



Kingdom of the Netherlands

## HORTICULTURE STUDY

*Phase 1: Mapping of production of fruits and Vegetables in  
Kenya*



Study commissioned by the  
Embassy of the Kingdom of the Netherlands and undertaken by



**Match Maker  
Associates**

**Final Report**  
March 2017

## Table of Content

<b>LIST OF TABLES AND FIGURES</b> .....	<b>II</b>
<b>ACRONYMS</b> .....	<b>III</b>
<b>1. ABSTRACT</b> .....	<b>1</b>
<b>2. INVENTORY OF HORTICULTURAL PRODUCTS</b> .....	<b>5</b>
2.1 Kenya Horticultural Products (showing types, where they are grown, volumes.....	5
2.2 Production Calendar of shortlisted main horticultural crops .....	8
2.3 Production and Export trends for past 5 years for main horticultural products ...	11
2.4 Main actors in Horticultural value chains.....	13
2.5 Permits, Logistics requirements & challenges (from Farm to EU destinations) ...	17
2.6 Analysis of the enabling business environment.....	19
2.7 Institutional Landscape of Horticulture .....	22
2.8 Support programmes / initiatives (indicate their current and future plans) .....	24
<b>3. SUMMARY OF EMERGING INVESTMENT OPPORTUNITIES</b> .....	<b>30</b>
<b>ANNEXES</b> .....	<b>31</b>
ANNEX 1: PRODUCTION AND TARGET MARKETS FOR FRUITS AND VEGETABLES – KENYA .	31
ANNEX 2: USEFUL CONTACTS .....	33

## LIST OF TABLES AND FIGURES

TABLE 1: MARKET WINDOW OF OPPORTUNITY FOR KENYA.....	3
TABLE 2: INVENTORY OF MAJOR FRUITS AND VEGETABLES IN KENYA - 2015.....	5
TABLE 3: CROP CALENDAR OF SHORTLISTED FRUITS AND VEGETABLES IN KENYA DESTINED TO EU MARKETS... 8	8
TABLE 4: KENYA CROP CALENDAR MAJOR FRUITS AND VEGETABLES DESTINED TO EU MARKET .....	10
TABLE 5: HORTICULTURE PRODUCTS PERFORMANCE TRENDS 2013 - 2015 .....	11
TABLE 6: EXPORT TRENDS FOR FRUITS AND VEGETABLES 2011 - 2015 KENYA.....	12
TABLE 7: POLICIES AND REGULATORY FRAMEWORKS .....	19
TABLE 8: SUPPORT PROGRAMMES AND INITIATIVES FOR THE PROMOTION OF HORTICULTURE.....	24
TABLE 9: TRENDS OF HORTICULTURE CROPS PERFORMANCE IN KENYA 2010 - 2015 .....	31
TABLE 10: PRODUCTION TRENDS OF ASSORTED VEGETABLES IN KENYA 2012 - 2015 .....	31
TABLE 11: PRODUCTION TRENDS OF ASSORTED FRUITS IN KENYA 2012 - 2015.....	32
 FIGURE 1: PRODUCTION CLUSTER OF HORTICULTURE IN KENYA.....	 8

## Acronyms

3PL	Third Party Logistics
3R Kenya	Resilient, Robust and Reliable – from Aid to Trade
AAK	Agrochemicals Association of Kenya
AFA	Agriculture and Food Authority of Kenya
ASALS	Arid and Semi-Arid Lands
ASK	Agricultural Society of Kenya
ASSIP	Automated Support System for the Importation of Phyto sanitary Consignments
BDS	Business Development Services
BMGF	Bill & Melinda Gates Foundation
BRC	British Retail Consortium
CBA	Collective Bargaining Agreement
CBI	Centre for the Promotion of Imports from developing countries
CBK	Central Bank of Kenya
CSF	Critical Success Factors
DANIDA	Danish International Development Agency
EAG	East African Growers Limited
EC	European Commission
EKN	The Embassy of the Kingdom of the Netherlands
EMCA	Environmental Management and Coordination Act
EPA	Economic Partnership Agreements
EPC	Export Promotion Council in Kenya
EPZ	Export Processing Zone
ETI	Ethical Trade Initiative
EU	European Union
FDI	Foreign Direct Investment
FDOV	Facility for Sustainable Entrepreneurship and Food Security
FGD	Focussed Group Discussion
FPEAK	Fresh Produce Exporters Association of Kenya
GOK	Government of Kenya
HACCP	Hazard analysis and critical control points
HortIMPACT	Project under KMHP implemented by SNV Kenya
HPTC	Horticulture Practical Training Centre, FPEAK
IPM	Integrated Pests Management
ISO	International Organisation for Standardisation
ITC	The International Trade Centre
JKIA	Jomo Kenyatta International Airport Nairobi Kenya
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KALRO	Kenya Agricultural and Livestock Research Organisation
KENFAP	Kenya National Federation of Agricultural Producers
KEPHIS	Kenya Plant Health Inspectorate Service
KEPSA	Kenya Private Sector Alliance
KES	Kenyan Shillings (USD 1 = 100 KES)
KHC	Kenya Horticulture Council
KHE	Kenya Horticultural Exporters 1977 Limited
KHCP	Kenya Horticulture Competitiveness Project
KMHP	Kenya Market-led Horticulture Program Nairobi
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
MALF	Ministry of Agriculture, Livestock and Fisheries
MAPS	Medicinal and Aromatic Plants
MITC	Ministry of Industry, Trade and Cooperatives
MMA	Match Maker Associates Limited
M&S	Marks & Spenser
MRL	Maximum Residual Levels
NACOSTI	National Commission for Science, Technology and Innovation
NL	The Netherlands

PALWECO	Programme for Agriculture and Livelihoods in Western Communities in Kenya
PSD	Private Sector Development
RVO	Rijksdienst voor Ondernemend - Netherlands Enterprise Agency
SME	Small and Medium Enterprises
SPS	Sanitary and Phytosanitary
TSB	Tender Stem Broccoli
UK	United Kingdom
USA	United States of America
VAT	Value Added Tax

## 1. Abstract

Kenyan agriculture accounts for 65 per cent of the country's export earnings. The cash crops that drive these earnings include coffee, tea, tobacco, cotton, sisal, pyrethrum, cashew nuts, and horticulture.

While Kenya was not an exporter of the horticulture products in the 70s, it is now the major exporter to the EU, where it accounts for almost 40% of all cut flower into the EU. The main EU markets are Holland, Switzerland, Germany, France, and United Kingdom. As a powerhouse export segment and major engine for the agriculture sector, Kenyan horticulture has made enormous strides in recent years, despite an increasingly challenging and complex regulatory landscape in its key market, the EU.

According to Kenya National Bureau of Statistics (KNBS), the total horticulture export was about US\$ 1 billion in 2013. Floriculture sub sector accounts for a significant proportion of horticulture exports. Flowers accounts for more than two thirds of Kenya's horticulture export earnings while vegetables and fruits comprise about 20 per cent and 10 per cent respectively. Production and export volumes rose in 2014, profits in some segments contracted as a result of currency fluctuations. Yet on going value-addition initiatives, coupled with the renewal of a critical bilateral agreement with the EU, should see the sector's performance improve in the near future.

In 2014, vegetables contributed 36 per cent to the domestic value of horticulture. The area, production, and value were 326,837 Ha, 4.1 million MT and KES 70.9 billion (\$641 million) respectively. The area under vegetables, production, and value all increased by 26, 12, and 11 per cent. The leading vegetables in production and value were Irish potatoes, tomatoes and cabbages. In 2014, fruits contributed US\$500 million accounting for 26 per cent of the domestic value of horticultural produce. The area under fruit was 159,301 Ha with a production of 3.3 million MT. Although the area under fruits declined by 32 per cent from the 2013 level, production and value increased by seven and three per cent respectively. The major fruits grown in order of importance were; banana mangoes, pineapples, avocado, pawpaw, oranges, watermelon, and passion fruit (AFA, 2014).

The value of exports of fresh horticultural produce increased from US\$816 million in 2014 to US\$877 million in 2015. This was attributed to better unit prices for vegetables and higher volumes of fruits exported. The value of vegetables exported increased by 11.2 per cent from US\$182 million in 2014 to US\$203 million in 2015<sup>1</sup>.

Kenya's earnings from horticulture exports rose 20% to KES 77.81 billion (\$755 million) in the first nine months of 2016 compared to 2015 (KNBS, 2016). The KNBS data showed flower exports contributed US\$523 million, or 69% of the earnings, with the rest 31% coming from the export of fruits and vegetables. Horticulture is a key foreign exchange earner alongside tea, remittances from Kenyans living abroad and tourism. Exports of flowers, fruits and vegetables earned Kenya a total of US\$877 million in 2015.

