and organize it for residue testing by the Kenya Plant Health Inspectorate Service (KePHIS). Postharvest handling has a huge impact on the grade and price received by produce. The main handling activities undertaken, depending on the product, are

washing, trimming, chopping, mixing, packing, and labeling. In floriculture, postharvest handling may also include the preparation of bouquets ready to be sold in supermarkets abroad, although most flowers from Kenya are still exported in bulk. Given the substantial capital investment needed for packing (including air-conditioning and ventilation systems, water purification, and blast coolers), it requires economies of scale and is carried out by large producer-exporters or by specialized export companies, which in Kenya are located near the international airport in Nairobi. Because of its GVC participation, Kenya today benefits from well-developed cold-chain logistics for imports and exports via both air and sea (IFC 2019).

Processing

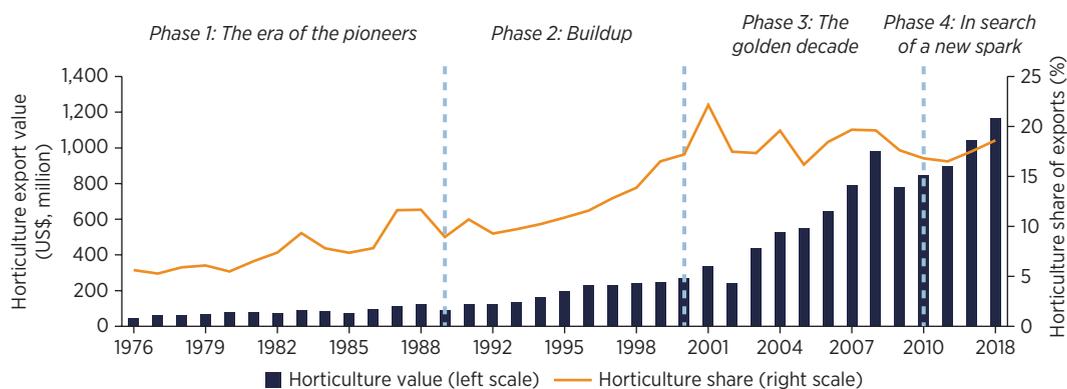
The main value added the processing stage achieves is an increase of the product's shelf life. Processed goods include dried, frozen, and preserved produce as well as juices and pulps. Processing plants typically purchase F&V from producers and export their processed products under either their own brand or the buyer's brand (Fernandez-Stark, Bamber, and Gereffi 2011). Most of the handful of horticulture processing plants in Kenya are owned by MNCs. Two such companies are Del Monte (for canned pineapple), one of the largest food production companies worldwide and one that pioneered FDI in Kenya in the 1960s, and Olivado, a New Zealand firm that entered into a joint venture with a Kenyan partner in 2017 to process avocado oil.³

Distribution and marketing

Retailers dominate the distribution and marketing of horticultural goods. At this stage, efficient logistics are crucial. Key distribution channels include supermarkets, wholesalers, small-scale retailers, and food services. In floriculture, commodity traders and the Dutch auction are also used, though flowers and bouquets have increasingly been sold directly to retailers as well. Global buyers have the power to set strict process and product standards that producers must meet to engage in this value chain. Because of the perishability of most horticulture products, access to efficient and reliable logistics and transportation services is critical. As the scale of its exports increased, Kenya invested in the industry's infrastructure for logistics and storage, strengthened the country's airport facilities, and expanded space for air cargo (Azizi 2020). Domestic food retail in Kenya has been dominated by local supermarkets (such as Nakumatt, Uchumi, and Tuskys), some of which have also invested outward across East Africa. Since 2015, foreign retailers such as South Africa's Shoprite and France's Carrefour have also set up shop in Kenya.

The development of the horticulture value chain in Kenya and the role of foreign direct investment

The dynamics and structure of Kenya's horticulture GVC have evolved substantially over the past several decades (Humphrey, McCulloch, and Ota 2004). Today, the sector accounts for slightly less than US\$1.2 billion in exports and represents an

FIGURE 6.2 Kenya's horticulture export performance, 1976–2018

Source: World Bank calculations based on United Nations Comtrade data.

important income stream for the country. The industry has evolved and upgraded and has become a highly sophisticated supplier of prepackaged, mostly unprocessed, “ready to eat” fruits and vegetables as well as of cut flowers. Horticulture has formed the most dynamic part of Kenya’s agricultural trade because its products are typically of higher value. It also has enabled Kenya to diversify away from the country’s stagnating traditional commodity exports (including coffee, tea, and sugar) (UNCTAD 2009).

Horticulture has a long tradition in Kenya. The roots of the sector were established before World War II. Independence in 1963 brought three reforms important to GVC participation: (a) a land reform that supported commercial farming by smallholders, (b) the establishment of a Horticultural Crops Development Authority (HCDA) to regulate the industry’s quality and trade, and (c) an open investment climate to grow international investment in the horticulture sector (Minot and Ngigi 2004).

The broader development of Kenya’s horticulture sector in the modern era can be divided into four main phases (figure 6.2). From 1970 to 1990, the sector was driven by a select group of pioneers. From 1990 to 2000, the industry started building up. A “golden decade” of rapid growth occurred from 2000 to 2010. And, since then, Kenyan horticulture has been in search of a new spark.

Phase 1: The era of the pioneers (1970–90)

Kenya’s horticulture sector began with FDI into key segments, which drove export growth. By 1970, Del Monte had taken over a state-owned pineapple processing operation, a British investor had set up a new project to dehydrate vegetables for export, a Swiss company had developed a passion fruit–juice export business, and the Danish firm Dansk Chrysanthemum and Kultur (DCK) had invested in growing flowers (English, Jaffee, and Okello 2004). F&V exports rose on average by 8 percent per year in real terms during this period (Minot and Ngigi 2004). This trend was

supported by falling commodity prices for coffee and tea, which encouraged farmers to diversify into crops that would generate more income. By the end of this period, Kenya was the main supplier of fresh and chilled vegetables to the European Union (Dolan, Humphrey, and Harris-Pascal 1999).

Kenya accessed new export markets by serving international customers at home and abroad. Demand for the country's exports grew further as an indirect effect of the expulsion of the South Asian community from Uganda under Idi Amin. Many of those expelled resettled in the United Kingdom, driving up demand for Asian vegetables. With a suitable climate for year-round supply and experience growing Asian vegetables for its own Asian community, Kenya was ready to meet that demand. Most important, social ties were established between Asian traders in London and in Nairobi, reducing the risks and transaction costs of expanding this trade route (Dijkstra 1997). The growth of tourism in Kenya helped as well because the cargo capacity of passenger jets was used to airfreight Kenyan produce to Europe and because the growth of hotels and restaurants in Kenya increased domestic demand for high-quality F&V.