Kenyan fine beans and runner beans are renowned world over. Other popular legumes from Kenya include mange tout, sugar snaps and garden peas; however, Kenya fruit and vegetables in the EU receive stiff competition from Ecuador and Colombia, Chile and Peru, Israel, Egypt and Morocco (bobby beans). Kenyan mango exporters have captured Middle East market after participating in the Gulf Food Show in February 2015. The fruits now have more visibility and imports are expected to exceed the current \$1.1 million. Kenyan

---

<sup>1</sup> <http://sokodirectory.com/2016/05/performance-of-agricultural-sector-improved-in-2015/> visited 30<sup>th</sup> November 2016

mangoes are on demand in the Middle East (especially UAE) because supplies from the traditional markets of China and India are off-season between November and April.

In order to improve margins, Kenya has focused on enhancing production efficiency and diversifying to other non-traditional export markets such as the Middle East, China, Japan, Australia and New Zealand. It also sought to maintain competitive advantage by focusing on products that have higher standards, SPS and others, by increasing variety and product differentiation, and by shipping direct to the major supermarket chains. This meant introducing a wide range of chilled, prepared food products and a diversity of fruits and vegetables. It also meant exporting vegetables as higher value products including mixed salads and cut vegetables for stir-fry mixes. This value-added processing contrasts with fruits, fresh vegetables and cut-flower export sectors, which have relatively little processing other than grading, packing, and labelling. This resulted in a change from trading operations to integrated food processing that required investments in facilities and systems to produce higher value pre-packed produce.

The airfreight infrastructure at Jomo Kenyatta International Airport (JKIA) is instrumental in facilitating high volume of export of fresh fruits and vegetables from Kenya. The Cargo Apron at JKIA has now been expanded to accommodate eight (8) wide-bodied aircrafts at any one time. Additionally, there are five (5) transit sheds equipped with state of the art cold rooms namely: Kenya Airfreight Handling, Africa Cargo Handling, Swissport, Siginon Freight and Trans Global Cargo Centre with a capacity of approximately 1,000,000 tons of cargo annually. Kenya Aviation Authority (KAA) who manages all airports in Kenya has also expanded roads, improved the lighting, water and sewerage systems and provided adequate parking facilities at JKIA.

On a weekly basis, the four (4) major overland, sea freight and airfreight clearing and forwarding companies handle over 3,000MT of fresh horticultural products (70% Flowers and remainder fruits and vegetables) by air at JKIA, namely Kuehne + Nagel (about 1,200MT/week), Panalpina (1,100MT/week), Air Connection (500MT/week) and VegPro (500MT/week). These four companies command over 60% of all horticultural freight through JKIA; whereas, small freight companies and large companies with own freight department/company handle the rest. Significant players in the overland, sea freight and airfreight clearing and forwarding in Kenya include Siginon Group, Bollore Logistics and Cargolux, one of the top ten global cargo airlines. Other large passenger airlines such as Kenya Airways, KLM, Qatar Airways, Ethiopian Airlines, etc. are active in freighting fresh horticultural cargo from JKIA to various EU and Middle East destinations, albeit in much small volumes compared to specialised cargo airlines.

Apart from cargo-only operators like DHL, UPS, Cargolux, etc. that fly into Africa from other regions, foreign airlines with devoted cargo aircraft such as Ethiopian Cargo, Kenya Airways Cargo (KQ Fresh), and large passenger aircraft with ample cargo-hold such as KLM and Qatar Airways are intensifying their quest into Africa. Qatar Airways, for instance, serves Johannesburg, Khartoum, Lagos, Accra, Nairobi, Entebbe, and, like other big foreign airlines, is fast expanding. Africa's share of global airfreight traffic is still low at 2%, creating room for expansive growth<sup>2</sup>.

Emerging niche products from Kenya will remain to be herbs especially chives, basil coriander, thyme and rosemary that are destined to EU (United Kingdom, France, Netherlands, Germany, Belgium) whereas rosemary is also exported to Middle East, Russia and Djibouti. Tender stem broccoli (TSB) is also gaining popularity for EU especially the UK market.

---

<sup>2</sup> <http://www.aviationbusinessjournal.aero/2016/2/8/redefining-the-future-of-air-cargo-in-africa.aspx>

Despite all achievements the sector has faced a number of challenges the main ones being:

- (i) Low availability of capital and limited access to affordable credit for horticultural farmers.
- (ii) Low productivity in horticulture caused by inadequate credit to finance purchase of inputs and capital investment. High interest rates make it difficult for horticultural farmers to access credit. This is making the situation worse because it results into unaffordability, adulteration and consequently low application of key inputs.
- (iii) Inadequate storage and Packhouse facilities constrain marketability of horticultural products. Lack of processing facilities close to the sources of produce has also limited the extent of exploitation of the sub-sector potential, and reduction of post harvest losses.
- (iv) Horticultural marketing information and infrastructure is poorly organized. The domestic market lacks an effective information system and infrastructure.
- (v) The over dependence on external market outlets (mainly EU) makes horticulture very vulnerable to changes in the demand of horticultural products and unexpected non-trade barriers by foreign markets. For instance after Brexit, EU traders' orders of fresh beans dwindled during the usual peak season (September – December) and exporters resorted in dumping to Middle East traders and local market
- (vi) Underdeveloped rural roads and other key physical infrastructure have led to high costs of transporting horticultural products to the markets and farm inputs. This has continued to reduce the competitiveness of the Kenyan horticultural produce. In addition, electricity in rural areas is expensive or even unavailable thereby reducing investment in cold storage facilities, irrigation and agro-processing.
- (vii) Horticulture farmers and off takers have been subjected to multiple number of taxes at both national and local levels in the form of cess without corresponding provision of requisite services. This has contributed to reduction in the net farm incomes and created distortions in marketing structures without necessarily improving the revenues for local authorities and quality control systems.

The following opportunity window for different horticultural crops to EU/UK has been established based on the market scan done as part of this study and is summarised in table 1 below.

Table 1: Market window of opportunity for Kenya

Product	Peak demand months in EU/NL	Remarks
Avocado	February- September	Hass Avocado: (available from mid June – mid September); Fuerte Avocado (from March/April – mid September)
Mango	October – Mid November May - July	Apple & Keitt Mango (available from November – March); Kent Mango (from February – March); Ngowe Mango (from November – March and again from May – July).
Fine Beans & extra fine beans	All Year Round	Perfect match available all year round (varieties: Amy, Teresa, Samantha, Serengeti, Julia and Paulista)
Sugar Snaps, Mange tout	April – May October- November	Perfect match available all year round (sugar snaps Cascadia variety)
Herbs (Chives, basil, coriander, thyme and rosemary)	Unknown	Kenya is a good supplier to United Kingdom, France, Netherlands, Germany, Belgium

Main investment opportunities in the horticultural industry in Kenya include:

- (i) **Investing in increased production** and productivity for export oriented fruits (avocado and passion fruit) high value vegetables (tender stem broccoli) and herbs (chives, basil, etc.) in new farms or in strategic collaboration with existing investors in Kenya.
- (ii) **Investing as third party logistics (3PL)** company specialising in establishing ***cold chain*** from farm level to the export point (JKIA for airfreight) and Mombasa Port for sea freight). Celtic Cooling has already designed mobile cold rooms/containers that can be used as mobile collection centres and could be loaded on trucks. These containers use power efficiently. Celtic Cooling has Office in Nairobi Kenya and already offers storage solutions for a number of horticulture exporters in Kenya
- (iii) **Fruits and vegetable processing: canning and pulping facility** especially for fruits (Mangoes, papaya, etc.).
- (iv) **Investment in Marketing and Distribution** in the source markets (UK & EU) in partnerships with Kenya exporters.
- (v) **Investment in potato storage technologies** and developing inventory credit system (ICS) that can assist potato producers and traders. EKN/SNV project (HortIMPACT) is interesting partner in this initiative and could make matching grant available for a competitive and innovative concept.
- (vi) **Investment in quality supply chain of niche products (fresh herbs and TSB) from Kenya:** especially chives, basil coriander, thyme and rosemary for EU market as well as Tender stem broccoli (TSB) for the UK market.

## 2. Inventory of Horticultural Products

The horticultural industry in Kenya has been very successful in the last three decades. Among the existing agricultural enterprises, horticulture offers the best alternative for increased food self-sufficiency, food security, improved nutrition, foreign exchange earnings and ensuring the generation of increased incomes and employment. Kenya has a long history of growing horticultural crops for both domestic and export markets. Kenya's ideal tropical and temperate climatic condition makes it favourable for horticulture production and development. The horticultural industry has grown from its base of small business/farmer, to being dominated by sophisticated businesses that are becoming increasingly vertically integrated.

Currently the horticulture industry is the fastest growing agricultural sub-sector and is ranked third in terms of foreign exchange earnings from exports after tourism and tea. Fruits, vegetable and cut flower production are the main aspects of horticultural production in Kenya, however increasingly, medicinal and aromatics plants (MAPS), which include herbs and spices are being produced. In 2015 Kenya produced 12 Million MT of horticultural produce valued at KES 211 Billion. Major fruits grown are avocado, mango, passion fruit, pineapple, banana, pawpaw, and water melon; while vegetables include tomato, kale, cabbage, onion, potato, French beans, chillies, snow peas, sugar snaps, runner beans, baby corn, garden peas, Asian vegetables (e.g. Okra, Dudhi, Valore, Turia), herbs and spices.

### 2.1 Kenya Horticultural Products (showing types, where they are grown, volumes (per annum), export destinations)

Table 2 below shows some of the major products, where they are produced and exported volume and destination markets in 2015. Figure 1 thereafter shows the production cluster.

Table 2: Inventory of major fruits and vegetables in Kenya - 2015

S No	Horticultural Products	Where they are grown	Exported Volumes MT (2015)	Export Destinations
	<b>FRUITS</b>			
1.	Avocado	Central highlands of Kenya mainly Muranga, Thika, Makeni, Embu, Nyeri and Meru areas. Though there are other avocado growing areas outside Central Kenya such as Kisii, Eldoret, Bungoma, Subukia, Nakuru and Naivasha.	31,227	United Kingdom, France, Netherlands, Germany, Belgium, Sweden, Djibouti, Middle East, South Africa, Australia, China
2.	Mango	Major production counties ranked in order based on production are Makeni, Kwale, Kilifi, Machaon, Nery, Embu, Meru, Bun Goma, Taraba Nidhi, and Elegy Market.	14,048	United Kingdom, Germany, Holland, France, Japan and Middle East
3.	Passion fruit	Theca, Nery, Embu, Meru, Trans-Noida, Usain Gishu, Kwale, Elegy Market, and Laikipia are the major producing Counties.	404	United Kingdom, France, Germany, Belgium, Middle East.
	<b>VEGETABLES</b>			

S No	Horticultural Products	Where they are grown	Exported Volumes MT (2015)	Export Destinations
1.	Fine beans	Kirinyaga, Muranga, Meru, Machakos, Narok, Kiambu, Taita Taveta, Embu, Nyeri, Bomet, Makueni , Kajiado	23	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
2.	Extra Fine beans			
3.	Snow Peas	Meru. Nyandarua, Laikipia, Taita Taveta, Kiambu, Narok, Baringo, Nyeri, Trans Nzoia, Nakuru	17	United Kingdom, France, Netherlands, Germany, Belgium, Djibouti, Saudi Arabia, United Arabs Emirates
4.	Sugar Snaps	Meru, Trans Nzoia, Taita Taveta produce 98% of sugar snap grown. Other counties include Uasin Gishu, Narok, Elgeyo Marakwet, Laikipia, Nyeri	17	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
5.	Tender stem broccoli (TSB)	Meru. Nyandarua, Laikipia, Kiambu, Narok, Thika, Nyeri, Naivasha, Nakuru, Migori, Siaya	627	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
6.	Snow Mangetout	Kirinyaga, Muranga, Meru, Machakos, Narok, Kiambu, Taita Taveta, Embu, Nyeri, Bomet, Makueni , Kajiado	2,607	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
7.	Runner beans	Grown by large-scale growers in Meru, Nyandarua and Migori.	391	United Kingdom, France, Netherlands, Germany, Belgium, Djibouti, Saudi Arabia, United Arabs Emirates
8.	Aubergines	Nyeri, Makueni, Meru, Kwale, Muranga, Machakos, Naivasha, and Nakuru	994	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
9.	Baby corn	Makueni, Kirinyaga, Machakos, Laikipia counties account for 94% of production.	75	United Kingdom, France, Netherlands, Germany, Belgium, Djibouti, Saudi Arabia, United Arabs Emirates
10.	Baby carrot	Meru. Nyandarua, Laikipia, Taita Taveta, Kiambu, Narok, Thika, Nakuru, Nyeri	10.5	United Kingdom, France, Netherlands, Germany, Belgium,
11.	Baby courgettes	Makueni, Kirinyaga, Machakos, Laikipia, Naivasha, Meru, Nyandarua,	14.5	United Kingdom, France, Netherlands, Germany, Belgium,

S No	Horticultural Products	Where they are grown	Exported Volumes MT (2015)	Export Destinations
12.	Baby Leeks	Makueni, Kirinyaga, Machakos, Laikipia, Naivasha, Nyeri Meru. Nyandarua,	9	United Kingdom, France, Netherlands, Germany, Belgium,
13.	Chillies	Makueni, Kirinyaga, Machakos, Laikipia, Naivasha Meru. Nyandarua, Embu	926	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
14.	Irish potatoes	Central highlands mainly Nyandarua, Nyeri, Meru, Kiambu. Other areas are Elgeyo Marakwet, Nakuru, Narok, Bomet, Muranga, Baringo and Uasin Gishu	131	Vibrant domestic and regional market
	<b>HERBS</b>			
1.	Chives	Highland regions in Meru, Laikipia, Nyeri, Naivasha, Nakuru, Kirinyaga, Embu, Kajiado	80	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East
2.	Basil	Meru, Laikipia, Nyeri, Naivasha, Nakuru, Kirinyaga, Embu Kajiado,	206	United Kingdom, France, Netherlands, Germany, Belgium
3.	Coriander	Kiambu, Kisii, Nakuru, Muranga, Narok, Uasin Gishu, Laikipia and Meru.	16.5	United Kingdom, France, Netherlands, Germany, Belgium
4.	Thyme	Kajiado, Meru, Laikipia, Nyeri, Naivasha, Nakuru, Kirinyaga, Embu	13	United Kingdom, France, Netherlands, Germany, Belgium
5.	Rosemary	Nyandarua, Nyeri, Meru, Kiambu, Elgeyo Marakwet, Nakuru, Narok, Bomet, Muranga, Baringo and Uasin Gishu, Naivasha, Nakuru, Kirinyaga, Embu Kajiado,	7	United Kingdom, France, Netherlands, Germany, Belgium, Russia, Djibouti, Middle East

Source: HCD, 2015



Figure 1: Production cluster of horticulture in Kenya.

## 2.2 Production Calendar of shortlisted main horticultural crops

Horticultural crops in Kenya can be produced in a wide range of ecological zones from the high and mid rainfall regions to the semi-arid and arid regions. The wide geographical and climatic diversity together with complementary irrigation have allowed production of different types of horticultural crops that target both domestic and export markets. Consequently, Kenya is able to produce horticultural products year round as further shown in Table 3 and visualised in Table 4 below.

Table 3: Crop calendar of shortlisted fruits and vegetables in Kenya destined to EU markets

S No	Horticultural Products	Type	Crop calendar	Rain fed or irrigated?
<b>FRUITS</b>				
1.	Avocado	Hass Avocado	June to mid-September.	Both rain fed and irrigated
		Fuerte Avocado	Starts from March/April	"
2.	Mango	Apple Mango	November – March	"
		Kent Mango	February – March	"
		Ngowe Mango	November – March May – July	"
		Keitt Mango	November – March	"
3.	Passion fruit	Purple passion fruit	All year round	Irrigated
4.	Strawberries	Chandler, Pajaro, Aiko, Douglas, Fern and Cambridge	All year round	Irrigated

5.	Pineapples	Sweet, Smooth Cayenne, and Baby Kenya Pineapples	All year round	Irrigated
	<b>VEGETABLES</b>			
1.	Fine beans	Amy, Teresa, Samantha, Serengeti, Julia and Paulista	All year round	Irrigated
2.	Extra Fine beans	Amy, Teresa, Samantha, Serengeti, Julia and Paulista	All year round	Irrigated
3.	Snow Peas	Oregon Sugar Pod II, Sweet Horizon or Snow Wind	All year round	Irrigated
4.	Tender stem broccoli (TSB)		All year round	Irrigated
5.	Sugar Snaps	Cascadia	All year round	Irrigated
6.	Runner beans		All year round	Irrigated
7.	Baby corn	Thai Gold, SG18	All year round	Irrigated
8.	Baby carrot	Nantes, Super Kuroda	All year round	Irrigated
9.	Baby courgettes		All year round	Irrigated
10.	Baby Leeks	King Richard, Varna, Dawn giant, Alibinstar baby and American flag varieties	All year round	Irrigated
11.	Irish potatoes	Annet, Arka, Asante, Arizona, Bvumbu, Caruso, Connect, Derby, Destiny, Dutch Robijn, Desiree, Eburu, El-Mundo, Faluka, Kerr's Pink, Kenya Baraka, Kenya Mavuno, Kenya Mpya, Kenya Karibu, Jelly, Markies, Pimpernel, Romano, Roslin, Royal, Rumba, Rudolph Shanghi, Unica among others	All year round	Irrigated and rain fed