Smallholder participation in F&V production increased during this period, but MNCs needed time to figure out how to best organize local farmers to ensure predictable supply. Over this period, the export volume provided by smallholders grew from about 20 percent of exports in the 1970s to 40–65 percent (mostly French beans, Asian vegetables, mangoes, avocados, and passion fruit) by 1990 (Jaffee and Masakure 2005). Export companies offered a reliable market to farmers' groups, which in return needed seeds and inputs on credit. In some cases, technological changes, increasing competition, and the unreliability of farmers' organizations encouraged commercial-scale operations, such as Del Monte, to integrate vertically and start production on their own farms.

In floriculture, the pioneering firm DCK was soon followed by several major investments in the sector. Generously supported by the Kenyan government and motivated by lower labor costs and longer growing seasons, DCK made a large-scale investment in Kenya in 1969, which it expanded in the following years (Whitaker and Kolavalli 2006). Despite frequent changes in ownership, DCK enjoyed considerable success and remains one of the major players in Kenya's flower industry. Other FDI came from the United States-based Yoder Bros. and from the Oserian Development Company, owned by a Dutch family in Kenya. The expatriate flower specialists brought in by foreign investors, together with Kenyans initially trained at the pioneering farms, founded several dozen spin-off joint ventures in the mid-1980s (English, Jaffee, and Okello 2004).

Unlike Kenya's traditional export commodities (tea, coffee, cotton, and tobacco), the country's horticulture sector received hardly any government attention at first (Bates 2005; Minot and Ngigi 2004). However, as commodity prices declined in the 1970s, Kenyan farmers were encouraged to produce higher-value-added crops to increase export earnings. In sharp contrast to the marketing boards for coffee and tea, which suffered from corruption and cronyism, the HCDA decided to leave marketing to the private sector and avoided involvement in price setting or monopoly creation for horticulture products (Tyce 2020). This hands-off approach immensely benefited the development of the sector. As the sector's economic success increased, the HCDA

TABLE 6.1 Share of Kenya's horticultural exports by firm ownership, 1985–86

Firm ownership	Fresh F&V	Cut flowers	Processed F&V	Combined
Foreign	0	58	91	54
Private, local	97	38	9	43
Kenyan-Asian	81	0	7	30
Kenyan-European	9	35	2	10
Kenyan	7	3	0	3
Local cooperative	0	1	0	1
Kenyan state	3	3	0	2
Total	100	100	100	100

Source: Jaffee 1992.

Note: F&V = fruits and vegetables.

gained political influence and resources, mostly from external donors, which it used to build horticulture-specific infrastructure (World Bank 1989).

Although the Kenyan government promoted “Kenyanization” during this period, it remained more open to FDI than many other African countries. After obtaining its political independence, Kenya sought economic independence from both Asian Kenyans (who at the time controlled much of the country’s F&V exports) and European investors (who played a similarly dominant role in floriculture). The government redistributed land, restricted the hiring of non-Kenyans, and provided export promotion services, preferential access to air cargo, and credit schemes to black Kenyan firms (Jaffee 1992). Despite these efforts, the horticulture trade remained largely under the control of companies owned by foreigners and nonblack Kenyans (table 6.1) because recipients of state support often lacked the experience, knowledge, and interest in exporting horticulture products to establish a successful business (Azizi 2020).

Throughout this period, the pioneering FDI dominated the horticulture sector but created positive externalities. The sector also drew in new, large-scale FDI, supported by generous incentives and an open market. These investments produced important externalities, highlighted Kenya’s comparative advantage in horticulture, and brought about several critical improvements in the country’s infrastructure, labor force, and market development. By imitating the production, sales, and marketing processes of foreign investors, local firms sought to become more productive and competitive in export markets. For smallholders, the most direct benefit came from linking up with pioneering firms through subcontracting (Azizi 2020).

Phase 2: Buildup (1990–2000)

The liberalization of Kenya’s trade policies and the adoption of market-friendly regulations attracted a second wave of FDI from 1990 to 2000. Political instability and an economic recession, including a heavy exchange rate devaluation in 1993, triggered a period of structural adjustment, which forced the Kenyan government to enact economic reforms in the 1990s. The government removed controls on foreign exchange, imports, and airfreight and established a more

stable macroeconomic environment. Also, Kenya's trade policies evolved from import substitution toward a greater export orientation (Gertz 2008). Although the journey was by no means straightforward, by the end of this period, exports had grown and firms were better able to adapt to evolving market conditions and buyer standards (English, Jaffee, and Okello 2004). Many large and medium floriculture firms also shifted their production from established markets (Germany, the Netherlands, and the United Kingdom) to Kenya. This increase in demand triggered knock-on FDI by input suppliers for greenhouse facilities, seeds, and fertilizers (Azizi 2020). The inflow of foreign capital, technology, and knowledge also created incentives for local firms to invest in horticulture.

During this period, increasing competition in the global horticulture industry pushed Kenyan firms to reorient and upgrade. New sources of supply (such as the Arab Republic of Egypt and Morocco) cut into Kenya's market share for exports to Europe and drove down prices. The average unit values of bulk produce fell considerably (for example, the value of green beans fell by 15–25 percent between 1995 and 2001 [COLEACP 2001]). Thus, Kenyan producers were forced to adapt their business models. They successfully introduced new crops (such as peas) and added value by exporting semiprocessed products that were washed, cut, sliced, and packed ready for supermarket sale at the destination (including mixed salads and assortments of cut vegetables for stir-fries or dips). The low cost of labor for Kenyan packhouse workers compared with similar workers in Europe supported Kenya's competitiveness in this value chain segment. Jaffee and Masakure (2005) show that the typical net profit on "fine beans" shipped in bulk was 0–2 percent, compared with a profit of 12–14 percent on a tray of "stir-fry mix." Kenya's export values subsequently increased sharply. The need to bundle a greater variety of produce before shipping also reinforced contract farming schemes.

Although greater competition, not higher standards, initiated the upgrading process to achieve higher product values, Kenya also started to focus on the premium customer segment during this period. The UK market was already a prime destination for Kenyan exports, but the shifts in Kenya's product mix and targeted market segments reinforced that focus. Kenya gravitated toward markets where consumers were ready to pay a premium for higher value added and convenience. Meanwhile, Kenya's trade contracted in markets where price was the primary competitive criterion. This repositioning required the industry to compete in the market for high-quality products and to improve its systems for procurement (backward integration, product segmentation, extension services, and higher-intensity out-grower systems), quality assurance, and food safety management.

The growth of the horticulture industry led to the rise of business networks and an enabling ecosystem. The Kenya Flower Council (KFC) and Fresh Produce Exporters Association of Kenya (FPEAK) increased their power, ambition, and advocacy. These organizations pushed for the privatization of Kenya Airways by entering a strategic partnership with the airline KLM in 1996; once accomplished, this privatization decreased transportation costs and raised Kenyan competitiveness (Tye 2020). Similarly, FPEAK effectively lobbied for the duty-free import of agricultural inputs and equipment as well as for exemptions for the horticulture sector to permit the free flow of resources, technology, and foreign technical experts (Whitaker and

Kolavalli 2006). As quality assurance gained importance, KePHIS was founded to establish a good reputation for the industry by introducing market-friendly regulation and stringent food safety management systems. The Kenyan government also assumed a more facilitative role in governing the sector, not least because horticulture helped offset the lost export earnings from traditional commodities.

The growing role of supermarkets in Europe changed the dynamics along the horticulture GVC (box 6.1). Increasingly, supermarket chains bypassed wholesalers to negotiate with and source directly from preferred exporters in Kenya, thereby creating a more direct link between consumer demand and producers. Kenyan commercial farms were able to take advantage of this shift, which required (a) process upgrading to meet standards, (b) product upgrading to sell semiprepared and prepacked produce, and (c) functional upgrading to integrate logistics, freight, and marketing. Supermarkets organized much of this new production; as stated by a former manager at Homegrown Ltd., one of the largest foreign horticultural exporters in Kenya, “Homegrown [rarely] grows anything unless a supermarket has programmed it” (Evans 1999).

The structural changes in Kenyan exports led to greater concentration and a decline in smallholder participation but also to better jobs and opportunities to form linkages. By 2000, seven firms controlled 75 percent of all Kenyan horticulture exports (Dolan and Humphrey 2004), and the export of flowers had been controlled by large producer-exporters from the start. Smallholder participation in UK supermarkets’ value chains declined rapidly, from 50–55 percent in 1999 to less than 20 percent in 2001, as demand increased for more consistency in the supply, taste, and appearance of produce and for greater traceability and compliance with environmental and labor standards (Dolan and Humphrey 2000, 2004). The process upgrading and investment required to meet these new requirements were often beyond the reach of smallholders. However, because of new sales channels that arose in the growing regional trade for horticulture products, horticulture smallholders still earned more income than those in other sectors (Krishnan 2017).⁴

BOX 6.1 The rise of supermarkets in Africa

Since the 1990s, supermarkets have emerged as the key market channel for food retail sales in Africa and have transformed African horticulture. Within a decade, the average share of supermarkets in food retail increased to 50–60 percent (Reardon et al. 2003). At the same time, the continent’s supermarket segment consolidated as large multinationals such as Walmart, Carrefour, Tesco, and Royal Ahold entered developing markets (Farole and Winkler 2014). Supermarkets’ degree of control over their supply chains increased, and they began coordinating the value chain, from sourcing to production and distribution to retail, by pushing for standards certification and traceability.

Most supermarkets in Kenya have domestic, rather than foreign, roots. Larger Kenyan chains, such as Nakumatt,^a Uchumi, Chandarana, and Tuskys, were followed by Naivas and Zucchini in the late 1990s, about the same time the country’s horticulture exports began to grow dramatically (Krishnan 2017).

a. Nakumatt was Kenya’s leading supermarket chain for decades. It sourced products from 1,500 suppliers, directly employed 6,720 workers, and generated turnover of roughly 1 percent of Kenya’s gross domestic product. However, it filed for bankruptcy in 2017 because of overambitious expansion, the destruction of its flagship store during the 2013 terrorist attacks in Nairobi, and rampant theft of cash and stock at its stores (Golubski 2017).

The professionalization of production in the horticulture sector increased employment, particularly for women, who benefited from new permanent jobs at packhouses with higher wages and skill requirements (Fernandez-Stark, Bamber, and Gereffi 2011). Similarly, opportunities for linkages increased as large exporters expanded their contract farming arrangements. The need to provide a more diverse range of products, together with the severe fines imposed if exporters were unable to supply the quality and quantity of products promised to supermarkets, increased contracts for smallholders, who could supplement the exporters' products and share their risks (such as demand peaks and crop contagion). The largest exporters contracted with between 1,000 and 2,000 farmers, who benefited from the provision of inputs, training, finance, and help with quality assurance. The prerequisite conditions for contract farmers, in turn, were a certain scale, minimum quality certification, and formality as a crucial factor for enforcing contracts (Kaiser Associates Economic Development Partners 2014).

Rather than posing an insurmountable barrier to the Kenyan horticulture sector, the rise in competition and the rapid pace of standards introduction and product innovation that occurred during this period threw a lifeline to the sector, which it successfully grabbed. As freight and production costs increasingly undercut Kenya's ability to compete on price, Kenya entered the higher-value market segments of semiprocessed and packaged products, for which the competitive factors were value addition, convenience, safety, and traceability.

Phase 3: The golden decade (2000–10)

The structures and upgrading pathways put in place during the 1990s paid off. Kenyan horticulture recorded its strongest period of growth between 2001 and 2007, with fruit, vegetable, and flower exports all experiencing dramatic surges supported by strong global demand. "During those years, we could sell everything we put on the market," a manager from a lead exporter summarized. Exports in the F&V segment focused on semiprocessed products. In floriculture, the rise of supermarkets opened another sales channel apart from the Dutch auction, which had been the traditional trading hub for floral products, and allowed producers to diversify into packaging bouquets ready for sale, which requires more skill and adds more value (Azizi 2020; Whitaker and Kolavalli 2006).

Increasing competition among European supermarkets pushed much of the horticulture sector's packing and semiprocessing to developing countries. To cater to UK supermarkets during the 1990s, Kenyan exporters had already made significant investments in upgrading their packhouses; by the end of the 1990s, almost all Kenyan exporters had large packing facilities close to Kenya's international airport, from which the European market could be served within 24 to 48 hours. Also, more international investment in the sector followed, such as from Paragon Print and Packaging, the leading packaging manufacturer in the United Kingdom (Fernandez-Stark, Bamber, and Gereffi 2011).