Source: MMA interview with HCD and FPEAK, November 2016

Table 4: Kenya Crop Calendar major fruits and vegetables destined to EU market

S No	Horticultural Products	Type	January	February	March	April	May	June	July	August	September	October	November	December
	<b>FRUITS</b>													
1	Avocado	Hass Avocado												
		Fuerte Avocado												
2	Mango	Apple Mango												
		Kent Mango												
		Ngowe Mango												
		Keitt Mango												
3	Passion fruit	Purple passion fruit												
4	Strawberries	Chandler, Pajaro, Aiko, Douglas, Fern and Cambridge												
5	Pineapples	Sweet, Smooth Cayenne, and Baby Kenya Pineapples												
	<b>VEGETABLES</b>													
1	Fine beans	Amy, Teresa, Samantha, Serengeti, Julia and Paulista												
2	Extra Fine beans	Amy, Teresa, Samantha, Serengeti, Julia and Paulista												
3	Snow Peas	Oregon Sugar Pod II, Sweet Horizon or Snow Wind												
4	Tender stem broccoli (TSB)													
5	Sugar Snaps	Cascadia												
6	Runner beans													
7	Baby corn	Thai Gold, SG18												
8	Baby carrot	Nantes, Super Kuroda												
9	Baby courgettes													
10	Baby Leeks	King Richard, Varna, Dawn giant, Alibinstar baby and American flag varieties												
11	Irish potatoes													

### 2.3 Production and Export trends for past 5 years for main horticultural products

Horticulture sector in Kenya is most dynamic experiencing an annual growth of 15% as shown in Table 5 and Table 6 below. The area under production has continued to expand and in 2015 was approximately to 719,158 Ha. Production in 2015 stood at about 13 thousand MT valued at USD 2110 Million<sup>3</sup>. The total volume of fresh horticultural exports has also increased by 10.4 per cent from 105 thousand MT in 2014, to 116 thousand MT in 2015. The increase was occasioned by increase in fresh fruit exports, which rose by 31.4 per cent to 46 thousand MT. Cut flower exports recorded a decelerated growth of 7.0 per cent in volume in 2015 compared to the 8.7 per cent growth recorded in 2014. Earnings from cut flowers, mainly exported to the European Union through the Netherlands, have maintained an upward trend since 2013 increasing by 5.0 per cent to USD 629 Million in 2015. The volume of vegetable exports declined for the second year running partly due to delays in signing the Economic Partnership Agreement (EPA) and stringent checks for pesticide levels (KNBS, 2015). However, vegetable export earnings increased from USD 188 Million in 2014 to USD 209 million in 2015. Under the vegetable category major products are potato, tomato, kale, cabbage for the domestic, while French beans, snow peas, sugar snaps and baby corn dominant the export markets. Banana is a major commodity on the domestic market and avocado, mango and passion fruits are the major fresh fruit exports. Herbs and spices are emerging products category increasing in production and values from 177 thousand MT valued at USD 69 Million in 2014 to 265 thousand MT valued at USD 73 Million in 2015.

Table 5: Horticulture products performance trends 2013 - 2015

Category	2013			2014			2015 (Provisional)		
	Area (Ha)	Quantity (MT)	Value (Million USD)	Area (Ha)	Quantity (MT)	Value (Million USD)	Area (Ha)	Quantity (MT)	Value (Million USD)
<b>Vegetables</b>	258,354	3,629.7	636.9	280,541	3,613.8	641.0	294,568	5,420.7	673.0
<b>Flowers</b>	4,049	105.5	560.0	4,085	114.7	598.9	4,289	172.1	628.9
<b>Fruits</b>	232,715	3,118.5	500.0	280,192	4,303.3	608.1	294,202	6,455.0	638.6
<b>Nuts</b>	86,901	171.2	92.8	103,801	224.2	96.0	108,991	336.3	100.8
<b>Maps</b>	14,855	232.2	79.4	16,293	176.9	69.5	17,108	265.3	72.9
<b>Total</b>	<b>596,874</b>	<b>7,257.1</b>	<b>1,869</b>	<b>684,912</b>	<b>8,432.9</b>	<b>2,013.5</b>	<b>719,158</b>	<b>12,649.4</b>	<b>2,114.2</b>

Source: Agriculture, Fisheries and Food Authority, HCD 2016

<sup>3</sup> Provisional data – AFFA, 2015

Table 6: Export trends for fruits and vegetables 2011 - 2015 Kenya

Product	2011		2012		2013		2014		2015*	
	Value (USD Million)	Volume (000 MT)								
<b>Vegetables</b>	263	79.2	202	66.4	229	77.2	188	70.3	209	69.7
<b>Fruits</b>	35	27.1	47	31.1	48	31.1	54	35.1	66	46.2
<b>Totals</b>	<b>298</b>	<b>106.3</b>	<b>249</b>	<b>97.5</b>	<b>277</b>	<b>108.3</b>	<b>244</b>	<b>105.4</b>	<b>275</b>	<b>115.9</b>

Source: Agriculture, Fisheries and Food Authority, HCD 2016

\*Provisional

**NOTE:** Export volume from Kenya is higher than what is produced in Kenya because large exporters imports from Tanzania for export

## 2.4 Main actors in Horticultural value chains and short description of their business models / supply chain arrangements

Major importing countries of Kenya's horticultural produce are mainly in the European Union (EU). UK has the largest share in fruits and vegetables while the Netherland on flowers. Other export destinations include United States of America (USA), Canada, Middle East, Japan, Russia, South Africa and Australia. Competition in these markets is stiff due to a large number of other international suppliers such as the Colombia, Ecuador, Ethiopia, Spain, Morocco, Israel, Egypt, India and China among others.

Kenya's right climate, competitive labour and good market access in terms of regular flights has made it successful in growing horticultural crops particularly for the export market. Export horticulture is an important source of income for the resource poor in the peri-urban and rural areas either through smallholder out grower schemes or through employment on commercial farms. Smallholder production constitutes 80% of all growers and produces 60% of total horticultural exports. There are over 200 fruits and vegetables exporters in Kenya of whom 137 are active members of FPEAK. Majority are small and medium scale (SMEs) and about 20% of large companies.

Their major characteristics of horticulture exporters in Kenya are summarised hereunder:

### **Small-scale exporters (e.g. Pino Agencies):**

- Work with 2<sup>nd</sup> tier importers (don't work directly with retail chains)
- Rely hired Packhouse (currently HCD facility at JKIA) for final packaging and documentation prior to shipping
- Bulking is mainly from brokers and smallholder farmers
- Most don't own farms
- Absence of cold chain infrastructure
- Focus on less perishable fruit and vegetables for EU market (French beans and avocado) and focus more on non-EU markets. No obligation to comply to EU standards to export to Middle East and South Africa
- Active in local market especially food service sector.

### **Medium scale exporters (e.g. WAMU Investments, Kandia Fresh Produce Suppliers Ltd, Kankam Exporters Ltd, Kenya Fresh Produce Exporters Ltd, Hillside Green Growers and Exporters, Afyan Fresh Produce, etc.):**

- Work with 2<sup>nd</sup> tier importers and some retail chains (supermarkets)
- Own small Packhouse for final packaging and documentation prior to shipping
- Bulking is mainly from brokers and certified outgrower farmers (GlobaGAP)
- Some own small farms (up to 20% products from own farms)
- Absence of cold chain infrastructure
- Focus on less perishable fruit and vegetables for EU market (French beans and avocado) and focus more on non-EU markets. No obligation to comply to EU standards to export to Middle East and South Africa
- Some have started to access EU markets and engage in highly perishable products e.g. TSB, chives, etc.

### **Large exporters (e.g. VP Group (VP Food), Sunripe (1976) Ltd, EAG Group, Mara EPZ Ltd, Keitt Exporters Ltd, Kakuzi, AAA, Kenya Horticultural Exporters – KHE, etc.):**

- Work with both 2<sup>nd</sup> tier traders and directly with retailers (supermarkets)
- Own medium/large pack house for final packaging and documentation prior to shipping
- Bulking is mainly from certified outgrower farmers (GlobaGAP)
- Some own large farms (up to 40% products from own farms)
- Presence of cold chain infrastructure

- Some own high care facilities (HCF)
- Focus on all range of perishable fruit (avocado, passion fruit, mangoes), vegetables for EU market (French beans, snow peas, sugar snaps, baby corns, runner beans, baby carrots, baby leeks, baby courgettes and tender stem broccoli –TSB) and herbs (chives, basil, etc.)
- Supply other non-EU markets such as Middle East, South Africa, Japan, and Hong Kong and Australia.

### **Profile of some key large exporters to EU**

#### VegPro (K) Limited (VP Group)

VP Food is division of VP Group and the largest producer and exporter of fresh produce from Kenya. VP Food has six own farms and manages about 1,700 smallholder farmers in the four major producing areas of Kenya. VP Food own farms and contracted farms produce in strict accordance with stringent and audited European market standards, and adhere to international certification requirements and social corporate responsibility standards. VP Food grows and packs a wide range of quality vegetables all year round. VP Food is also an expert in 'fresh cut' produce including complex added value lines such as stir fries. (<https://www.vegpro-group.com/home.html>).