The horticulture sector's ecosystem expanded, with a strong emphasis on increasing skills and certification (box 6.2). During this period, the horticulture industry came to require a higher level of skills and formal education than its workforce could

attain at the time. Thus, Kenyan universities and education institutes launched degree programs in food science and processing technology. HCDA, KePHIS, and the Kenyan Agriculture Research Institute provided many industry participants with training and information on agriculture crops, pest control, and disease prevention as well as market intelligence. Industry associations (including the Chamber of Commerce, FPEAK, and the KFC) further supported their members by providing marketing advice and links to international buyers as well as by lobbying for favorable regulation and public investment in the development of the sector. To enhance inclusiveness, international donors started many programs to support the integration of Kenyan smallholders into GVCs and to train Kenya's workforce.⁵

A growing regional market in East Africa opened up yet more opportunities for Kenyan producers. The number of supermarket outlets in Kenya grew from approximately 60 in 2007 to 192 by 2014, and the revenue earned by the three largest supermarkets in Kenya increased by 43 percent between 2007 and 2014—a substantially faster growth rate than for the more saturated supermarket sector in Europe (Krishnan 2017). GVC suppliers thus began to participate in the expanding regional market, where they sell excess or rejected horticulture produce goods. What started as opportunistic participation by farmers soon became a strategy for diversifying their buyers and thus improving their bargaining positions and earning higher prices.

BOX 6.2 The centrality of standards: Global versus local, public versus private, and mandatory versus voluntary

European retailers created the Global Good Agricultural Practices in 1997, which Kenya localized in 2007 to decrease the complexity and cost of compliance for smallholders. These standards have come to govern quality, size, pesticide use, and residue limits as well as hygiene requirements for postharvest handling; they also require precise traceability of products. Global standards certification is a prerequisite for accessing export markets (Moran 2018). Because smallholders often reported difficulties in developing the necessary capabilities and affording the cost of certification, group certification was made possible for smallholders contracted with by larger producers. The Horticultural Crops Development Authority amended its standards to align with local conditions, and the Fresh Produce Exporters Association of Kenya supported smallholders with training on the Kenyan standards, which are enforced by domestic supermarkets and wholesalers (Fernandez-Stark, Bamber, and Gereffi 2011).

As sourcing has globalized and concerns over food safety have increased, private food standards have rapidly proliferated. These standards often complement, rather than displace, public standards; are more stringent and specific to individual buyers; and are frequently related to specific trademarks (such as fair trade). Although voluntary in principle, these standards are almost mandatory for commercial purposes because they are either required to access business opportunities or are otherwise beneficial to differentiate a producer's goods from those of competitors (Otieno and Knorringer 2012). Most standards for traceability, agricultural practices, environmental and social practices, and other factors are voluntary codes of conduct. Legally mandated standards are enforced through export markets' trade regulations; these standards include sanitary and phytosanitary measures as well as maximum residue limits. The rise in standards has led to a proliferation of certification, monitoring, and auditing bodies, resulting in higher costs for producers seeking certification (Evers et al. 2014).

As regional supermarkets established themselves, they came to depend on the better-quality produce from GVC suppliers. Thus, Kenya's GVC participation in supplying European supermarkets created positive spillovers in the development of the regional horticulture market. Export-quality produce compliant with international good agricultural practices, as well as new crop varieties, gradually infiltrated regional retail, raising regional standards and food safety.⁶

Increasing domestic policy instability and the global financial crisis brought an end to the golden era. Exports plunged in 2009 because of postelection violence, constitutional reform, and the global financial crisis, which caused high uncertainty among domestic and foreign investors. Following the period of strong growth, the government also decided to retract some incentives previously granted to horticultural producers, such as access to economic processing zones (areas that provide a special investment regime, including more lucrative incentives, to enhance commercial and industrial exports), and clamped down on tax evasion and questionable transfer pricing modalities (Tyce 2020). At the end of this period, there were about 1.5 million smallholder horticulture producers in Kenya, and they produced about 70 percent of F&V and 10 percent of flowers for export (Government of Kenya 2012). This statistic highlights the sector's importance for socioeconomic development in Kenya: about 5 million Kenyans depend directly or indirectly on horticulture for their livelihoods (Otieno and Knorrninga 2012).

Phase 4: In search of a new spark (2010–today)

As Kenya's horticulture sector matures, the industry is looking for a new spark to underpin its future growth. From 2009 to 2013, the sector experienced reduced and more erratic growth. Although this decline in growth was caused in part by external events, domestic policy weaknesses revealed that the sector's previous success might have been more fragile than expected. Following the decision to decentralize the central government and empower local administration, local governments started imposing additional taxes and business license regulation on horticulture producers, often duplicating or even contradicting those of the central government. Between 2012 and 2013, the European Union intercepted several horticulture products from Kenya that did not meet its food safety standards, leading to full-scale bans on Kenyan imports (Koigi 2016; Muchira 2019; Waitathu 2014). These events helped new competitors such as Ethiopia, Nigeria, and Senegal to rise.

Even though effective public-private governance enabled the horticulture industry to recover at home and abroad, it needed a new vision. A new national standard (KS 1758) was introduced in 2015 as a prerequisite for firms to obtain export licenses. Also, the Kenya Horticultural Council, which included representatives from KFC, FPEAK, and HCDA, was founded to revive the public-private governance that had increasingly characterized Kenyan horticulture (Mwangi 2018). Although access to the European export market remains critical to the sector, part of the new vision is to promote access to new markets, reduce the sector's dependence on Europe, and realize trade agreements with China, the Russian Federation, other East Asian and Middle Eastern countries, and, most recently, the United States so that new trade and flight routes can be opened.

Process upgrading is still increasing yields in floriculture, but Kenyan F&V producers have seen their profitability suffer. Similar to the upgrading of F&V exports to semiprocessed fruit and vegetables in the 1990s, foreign-owned investors have been increasing the production of ready-for-sale flower bouquets in Kenyan operations. Although this shift in location increases costs for storage, freight, and handling and has required specialized training and investments in new assembly lines, it has paid off.⁷ It opened new opportunities for local farmers to tap into the more concentrated export market for flowers because bouquets are supplemented with locally produced summer flowers that require less infrastructure and can be grown in rain-fed conditions by local firms. The F&V segment, in contrast, faces constraints to its market share despite substantial global opportunities. Its profitability has declined because of changes in demand and increased operating and transportation costs, all in the context of a very competitive retail market in Europe. Several prominent exporters have stopped operations in Kenya, most notably Finlay Horticulture, which grew fruit and vegetables, or have been forced into refinancing or joint venture investments to stay afloat (Fintrac Inc. 2014).