#### East African Growers Group (EAG Group)

The East African Growers Group is a fully vertically integrated unit, centrally managed via carefully designed and all encompassing strategic plans. The practices are sustainable, eco friendly and equitable to all stakeholders. The group comprises the following legal entities: **East African Growers Ltd:** The flagship of the group which incorporating the executive, operational, administrative functions in addition to the logistical nerve centre of the group. EAG own farms and contracted farms produce in strict accordance with stringent and audited European market standards and adheres to international certification requirements (which include Global Good Agricultural Practices (Global GAP) food safety standards, British Retail Consortium (BRC) and Ethical Trade Initiative - ETI) social corporate responsibility standards.

**Wilham K Ltd:** The groups packing house for consolidating the movements from the various farms for onward airfreighting to EAG's target markets. Wilham's main pack house encompasses the general pack house, a high-care facility, and an export loading area and an office block for marketing, technical and operations teams. The premises are fitted with state of the art cooling systems that support the controlled temperature environment. **Shalimar Flowers K Ltd:** this is EAG's owns Naivasha based and only flower growing farm, acquired in 1998. **Maya Freight K Ltd:** Maya Freight is EAG's in-house cargo agent, to give the Group an over the edge competitive advantage to control its space and accommodate last minute changes. Maya Freight is IATA certified and has received numerous airline awards for outstanding service (<http://www.eaga.co.ke>).

#### Sunripe (1976) Ltd

Sunripe (1976) Ltd is a vertically integrated independent grower, processor, exporter and marketer of fresh vegetables, fruits and flowers. For over 40 years Sunripe has evolved as a leading grower, processor and exporter of highest quality fresh vegetables, packed to the highest standards. Sunripe range includes organic, bulk, conventional, and elaborate lines across a wide range of vegetables and fruits. Sunripe own farms and contracted farms produce in strict accordance with stringent and audited European market standards, and adheres to international certification requirements and social corporate responsibility standards. Sunripe has a fully established vegetable freezing line and produce a range of high quality elaborate and bulk frozen products. Sunripe produces and exports a wide range of high quality tropical fruits, packed and processed in our custom built fruit processing facilities (<http://www.sunripe.co.ke>).

#### Mara Farming Group

Mara Farming Limited is a vegetable and fruit producer and exporter from the African continent that was founded in 2013 by a group of people who had many years of experience in this trade with the

main aim of eliminating the traders in between farmers and the final markets. Through partnerships in Tanzania, Zimbabwe and Ethiopia and with its main operations in Kenya, Mara Farming (now Mara EPZ) is able to supply its international clients year round with Fresh farm fruits and vegetables. Mara EPZ grows vegetables and fruits predominantly for export and currently venturing in to the local market. The rationale behind venturing into the local market is to provide the same high quality fresh vegetables and fruits (minimum to no use of chemicals and fertilizers) to a growing Local clientele that places great importance in how the vegetables and fruits they consume are produced, handled, packaged and delivered. Mara EPZ own farms and contracted farms produce in strict accordance with stringent and audited European market standards, and adhere to international certification requirements and social corporate responsibility standards

(<http://freshneasy.co.ke/who-we-are>).

#### Keitt Exporters Ltd

Keitt Exporters Limited prides itself on being the leading exporter and importer in fruits and vegetables to markets in Europe and the Middle East for over a decade now. Its commitment to quality and consistency has helped Keitt to grow and retain its customers. Keitt Exporters Ltd. is self sufficient in handling every trading activity as it has its own in-house consignment handling systems, ranging from packaging, transportation, warehousing, and documentation to forwarding and shipping etc. Keitt Exporters Ltd. has a wide network of distributors and marketing professionals across the globe. The warehouse of the company is well regulated with separate provisions for the storage of different grades of fruits and vegetables. Keitt Exporters Limited's continuous refrigeration system, is in place during the entire distribution process, guarantees that its fruits and vegetables conserve their freshness, flavour, and high quality until they reach their final destinations and consumers ([http://www.keitt.co.ke/about\\_us.html](http://www.keitt.co.ke/about_us.html)).

#### Kakuzi Limited

Kakuzi Limited is a listed company trading on both the Nairobi and the London Stock Exchange. Kakuzi engages in the cultivation, manufacture and marketing of tea, growing and marketing of avocados, livestock farming, growing of pineapples, macadamia and forestry development. Kakuzi's parent company is Camellia Plc, a UK based corporate, with a 50.7% shareholding. Kakuzi is well known for its avocados. Kakuzi farms 408 Hectares of avocado producing and exporting both Fuerte and Hass cultivars. The Hass season runs from June to mid-September with Fuerte starting a little earlier in March/April. Kakuzi produces the Hass variety of avocado that is in high demand in European Union (EU) markets. This cultivar is termed a "dark skinned" avocado as it turns dark purple when ready to eat. The majority of their Hass exports (70%) are exported to France, while 15% goes to the UK with the balance distributed through other EU countries, Switzerland and Scandinavia.

The temperate climate is perfectly suited to high quality avocado production and our Hass product is known for its good taste and eating quality. Kakuzi is also continuously looking to expand and develop further Hass avocado outgrowers. Kakuzi currently has 196 acres under this initiative and further growth in production is planned. The other avocado cultivar in Kenya is Fuerte, which is grown by Smallholders. This cultivar is termed a "green skin" as the skin remains green as it becomes ripe and ready for eating. Kakuzi buys and exports Fuerte from Smallholders purchasing 1,245 tonnes in 2011. We work closely with Smallholders to improve quality and reliability of supply.

All of Kakuzi's own production is GlobalGap, Tesco's Natures Choice and M&S Field to Fork accredited while the Avocado Packhouse is ISO 22000:2005 accredited. At Kakuzi's Avocado Packhouse all avocados are graded to eliminate fruit with physical quality defects such as insect and wind damage, bruising and sunburn and the fruit is also weight sized. Packed fruit is then placed in cold rooms to cool in preparation for shipping in refrigerated 40ft containers to Europe. The time taken from picking and packing to reaching the European market is 30 days on average (<http://www.kakuzi.co.ke>).

### AAA Growers

AAA Growers is one of the leading exporters of premium & prepared vegetables from Kenya and the largest commercial grower and exporter of chilies from Kenya. AAA Growers aims at providing quality products that redefine what innovative, healthy and delicious vegetables should be. AAA currently harvests 30 MT of gross products a day and export annually over 4,000 Mt of fresh produce by air all over Europe and South Africa to leading retailers. AAA grew from a single production site to four sites, and now AAA cultivates nearly 650 hectares of arable land from its in house production alone, and boasts four custom-built food-processing factories.

AAA is known for its tender stem broccoli (TSB). This product, a cross between conventional broccoli and Chinese kale, developed by Sakata, is a super food, high in glucosinolates and vitamins A, C and B6. A member of the Brassica family of vegetables, tender stem is a delicious from stem to floret. As the largest growers of TSB in Africa, the company has a proven record of accomplishment of year round supply to multiple retailers across Europe and Africa. The product can be supplied in both a premium and prepared range. It is also superb ingredient for “ready to eat” mixes. AAA Growers also buys vegetables it doesn't grow from local outgrowers for processing and export. Out growers are small-scale farmers from whom AAA source vegetables which it doesn't grow such as carrots, red cabbage, bulb onions and courgettes or products it grows but need big volumes such as fine beans, garden peas, mange touts and sugar snaps and baby corn. Nowadays AAA is also one of the largest commercial grower and exporter of chilies from Kenya (<http://www.aagrowers.co.ke>).

### KHE (1977) Limited

KHE (Kenya Horticultural Exporters 1977 Ltd) has been a family operated business for over 50 years. KHE is committed to the HACCP system and the BRC Code of practice to ensure that the requirements for exporting safe, and quality produce are met and exceeded at all times. KHE grows and pack its product's - more than 20 different Crops - across 3 different owned sites in Kenya. KHE has its own Nursery where it propagates over 4M plants a month, KHE directly manages 3 major farms, it owns 3 pack houses with state of the art cold chain systems, inclusive of its own packaging facility - MAP (Modified Atmosphere Packaging). KHE is can cover the full scope of the supply chain under International Standards. KHE is also committed to maintaining third party certifications by an internationally recognized body to demonstrate compliance to HACCP and the BRC code of Practice. KHE supply EU with a range of vegetables, avocado, passion fruits and herbs (<http://www.khekenya.com>).

### Flamingo Horticulture Kenya Limited

Flamingo Horticulture (formally Finlays Produce) is a vertically integrated horticulture business active in the growing, processing, marketing and distribution of sustainable, produced flowers and premium vegetables. Flamingo Horticulture grows and processes 9 million kg of fresh vegetables per annum and sells 30 million kg per annum. Flamingo Horticulture, which sources from Tanzania as well, is the first supplier of Fairtrade vegetables into the UK. Finlays Fresh Produce UK has been rebranded as Flamingo Produce. The change was initiated on January 2016, and sees the business revert to its original name. The move follows on from the sale<sup>4</sup> of Finlays Horticulture Investments and its subsidiary businesses to an affiliate of Sun European Partners<sup>5</sup> at the end of 2015.

---

<sup>4</sup> <http://www.fruitnet.com/fpi/article/167745/finlays-fresh-produce-uk-rebranded-as-flamingo-produce>

<sup>5</sup> <http://www.swire.com/en/news/press-releases/p151013.pdf>

## 2.5 Permits, Logistics requirements & challenges (from Farm to EU destinations)

Known procedures include:

1. An **Export license** from Horticulture Crops Directorate under Agricultural Fisheries and Food Authority (AFFA – HCD). The process of acquiring the license is more or less as I have described above.
2. **Conformity and Phytosanitary** certificates from KEPHIS
3. **Global GAP Certification**. There are accredited bodies such as AfriCert, EnCert, and Bureau Veritas Kenya, that conducts farm audits to verify whether you meet the Global GAP standards or otherwise.
4. **Euro 1 Certificate** from Kenya Revenue Authority (KRA) in the event that you're targeting any market in the European Union.
5. **BRC Certification** for UK supermarkets.
6. Maximum Residue Levels limit, commonly known as '**MRL limit compliance**' which is required for EU market<sup>6</sup>.

### Challenges

**a) Extension service:** Horticulture requires specialized extension approach due to its dynamism and industry needs. As a result of inadequate extension services, farmers in horticultural industry lack the requisite knowledge and skills on production techniques. There are inadequate extension personnel to reach all industry stakeholders and a situation exacerbated by scattered producers who are not organized into associations/clusters to enhance delivery of technologies and services. The lack of harmonized operational programmes by all extension providers has led to poor service delivery and non-standardization of extension messages affecting productivity in many areas.

In addition extension packages require constant review and updating to keep up with the changing industry needs. HCD offers limited specialized extension services for export crops and only in specific high concentration areas. Consequently, high potential regions and farmers who produce for the local market have not benefited from this service. The poor extension service delivery is compounded by unavailability of adequate institutions offering specialized horticultural extension services training. To enhance provision of extension services there is need to promote partnerships and collaboration among stakeholders and for constant capacity building of staff on new technologies, market regulations and consumer demands. The Practical Training Centre established under collaboration between Fresh Produce Exporters Association of Kenya (FPEAK), Kenya Agricultural and Livestock Research Organization (KALRO) and Jomo Kenyatta University of Agriculture and Technology (JKUAT) has to some extent addressed this challenge.

**b) Integrated Pest Management (IPM):** Pests (arthropods, pathogens and weeds) cause about 30% crop yield loss at farm and market levels in Kenya. The losses are in terms of both the quantity and the quality of the produce at various pre-harvest and post-harvest stages. At the national level, export interceptions due to existence of pests of quarantine importance; continue to hinder exploitation of international markets for crop produce and products.

Pests and diseases are one of the most important factors in horticultural production and often account for significant losses in the field as well as during post-harvest handling. Changes in pest status, trade requirements and plant material transfers demand continuous upgrading of tools/techniques used to detect/identify, characterize and control various pest categories. Over the years, research has continued to generate useful knowledge, information, technologies and innovative approaches in the management of diseases, arthropod pests and weeds.

Particular attention has been given to the development and promotion of ecologically sound integrated crop health management strategies, involving appropriate combinations comprising of

---

<sup>6</sup> <http://www.oecd.org/tad/code/oecdfruitandvegetablesstandardsbrochures.htm>

host plant resistance, use of bio control agents (bio pesticides and natural enemies), cultural environment modification, seed quality management, and judicious use of chemical pesticides.

These strategies have taken cognizance of existing food and consumer safety, sanitary and phytosanitary requirements and produce quality parameters in order to maintain a competitive edge for both export and locally consumed commodities. Recognition of crop cultivars with durable resistance/tolerance to specific pests has also been achieved through appropriate screening procedures for various crops. In collaboration with the Pest Control Products board and agro-chemical companies, several pesticides have been screened for efficacy and recommendations made, thereby widening the range of pest control products available to farmers. In support to integrated pest management efforts, pest detection tools have been developed and have been adapted by the farmers.

Pesticide usage is wide spread among horticultural producers. Larger growers/exporters are knowledgeable and have been very keen in their use of pesticides regardless of price. They have their own training programmes and use consultants or local staff recruited as agronomists to dictate to their out-growers what to use and when. Medium size growers/exporters are also very particular on choice and use of chemicals, but price issue is more relevant to this group. They also dictate to out-growers what to use and when, but often have very little control over usage. For small-scale farmers without contracts control is much less. Even though they normally have directions on what to use and when, spraying is not always regulated and on some farms inadequate post-spraying harvesting and entry regimes are observed. Workers/farmers often use poorly designed equipment and have inappropriate protective clothing.

There is insufficient knowledge of agronomic best practice among these farmers and they have difficulties in acquiring the relatively small quantities of chemicals. This is the group that represents the real risk because due to insufficient recording of activities. Traceability is often lost hence maximum residue levels (**MRLs**) cannot be controlled in this market sector.

The wide range of chemical products available in Kenya makes it difficult for small to medium size farmers to choose the correct product. There is also little understanding of the pesticide product classification; hence farmers are not able to identify chemicals, which have been restricted for use on fresh produce, which has implications for food safety. This has particularly affected produce destined for the domestic markets.

### **c) Agronomical and phytosanitary**

Other challenges facing production, particularly fruit production is inadequate quality planting materials, poor orchard management, pre-mature harvesting, and prevalence of pests and diseases and poor post-harvest handling practices. Lack of knowledge on appropriate harvesting regimes in avocado has resulted in prematurely harvested fruits with negative consequences particularly in the export markets. Pests and diseases particularly in passion fruit (i.e. increased incidences and intensity of *fusarium wilt*, *dieback* and *woodiness virus* diseases) continues to be a challenge because producers have to spray their crops with the risk of exceeding maximum residue levels and resultant interceptions at the borders in importing countries. The fruit fly (*Bactocera invadens*) in the mango and avocado is a quarantine pest in many importing countries, consequently limiting Kenya's exports. Access to cleaning material a strategy to minimize the disease and pest infestation remains elusive. However, KALRO in partnership with other research organizations are addressing the challenge and are in the process of generating protocols for nursery management to enhance quality assurance procedures in availing clean planting materials, and for integrated management practices

**d) Cold chain 3PL:** Cold chain is an essential component of an efficient food supply chain to ensure food safety and quality and reduction of losses. Nevertheless, most Kenyan exporters do not have cold chain infrastructure from farm to export gate and thus most of them are focusing on less

perishable products such as fresh legumes and avocados. Mainly large exporters have own or access to third party logistics' cold chain infrastructure in Kenya due to the high investment cost required. At present, bulk of the third party logistics (3PL) services in Kenya are offered by Multinational firms as opposed to indigenous firms in the transport sector.

3PL is still a new concept in Kenya, which has not been fully embraced by the indigenous 3PL firms (Mwanzia, M. *et al.*, 2016).<sup>7</sup> The well-known cold chain 3PL in horticulture sector in Kenya is offered by Kuehne + Nagel. Otherwise, most large exporters (such as VegPro, EAG Group, etc.) manage their own cold chain infrastructure.

## 2.6 Analysis of the enabling business environment

The main policies and legislations, which influence horticulture value chains in Kenya are summarised in Table 7 below.

Table 7: Policies and regulatory frameworks

1. Policies	
	Main thrust
<b>National Food and Nutrition Security policy</b>	<ul style="list-style-type: none"> <li>The policy thrust is to achieve good nutrition for optimum health of all Kenyans; to increase the quantity and quality of food available, accessible and affordable to all Kenyans at all times; to protect vulnerable populations using innovative and cost effective safety nets linked to long term development.</li> </ul>
<b>National Agricultural Sector Extension Policy (2012)</b>	<ul style="list-style-type: none"> <li>The main objective is to empower a pluralistic extension clientele through sharing information, imparting knowledge and skills and changing attitudes to enhance technology and innovation adoption. In this regards linkages and partnerships with extension agents are crucial for deployment of comprehensive outreach strategies for the purpose of creating value.</li> </ul>
<b>National Agricultural Research System Policy (2008)</b>	<ul style="list-style-type: none"> <li>The Policy aims at facilitating the prompt application of agricultural research results and services to enhance productivity and economic growth; and promoting private sector and non-state institutions engagement in research and technology transfer</li> </ul>
<b>National Land Policy (2007)</b>	<ul style="list-style-type: none"> <li>The policy aims to guide the country towards efficient, sustainable and equitable use of land for prosperity and posterity. Key issues the policy addresses are constitutional, land tenure, land use management, land administration, and land issues requiring special intervention. The Land Act (GOK, 2012c) mandates the National Land Commission to reorient the use of land as a productive asset, rather than a prestige title. This could increase access to land through renting for productive purposes and innovations.</li> </ul>
<b>National Horticulture Policy (2012)</b>	<ul style="list-style-type: none"> <li>The broad objective of the policy is to accelerate and sustain growth and development of the horticultural industry in order to enhance its contribution towards food security, poverty reduction as well as employment and wealth creation. Specific policy objectives are to: facilitate increased production of high-quality horticultural produce; enhance provision of the sub-sector's support services like finances, insurance and technical advisory services; promote value addition and increase domestic and external trade; develop and improve</li> </ul>