A shift toward climate-smart and technology-intensive horticulture is needed to improve Kenyan producers' yields, efficiency, and profitability. Dwindling productivity, low value addition compared with the scale of production, and high exposure to climate change risks resulted in Kenya losing competitiveness in the sector compared with its East African neighbors (IFC 2019). Crops such as mangoes have not yet lived up to their potential, largely because of weak farmer organization, poor postharvest handling (leading to losses of up to 40 percent of produce), and lack of capital investment. Because water shortages and rising temperatures are increasing operational costs, pushing smallholders out of the market, industry associations and donors have urged producers to move toward more sustainable and inclusive production. Additionally, following the success of the mobile money provider M-Pesa, Kenya became known as a leader in adapting modern technology to meet local needs, driven by dynamic entrepreneurs and market-based innovation. Applications of new technology range from providing farmers with weather updates, market data, and access to finance to driving logistical efficiencies and increasing traceability across the value chain. For example, agri-tech firms such as Twiga Foods and Apollo Agriculture have successfully introduced innovative business models in recent years.⁸

Despite the challenges it faces, horticulture remains a promising sector for Kenya's development. Fruits and vegetables have some of the highest multipliers for production, employment, and value added among agricultural commodities in Kenya, as shown by a study assessing the potential of different economic sectors to create wealth and employment (Boulanger et al. 2018).

Conclusion: Main lessons for other countries and outlook for Kenyan horticulture

In addition to a favorable climate, well-planned strategic investments, and political and economic stability at the time, Kenya's horticulture sector benefited from a first-mover advantage. Kenya's geographic location, fertile soils, and climate that permits a year-round growing season were unquestionable prerequisites for the development of the country's horticulture GVC. In the sector's initial days, growth relied on an

enabling business environment and public-private cooperation that promoted investment in strategic infrastructure and the development of a supportive ecosystem for the sector. The government mostly refrained from intervening strongly in the market. Kenya was also the beneficiary of numerous private sector- and donor-funded projects over the past three decades that helped improve the country's logistics infrastructure, product quality, and horticulture skills. GVC entry is much more difficult for newcomers today because of consolidation and the adoption of rigorous standards within the horticulture GVC.

Although foreign capital was essential to launching Kenya's horticulture sector, over time the sector's exposure to foreign expertise and technology became more important. Remaining open to FDI and actively supporting pioneering investment has been critical. Kenya sent a strong market signal, attracting more domestic and foreign investment. Local producers took up the opportunities presented and absorbed the positive externalities and spillovers created by FDI, which transferred important technology, skills, and capital as well as the marketing and quality control expertise needed to penetrate international markets. As a manager from a leading multinational corporation confirmed, these demonstration and linkage effects were especially valued by local partners: "The ... foreign players that entered the market and often partnered with locals in various ways brought not necessarily capital but access to technology, markets, and know-how, which was what local producers were after." Krishnan and Foster (2017) confirm that Kenyan farmers involved in GVCs are more likely to be involved in innovation, mostly because of direct transfers of knowledge linked to GVC participation.

Linking to global buyers has proved to be an excellent training ground in which local producers can meet standards and internationalize (box 6.3). This case study also highlights the importance of external retail demand and international standards in enabling local firms to accumulate not only production but also end-market capabilities. This effect became evident as the supermarket revolution provided Kenyan horticulture producers more independence from their previous sales channels, allowing them to build more direct relationships with global retailers. As a result, a new group of smaller local firms, often in niche segments, entered the GVC through sub-contracting arrangements.

Also critical to the success of Kenyan horticulture have been the country's competitive ecosystem and a policy environment that encourages business initiative. Predictable and noninterventionist public governance has left investors confident that they can reap the benefits of their long-term investments. Additionally, the country's targeted efforts to link smallholder farmers to high-value urban and export markets have done much to reduce poverty. Because horticulture value chains require economies of scale, the right balance between promoting smallholders and developing large-scale and capital-intensive farms is paramount for competitiveness. This balance is usually best left to the private sector because horticulture products are too diverse, too risky, and too fast-changing for the public sector to effectively prescribe their production structures (Minot and Ngigi 2004). However, policy support has proven effective at (a) establishing high-quality research and extension services and institutions, (b) promoting standards and certification, and (c) facilitating access to finance (Kaiser Associates Economic Development Partners 2014). Also, credible national infrastructure for quality measurement that conducts audits, provides certification,

BOX 6.3 The role of the three L's—labeling, linking, and learning—in firm internationalization

Global value chain (GVC) participation fosters the internationalization of local firms through three channels: labeling, linking, and learning. Pietrobelli and Rabelotti (2011) find that GVC participation drives innovation in low-income countries by pushing firms to adhere to standards to access international markets. For example, farmers may adopt rainwater harvesting techniques to achieve environmental standards or adopt new seed varieties to ensure their produce is attractive to consumers abroad. This sort of “frugal” innovation is just as important to their livelihoods as disruptive mechanization technologies (Raina et al. 2009). As a local horticulture producer explained, “Product or process improvements trickle down as farmers observe what their neighbors are doing.”

The Kenyan horticulture sector reflects the importance as well as the interconnectedness of these three channels (Krishnan and Foster 2017). *Labeling* refers to standards or certifications that codify market demand and focus upgrading efforts, and thus are key tools for improving productivity. *Linking*, defined as forming relationships between actors along the value chain, is especially important in the agriculture sector, in which local farmers are fundamental to foreign firms’ operations. Trust, reflected in the longevity and strength of their relational ties, affects the intensity of their link. *Learning*, the acquisition, accumulation, and appropriation of tacit and explicit knowledge, forms an integral part of innovation and is determined by the way networks operate and interlink. Kenyan farmers linked to GVCs innovate more because they adhere to international labels, benefit from stronger linkages, and have access to more forms of learning (Krishnan and Foster 2017).

Foreign firms tend to support local farms via supply chain relationships, and labor market linkages diffuse new skills across networks. Survey results^a show that nearly all foreign-owned agricultural investors help local firms by providing inputs and materials, advance payments, and support for quality assurance and standards adherence. Providing access to funding and financing, worker training, and help in identifying export opportunities is also relatively common in Kenya. This assistance helped local suppliers upgrade, and these suppliers were then able to leverage their FDI relationships to access new customers (often through referrals). In fact, about 50 percent of Kenyan firms indicate that they became exporters after first supplying a foreign-owned firm within the country. Also, individual employees who had worked for foreign companies in-country were more likely to start new operations. On average, 80 percent of Kenya’s skilled staff today are local employees, which reflects the long tradition of the horticulture sector in the country. Furthermore, about 10 percent of all employees at Kenyan firms have previous experience with foreign operations (Kaiser Associates Economic Development Partners 2014).