<sup>7</sup> Mwanzia, M. (2016) Critical Success Factors And Organizational Performance of Indigenous Third Party Logistic Businesses in Transport Sector in Kenya, *The Strategic Journal of Business & Change Management* Volume 3, Issue 1 Number 3, pg. 56 – 84

	infrastructure to support the horticultural industry particularly in major production areas; and promote horticultural investment in the ASALS.
<b>The National Seed Policy (2010)</b>	<ul style="list-style-type: none"> <li>• Outlines the intervention measures to be implemented by the seed sub sector to provide guidance to the industry to sustainability avail adequate high quality seed and planting material to the users and harmonizing all seed related activities.</li> </ul>
<b>Agricultural Sector Development Strategy (ASDS) (2010 – 2020)</b>	<ul style="list-style-type: none"> <li>• The overall national strategy document for the agricultural sector ministries and other stakeholders in Kenya. The main objectives include: increasing productivity; commercialization and competitiveness of agricultural commodities and enterprises; and developing and managing key factors of production.</li> </ul>
<b>National Agri-business Strategy (2012)</b>	<ul style="list-style-type: none"> <li>• The objective is to bring about a highly productive and efficient agribusiness sector, competitive both locally and internationally. The strategy emphasises the need to encouraged private sector organizations in development of diversified agricultural and food products, which are essential for improving the competitiveness of the sector.</li> </ul>
<b>Sustainability Strategy for Regional Development Authorities (2010)</b>	<ul style="list-style-type: none"> <li>• The goals include promoting integrated economic development through sectoral value chains and spatial concentration of infrastructure facilities and stronger linkages between zones; to enhance productivity and skills as well as firm competitiveness and expansion of export markets and diversification of export products.</li> </ul>
<b>2. Legislations</b>	
<b>A. Input related legislation</b>	
<b>Seed and Plant Variety Act Cap 326</b>	<ul style="list-style-type: none"> <li>• Regulate transactions in seeds, including provisions for seed testing and certification; establishment of an index of names of plant varieties; control on introduction of new varieties; seeds importation; to authorize measures to prevent injurious cross-pollination; management of proprietary rights to breeders or discovering and developing new varieties; and arbitration on seed matters.</li> </ul>
<b>Fertilizer and Animal Feedstuff Act Cap 345</b>	<ul style="list-style-type: none"> <li>• Regulates the importation, manufacture and sale of agricultural fertilizers and animal foodstuffs and substances of animal origin intended for the manufacture of such fertilizers and foodstuffs, and to provide for matters incidental to and connected with the foregoing.</li> </ul>
<b>Pest Control Products Act (Cap 346)</b>	<ul style="list-style-type: none"> <li>• Regulate the importation, exportation, manufacture, distribution and use of pests control products and bio-control products of plant and animal origin.</li> </ul>
<b>B: Production and GAP related</b>	
<b>Agricultural Act Cap 318</b>	<ul style="list-style-type: none"> <li>• Governs agriculture production including conservation of the soil and its fertility and to stimulate the development of agricultural land in accordance with the accepted good land management and agricultural practices.</li> </ul>
<b>Crop Production and Livestock Cap 205 (1948), Act No. 47 of 1949</b>	<ul style="list-style-type: none"> <li>• Provide for the control and improvement of crop production and livestock, and the marketing and processing.</li> </ul>
<b>Plant Protection Act Cap 324</b>	<ul style="list-style-type: none"> <li>• Governs prevention of the introduction and spread of pests and disease destructive to plants.</li> </ul>
<b>Crops (No.16 of 2013)</b>	<ul style="list-style-type: none"> <li>• Developed in 2013 to consolidate and repeal various statutes relating</li> </ul>

	to crops; and to provide for the growth and development of agricultural crops and for connected purposes.
<b>Biosafety Act 2009 (CAP 321 A)</b>	<ul style="list-style-type: none"> <li>Regulates activities in genetically modified organisms, to establish the National Biosafety Authority, and for connected purposes</li> </ul>
<b>Environmental Management and Coordination Act) (EMCA) (CAP 387No. 8 of 1999</b>	<ul style="list-style-type: none"> <li>Constitutes the legal and institutional framework for the management of the environment and for the matters connected therewith and incidental thereto.</li> </ul>
<b>Irrigation Bill (2015)</b>	<ul style="list-style-type: none"> <li>An Act of Parliament to amend and consolidate the law relating to sustain able development and management of irrigation for the socio-economic development in the country; to align existing irrigation laws to the Constitution of Kenya 2010, to repeal the Irrigation Act, Chapter 347 Laws of Kenya; and for purposes incidental thereto and connected therewith</li> </ul>
<b>Kenya Standard 1758: Part II Fruits and Vegetables</b>	<ul style="list-style-type: none"> <li>This is the Horticulture Code of Practice that specifies the requirements for legal compliance, the responsible procurement of inputs, safe production, handling and marketing of fresh fruits, vegetables, herbs and spices. It applies to all players in the industry including but not limited to growers, propagators, plant breeders, seed merchants, consolidators, transporters, shippers and cargo handlers.</li> </ul>
<b>C: Aggregation &amp; Quality related</b>	
<b>Agricultural Produce Act (Export) Cap 319</b>	<ul style="list-style-type: none"> <li>Provides guidance on the grading and inspection of agricultural produce to be exported, and generally for the better regulation of agricultural manufactured products.</li> </ul>
<b>Agricultural Produce Marketing Cap 320</b>	<ul style="list-style-type: none"> <li>The Act aims to control and regulate the marketing of agricultural produce, establishment of marketing boards.</li> </ul>
<b>Food Drugs Chemical Substances Act Cap 254(Rev. 2002)</b>	<ul style="list-style-type: none"> <li>An Act of Parliament to make provision for the prevention of adulteration of food, drugs and chemical substances and for matters incidental thereto and connected therewith.</li> </ul>
<b>Public Health Act Cap 242(Rev.2002)</b>	<ul style="list-style-type: none"> <li>An Act of Parliament to make provision for securing and maintaining health.</li> </ul>
<b>D: Marketing and Export related</b>	
<b>Standards Act Cap 496</b>	<ul style="list-style-type: none"> <li>Governs the standardisation of the specification of commodities, development of standards for various commodities and codes of practice; and creation of the Kenya Bureau of Standards for the management of the same.</li> </ul>
<b>E. Business Support Services</b>	
<b>Science and Technology (Amendment) Act, Cap 256, 1979</b>	<ul style="list-style-type: none"> <li>The Act was established to coordinate matters relating to scientific and technological activities as well as the coordination of research and experimental development. The Act establishes the National Commission for Science, Technology and Innovation (NACOSTI) charged with the responsibility of advising the government on a national science policy, the scientific and technological requirements for the conservation of the natural and social environment and the transfer of technology into agriculture and industry.</li> </ul>
<b>The Export Processing Zone (EPZ) Act, Cap 517, 1990, revised 2012 and 2015</b>	<ul style="list-style-type: none"> <li>The Act created the Export Processing Zones Authority (EPZA) as the regulatory body. Investors in EPZs benefit from a range of fiscal incentives. These include a 10 years tax holiday followed by a 25 percent at tax for the next 10 years; exemption from all withholding taxes during the first 10 years; exemption from import duties on</li> </ul>

	machinery, raw materials, and inputs; no restrictions on management or technical arrangements; and exemption from stamp duty and from the VAT on raw materials, machinery and other inputs.
--	---

## 2.7 Institutional Landscape of Horticulture Government Agencies and Sector Organisations

### (i) Ministry of Agriculture livestock and Fisheries – Agriculture Food and Fisheries Authority (MALF – AFFA)

The Agriculture Food and Fisheries Authority (AFFA) is the successor of former regulatory institutions in the sector that were merged into Directorates under the Authority, with the commencement of Crops Act, 2013. According to AFFA Act, 2013, the Authority has the following mandate with regard to agriculture:

- To administer the Crops Act in accordance with the provisions of these Acts;
- To promote best practices in, and regulate, the production, processing, marketing, grading, storage, collection, transportation and warehousing of agricultural products;
- To collect and collate data, maintain a database on agricultural products, documents and monitor agriculture through registration of players as provided for in the Crops Act;
- To be responsible for determining the research priorities in agriculture and to advise generally on research thereof;
- To advise the national government and the county governments on agriculture levies for purposes of planning, enhancing harmony and equity in the sector.

AFFA is the secretariat to the Horticulture Competent Structure (HCS) a multi-institutional platform for collective action. HSC has been instrumental in addressing challenges in the horticulture industry, particularly the export sector with regard to interceptions. HSC and AFFA-Horticulture Crops Directorate with support from USAID Kenya Agricultural Value Chain Enterprises (KAVES) Project established a National Horticulture Traceability System (NHTS) in March 2015; an electronic platform to support management and sharing of critical data in monitoring food safety in the horticulture supply chains.