Source: This analysis is based on a combination of literature reviews and interviews conducted by the authors between January and March 2020 with representatives of multinational corporations, domestic firms, and trade associations affiliated with the Kenyan horticultural industry, as well as government officials; the interviews are the source for direct quotations that are not otherwise attributed.

a. This survey, presented in Kaiser Associates Economic Development Partners (2014), reached out to foreign- and domestic-owned agricultural firms in Ghana, Kenya, Mozambique, and Vietnam.

and prevents diseases from spreading has been essential to establishing trust with international buyers and facilitating local upgrading.

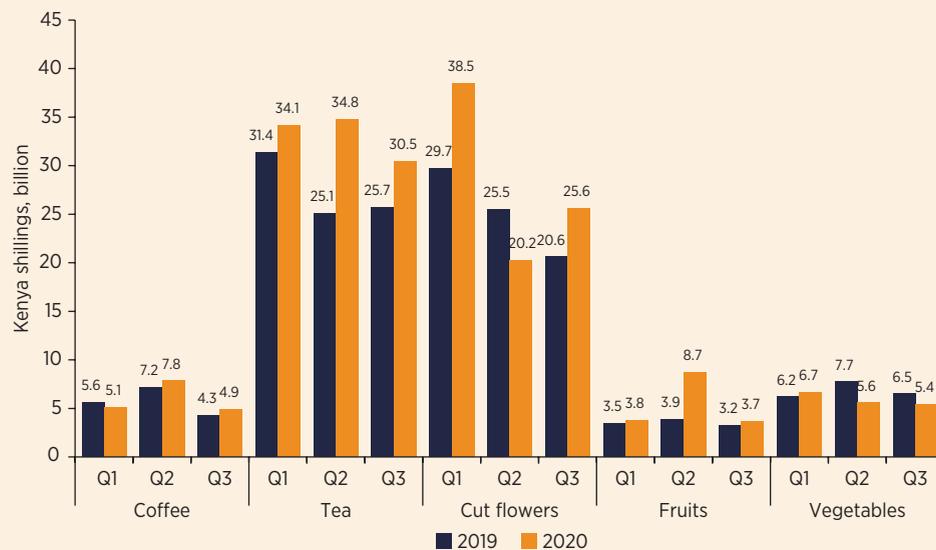
The unprecedented disruptions of 2019–20 are forcing horticulture producers and the Kenyan government to reflect on the current state of the sector. Hobbled by the triple impact of flooding, locust infestations, and the COVID-19 (coronavirus)

BOX 6.4 Impact of COVID-19 (coronavirus) on Kenya's horticulture sector

Amid the initial economic shocks of the COVID-19 (coronavirus) pandemic, horticulture in Kenya has been resilient so far. At the onset of the pandemic, demand and consumption sharply decreased because of containment measures and supply chain disruptions. With inward- and outward-bound flights grounded, trade was paralyzed, and export sales eroded. Although the initial trade shock caused by the COVID-19 crisis looked dramatic at first (Roussi 2020), research by Mold and Mveyange (2020) reveals that domestic horticulture exports have actually performed extraordinarily well under the circumstances, showing incremental growth since 2019, while reexports and imports have been hit worse.

The strong export performance of tea and certain horticulture products underscores the diverse sectoral impacts of the COVID-19 crisis. Of Kenya's three largest export product categories, food and beverage exports increased while the others declined markedly (Smartfarmer Digital 2020). Kenya's coffee, tea, and fruits exports all grew in the second and third quarters of 2020 despite the pandemic. Tea exports grew nearly 40 percent and 20 percent in the second and third quarters of 2020, respectively, compared with the same period in 2019; and fruit exports more than doubled in the second quarter of 2020 (figure B6.4.1). In contrast, flowers, a luxury product, saw demand crash in the second quarter of 2020 as ceremonies such as weddings and funerals were restricted during lockdown. Cut flower exports almost halved in the second quarter of 2020 compared with the first quarter. As of May 2020, 30,000 temporary workers in this sector have been let go and 40,000 permanent workers have been furloughed (Pais, Jayaram, and van Wamelen 2020). However, cut flower exports rebounded in the third quarter as global mobility restrictions eased. The only major category that has not recovered since the pandemic began is vegetables.

FIGURE B6.4.1 Kenyan agricultural commodity exports, 2019–20



Source: World Bank calculations based on data from Kenya Central Bank data.

Continued on next page >

BOX 6.4 Impact of COVID-19 on Kenya's horticulture sector (continued)

Although Kenyan businesses adapted quickly to the COVID-19 crisis with innovative solutions, the long-term impact of this complex crisis is hard to predict. Twiga Foods, for instance, responded with a new partnership with e-commerce platform Jumia to deliver bundles of fruits and vegetables directly to people's homes. This partnership provided higher-quality produce than local markets, but did so at lower prices than offered by supermarkets (Roussi 2020). In another example, Kenya Airways has converted grounded passenger planes into freighters to sustain exports of tea and horticulture (Kimuyu 2020). Kenyan producers have been quick to develop new markets, create new revenue streams and outlets for small farmers, and push the value chain to digitalize. However, the decline of capital and consumer goods imports might have a dampening effect on the sector's long-term growth. Should local producers manage to fill the void created by reduced imports, they could also help revitalize national and regional industrialization. With restrictions on movement, digital interaction between farmers and value chain partners has become more important than ever—and it could provide the “new spark” Kenya has been searching for to sustain its competitiveness in horticulture.

Note: Box reflects information as of October 2020.

pandemic (box 6.4), Kenya's horticulture industry is under pressure. As it rebounds, public and private actors should examine ways to ensure that the sector builds back stronger. Kenya's horticulture success relies on the country's land quality and structure, infrastructure and trading position, and capacity for innovation (IFC 2019). However, these advantages, and the benefits of GVC participation, are increasingly at risk because of regulatory, economic, and environmental challenges. The following are some proposals to policy makers:

- Address sector-specific barriers and draw in private investment by (a) improving competition in the input and transportation sectors; (b) realizing the value-addition potential of crops through better farmers' organizations, extension services, and research and development support; and (c) strengthening the environmental sustainability of horticulture production.
- Support firms' internationalization and participation in GVCs by (a) fostering firm productivity, standards compliance, and technology use; (b) facilitating market linkages and value chain finance and insurance; and (c) improving export promotion and product diversification.
- Facilitate FDI entry and partnerships by (a) reducing the risk and cost of doing business caused by policy unpredictability and the regulatory burden, (b) better aligning the country's FDI policy with its development goals, and (c) removing discrepancies in the regulatory and institutional framework.

Participation in the horticulture GVC has been important for Kenya's economic development. Through this participation, the country was able to increase its export performance as well as employment and income. Like most developing countries, Kenya has had more success with upgrading into the packing segment, but most processing remains outside of Kenya. As the horticulture GVC becomes increasingly saturated and market opportunities become less plentiful, Kenyan producers are under pressure to rethink their path to future growth and to develop a new vision for the future.

Notes

1. The analysis in this case study is based on a combination of literature reviews and interviews conducted by the authors between January and March 2020 with representatives of multinational corporations, domestic firms, and trade associations affiliated with the Kenyan horticultural industry, as well as government officials; the interviews are the source for all direct quotations included in this chapter that are not otherwise attributed.
2. The world's 25 largest agricultural input providers are based in developed countries. Eight of these firms are headquartered in the United States, three in Germany, and two each in Denmark, Japan, Norway, and Switzerland (UNCTAD 2009).
3. For more information on the Olivado partnership, see "Olivado in Kenya" (<https://www.olivado.com/the-story/kenya>).
4. According to McCulloch and Ota (2002) and Weinberger and Lumpkin (2007), net farm income among smallholder farmers that produced horticulture products for export has been four to five times higher per family member than among similar smallholders not producing horticulture products.
5. For information on one such program, funded by the United States Agency for International Development (USAID), see "Kenya Horticulture Competitiveness Project" (<https://partnerships.usaid.gov/partnership/kenya-horticulture-competitiveness-project-khpc>).
6. Krishnan (2017) shows that most farmers selling domestically still followed about 70 percent of the Global Good Agricultural Practices standards.
7. Interview with a production manager of a large foreign-owned horticulture exporter in March 2020.
8. For more information on these firms, see "AgriTech Startups in Nairobi" (<https://tracxn.com/explore/AgriTech-Startups-in-Nairobi>) and Apollo Agriculture (<https://www.apolloagriculture.com/>).

References

- Azizi, Sameer Ahmad. 2020. "Kenyan-Owned Firms in the Floriculture Global Value Chain: A Multi-level Analysis of the Historical Development of Local Firms." CAE Working Paper 2020/2, Centre of African Economies, Roskilde University, Roskilde, Denmark.
- Bates, Robert. 2005. *Beyond the Miracle of the Market: The Political Economy of Agrarian Development in Kenya*. Cambridge, U.K.: Cambridge University Press.
- Boulanger, P., H. Dudu, E. Ferrari, A. J. Mainar Causapé, J. Balié, and L. Battaglia. 2018. *Policy Options to Support the Agriculture Sector Growth and Transformation Strategy in Kenya*. Luxembourg: Publications Office of the European Union.
- COLEACP (Europe-Africa-Caribbean-Pacific Liaison Committee). 2001. "EU Imports of Fresh Fruit and Vegetables from 1994 to 2000". COLEACP Pesticides Initiative. Paris, France.
- Dijkstra, T. 1997. *Trading the Fruits of the Land: Horticultural Marketing Channels in Kenya*. Aldershot, U.K.: Ashgate Press.
- Dolan, C., and J. Humphrey. 2000. "Governance and Trade in Fresh Vegetables: The Impact of UK Supermarkets on the African Horticulture Industry." *Journal of Development Studies* 37 (2): 147–76.
- Dolan, C., and J. Humphrey. 2004. "Changing Governance Patterns in the Trade in Fresh Vegetables between Africa and the United Kingdom." *Environment and Planning* 36 (3): 491–509.
- Dolan, C., J. Humphrey, and C. Harris-Pascal. 1999. *Horticultural Commodity Chains: The Impact of the UK Market on the African Fresh Vegetable Industry*. Sussex, U.K.: Institute for Development Studies.
- English, P., S. Jaffee, and J. Okello. 2004. "Exporting out of Africa – Kenya's Horticulture Success Story." Case study for Scaling Up Poverty Reduction: A Global Learning Process and Conference, Shanghai, May 25–27.

- Evans, R. K. 1999. "From Small Farms to Supermarkets." Homegrown Ltd., Nairobi, Kenya.
- Evers, B., M. Opondo, S. Barrientos, A. Krishnan, F. Amoding, and L. Ndlovu. 2014. "Global and Regional Supermarkets: Implications for Producers and Workers in Kenyan and Ugandan Horticulture." Working Paper 39, Capturing the Gains, University of Manchester, U.K.
- Farole, T., and D. Winkler, eds. 2014. *Making Foreign Direct Investment Work for Sub-Saharan Africa: Local Spillovers and Competitiveness in Global Value Chains*. Washington, DC: World Bank.
- Fernandez-Stark, K., P. Bamber, and G. Gereffi. 2011. "The Fruit and Vegetable Global Value Chain: Economic Upgrading and Workforce Development." Center on Globalization, Governance, and Competitiveness, Duke University, Durham, NC.
- Fintrac Inc. 2014. "Global Competitiveness Study: Benchmarking Kenya's Horticulture Sector for Enhanced Export Competitiveness." Kenya Horticulture Competitiveness Project, United States Agency for International Development, Washington, DC.
- Gertz, G. 2008. "Kenya's Trade Liberalization of the 1980s and 1990s: Policies, Impacts, and Implications." Background paper, "The Impact of the Doha Round on Kenya," Carnegie Endowment for International Peace, Washington, DC.
- Golubski, Christine. 2017. "Africa in the News: Nakumatt's Bankruptcy Woes, Senegal's New Airport, and Cameroon's Growing Crisis." *Africa in Focus* (blog), December 8, 2017. <https://www.brookings.edu/blog/africa-in-focus/2017/12/08/africa-in-the-news-nakumatts-bankruptcy-woes-senegals-new-airport-and-camerouns-growing-crisis/>.
- Government of Kenya. 2012. "National Horticulture Policy 2012." Government of Kenya, Nairobi, Kenya.
- Humphrey, J., N. McCulloch, and M. Ota. 2004. "The Impact of European Market Changes on Employment in the Kenyan Horticulture Sector." *Journal of International Development* 16 (1): 63–80.
- IFC (International Finance Corporation). 2019. *Creating Markets in Kenya: Unleashing Private Sector Dynamism to Achieve Full Potential*. Country Private Sector Diagnostic. Washington, DC: International Finance Corporation.
- Jaffee, S. 1992. "How Private Enterprise Organized Agricultural Markets in Kenya." Policy Research Working Paper 823, World Bank, Washington, DC.
- Jaffee, S., and O. Masakure. 2005. "Strategic Use of Private Standards to Enhance International Competitiveness: Vegetable Exports from Kenya and Elsewhere." *Food Policy* 30 (3): 316–33.
- Kaiser Associates Economic Development Partners. 2014. "Sector Case Study Agribusiness." In *Making Foreign Direct Investment Work for Sub-Saharan Africa: Local Spillovers and Competitiveness in Global Value Chains*, edited by T. Farole and D. Winkler, 163–207. Washington, DC: World Bank Group.
- Kenya HCD (Horticulture Crops Directorate). 2019. "Horticulture – Validated Report 2017–2018." Kenya Agriculture and Food Authority, Nairobi.
- Kimuyu, Hilary. 2020. "Kenya: COVID-19: KQ Converts Passenger Planes into Cargo Freighters." AllAfrica, April 13, 2020. <https://allafrica.com/stories/202004140083.html>.
- Koigi, Bob. 2016. "EU Policy on Kenyan Exports Creating a Local Health Crisis." Euractiv, December 12, 2016. <https://www.euractiv.com/section/development-policy/news/eu-policy-on-kenyan-exports-creating-a-local-health-crisis/>.
- Krishnan, A. 2017. "The Origin and Expansion of Regional Value Chains: The Case of Kenyan Horticulture Global Networks." *Global Networks* 18 (2): 238–63.
- Krishnan, Aarti, and Christopher Foster. 2017. "A Quantitative Approach to Innovation in Agricultural Value Chains: Evidence from Kenyan Horticulture." *European Journal of Development Research* 30 (1): 108–35.
- McCulloch, N., and M. Ota. 2002. "Export Horticulture and Poverty in Kenya." IDS Working Paper 174, Institute of Development Studies, Brighton, U.K.
- Minot, N., and M. Ngigi. 2004. "Are Horticultural Exports a Replicable Success Story? Evidence from Kenya and Côte d'Ivoire." EPTD Discussion Paper, International Food Policy Research Institute, Washington, DC.
- Mold, A., and A. Mveyanje. 2020. "The Impact of the COVID-19 Crisis on Trade. Recent Evidence from East Africa." Africa Growth Initiative Policy Brief, Brookings Institution,

- Washington, DC. https://www.brookings.edu/wp-content/uploads/2020/07/EAC_COVID_Mold_Mveyange.pdf.
- Moran, T. H. 2018. "FDI and Supply Chains in Horticulture (Vegetables, Fruits, and Flowers, Raw Packaged, Cut and Processed): Diversifying Exports and Reducing Poverty in Africa, Latin America, and Other Developing Economies." Working Paper 475, Center for Global Development, Washington, DC.
- Muchira, Njiraini. 2019. "EU Steps Up Monitoring of Horticulture Imports." *The East African*, November 17, 2019. <https://www.theeastafrican.co.ke/tea/business/eu-steps-up-monitoring-of-horticulture-imports-1431054>.
- Mwangi, N. 2018. "The Power to Flourish: Unearthing the Roots of Kenyan Flower Producers' Market Access Strategies." PhD thesis, Cambridge University.
- Otieno, Gloria, and Peter Knorranga. 2012. "Localizing Global Standards. Illustrative Examples of Kenya's Horticulture Sector." In *Global Value Chains: Linking Local Producers from Developing Countries to International Markets*, edited by M. P. van Dijk and J. Trienekens, 119–36. Amsterdam: Amsterdam University Press.
- Pais, Gillian, Kartik Jayaram, and Arend van Wamelen. 2020. "Safeguarding Africa's Food Systems through and beyond the Crisis." McKinsey & Company.
- Pietrobelli, C., and R. Rabellotti. 2011. "Global Value Chains Meet Innovation Systems: Are There Learning Opportunities for Developing Countries?" *World Development* 39 (7): 1261–69.
- Raina, R. S., K. J. Joseph, E. Haribabu, and R. Kumar. 2009. "Agricultural Innovation Systems and the Coevolution of Exclusion in India." Working Paper SIID-07/2009, Systems of Innovation for Inclusive Development Project.
- Reardon, T., C. P. Timmer, C. B. Barrett, and J. Berdegué. 2003. "The Rise of Supermarkets in Africa, Asia and Latin America." *American Journal of Agricultural Economics* 85 (5): 1140–46.
- Roussi, Antoaneta. 2020. "Kenya Farmers Face Uncertain Future as Covid-19 Cuts Exports to EU." *Financial Times*, June 4, 2020. <https://www.ft.com/content/05284de8-c19f-46de-9fe7-482689be364b>.
- Smartfarmer Digital. 2020. "Good News for Flower and Horticulture Sectors." Smartfarmer Kenya, April 28, 2020. <https://smartfarmerkenya.com/good-news-for-flower-and-horticulture-sectors/>.
- Tyce, M. 2020. "A 'Private-Sector Success Story'? Uncovering the Role of Politics and the State in Kenya's Horticultural Export Sector." *Journal of Development Studies* 56 (10): 1877–93.
- UNCTAD (United Nations Conference on Trade and Development). 2009. *World Investment Report 2009: Transnational Corporations, Agricultural Production and Development*. Geneva: UNCTAD.
- Waitathu, Nicholas. 2014. "Fresh Produce Farmers, Firms Banned from European Union." *The Standard*, August 12, 2014. <https://www.standardmedia.co.ke/article/2000131207/fresh-produce-farmers-firms-banned-from-european-union-market>.
- Weinberger, K., and T. A. Lumpkin. 2007. "Diversification into Horticulture and Poverty Reduction: A Research Agenda." *World Development* 35 (8): 1464–80.
- Whitaker, M., and S. Kolavalli. 2006. "Floriculture in Kenya." In *Technology, Adaptation, and Exports: How Some Developing Countries Got It Right*, edited by V. Chandra, 335. Washington, DC: World Bank.
- World Bank. 1989. *Successful Development in Africa: Case Studies of Projects, Programs, and Policies*. Washington, DC: World Bank.
- World Bank. 2020. *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. Washington, DC: World Bank.