### (ii) Horticultural Crop Directorate

The Horticultural Crops Directorate (HCD) formerly known as Horticultural Crops Development Authority ('HCDA') was established under the Agriculture Act, Chapter 318. Initially, HCD focused on horticulture development and marketing, but currently its functions have evolved and include to:

- Facilitate marketing of horticultural crops through monitoring and dissemination of market information.
- In consultation with relevant stakeholders, establish and enforce horticultural standards.
- Develop and review rules and regulations for the horticultural industry.
- Devise and maintain a system for collecting, collating, analysing and dissemination of horticultural statistics.
- Establish linkages with various governments and private research institutions for conduct of studies and researches designed to promote production, marketing and processing of horticultural crops.
- Provide benchmark for emerging technologies and catalyse adoption utilizing various extension tools.
- Promote and advise on strategies for value addition prior to export of crops from Kenya.
- Contribute towards provision of information to promote investment opportunities.

### (iii) Kenya Agricultural and Livestock Research Organization (KALRO)

A corporate body created under the Kenya Agricultural and Livestock Research Act of 2013 to establish suitable legal and institutional framework for coordination of agricultural research in Kenya. KALRO has 16-commodity research institutions among them are the Horticulture Research

Institute (HRI) located in Kandara. The Institute is mandated to undertake research in all aspects of production, management, postharvest and value addition of horticultural crops. The outputs from research activities implemented are to support the national horticultural industry. The functions of the HRI include

- Advise on, and develop appropriate systems to promote balanced, diversified and sustained horticultural development and to optimize horticultural production through adaptive and investigative research; and
- Facilitate the use of improved production technology, and to establish adequate feedback systems from horticultural producers in order to achieve and maintain national self-sufficiency and export capacities in horticultural products.

#### **(iv) Fresh Produce Exporters Association of Kenya (FPEAK)**

Fresh Produce Exporters Association of Kenya (FPEAK) is the main association representing exporters in Kenya. Historically it represented the small to medium-scale exporters, but today, due to its restructuring, it has attracted the large-exporters and horticultural producers for the domestic markets. The organization has now been restructured such that all members are well represented so that it focuses on the key issues at hand to address the challenges facing the horticultural industry. In this regard, it has maintained in constant consultation with the Government in order to drum up enough support for the horticultural industry especially in setting up conducive interventions and policies.

FPEAK is run through levies paid by its members, which vary depending on the individual member's production capacity. It has the FPEAK Code of Practice, which guides its members. FPEAK, in collaboration with stakeholders have developed the Kenya GAP, which has been benchmarked against the Global-GAP. The document gives the codes a national outlook and enhances compliance to market requirements. Discussions with FPEAK revealed that various challenges continue to face the industry including:-

- Agricultural policy – Devolution of agriculture functions to the County governments under the new Kenya Constitutions presents new challenges for the industry organization. Currently multiple levying - imposition of cess to agricultural produce on transit through the various counties to major urban areas and for export is having negative effects of further increasing the cost of doing business.
- Food regulations – the stringent regulatory and market requirements (non- tariff barriers) continue to hinder access to markets. Issues of MRL and harmful organisms e.g. False Codling Moth in chillies is subjecting the consignments to increased checks sometimes up to 100% checks. To enable this, consignments have to be forwarded way in advance for inspection before the products are delivered to the importing agencies.
- Cost of production factors (e.g. energy, labour) are on the rise pushing up the cost of doing business. The labour movement in the horticultural industry recently signed a Collective Bargaining Agreement (CBA) that raised the wages of workers by 16%. Investors are of the opinion that this is high and unsustainable. The current CBA is gives workers' wages way above what is stipulated in Government regulations on minimum wages, and businesses are therefore relocating (e.g. pack houses) to production zones where labour rates lower.

Competence and response time by public regulatory agencies to facilitate trade – currently the public agencies do more of regulating than facilitating the industry causing delays and inconveniences to exporters. However, consultations are on going with the relevant public agencies on the need to facilitate trade. FPEAK in collaboration with KEPHIS and other industry player are reviewing inspection protocols at pack houses farm level and points of exit in order to make them more facilitative.

## 2.8 Support programmes / initiatives (indicate their current and future plans)

There are a number of on going programmes and initiatives that support horticulture sector in Kenya as summarised in Table 8 below.

Table 8: Support programmes and initiatives for the promotion of horticulture in Kenya - 2016

S No	Horticultural Project & Implementing partner(s)	Time	Approach and geographical coverage	Donors
1.	HortIMPACT: Kenya Market-Led Horticulture Programme (SNV, Hivos, Solidaridad, Delfi, Wageningen, Agri ProFocus)	2015 – 2019	Transforming horticulture value chains for thriving inclusive markets. <b>Approach:</b> Support promising business cases from Kenyan and Dutch companies that address: <ul style="list-style-type: none"> <li>• Inclusion of SME farmers in domestic and export markets</li> <li>• Improvement of food safety through integrated crop management practices</li> <li>• Reduction of food losses and improved efficiency in supply chains</li> </ul> <b>Areas:</b> 9 counties	Embassy of the Kingdom of the Netherlands (EKN)
2.	Avocado Project for Narok (Songoroi Ltd, Solidaridad, The Real IMP Ltd,	2012 - 2015	The project aimed at improving the livelihoods of famers along Mara River basin who have been hit hard by the maize lethal necrosis and perennial droughts <b>Approach:</b> capacity building of farmers in land preparation and crop management. Farmers active in planting avocado trees <b>Areas:</b> Mulot and Longisa sub-counties in Narok and Bomet counties benefiting more than 2,000 smallholder farmers	Embassy of the Kingdom of the Netherlands (EKN)
3.	<u>Avocado Competitiveness Project:</u> Implemented by The Export Promotion Council in partnering with International Trade Centre (ITC) Centre for Promoting Imports from Developing Countries (CBI), Horticulture Crops Directorate (formerly HCDA) and Fresh Product Association of Kenya (FPEAK)	2014 - 2017	The envisaged outcome of NTF III Kenya is to enhance the export competitiveness of the avocado sector in Kenya and generate new export revenue. <b>Approach:</b> update the Avocado Commodity Business Plan; increase the export capacity of exporting SMEs and farmer groups; improve the capacity of beneficiary Trade Support Institutions in providing services to SMEs; and create and/or expand business linkages and technical partnerships/collaborations to ensure SMEs obtain contracts with new clients. <b>Areas:</b> Murang'a	Netherlands Trust Fund III
4.	Adoption of market and good agricultural practice standards by the region's horticultural growers - implemented by FPEAK	2011 – 2014	This project aimed at developing a localized version of GlobalGAP (Good Agric. Practices) called East Africa GAP (EAGAP) that was made available in Swahili. <b>Approach:</b> Developing auditors and trainers on EAGAP and supporting groups of farmers producing fresh produce in each of the East African countries to become certified in EAGAP. Certification will increase the selling price earned by	TMEA USAID (KHCP)

			<p>smallholder farmers</p> <p><b>Areas:</b> Regional project - 8,000 smallholders supported by TMEA; 13,000 by USAID = total farmers reached about 22,000</p>	
5.	Productive Employment Study on Avocado - FPEAK	2014-2017	<p>Assessing the level of productive employment in the Fresh Produce segmented market sector, Muranga County</p>	WONTRO-Netherlands
6.	Potato Curriculum Development - FPEAK	2014- 2017	<p>Developing potato-training curriculum for the HPTC.</p> <ul style="list-style-type: none"> <li>Equipping Potato stakeholders with skills on ware &amp; Seed Potato management</li> </ul>	NUFFIC- NICHE-Netherlands
7.	Program for Agriculture and Livelihoods in Western Communities of Kenya (PALWECO) - Ministry of Devolution and Planning	2010–2016	<p>The main long-term objective of the rural development program in Western Kenya is to decrease poverty and improve the livelihoods and income of the population in Busia County. The program concentrates on three main areas:</p> <ul style="list-style-type: none"> <li>Improved and sustainable livelihoods and living standards in households and communities.</li> <li>Improved and sustainable income and food security through value chains approach.</li> <li>Strengthened capacity to plan and monitor development activities and improved access to resources and support services.</li> </ul> <p><b>Approach:</b> PALWECO is implemented by the Ministry of Devolution and Planning and collaborates with relevant county offices, non-governmental and private sector development agencies. The program especially pays attention to improving the situation of women and other vulnerable groups and their possibilities to participate in the decision-making processes, which impact their lives. The total number of beneficiaries is estimated to be 480.000 people in Busia County.</p> <p><b>Areas:</b> Busia County. EUR 30.5 million (Finland EUR 27 million; Kenya 3.5 million)</p>	Finland
8.	3R (Resilient, Robust and Reliable) Kenya	2016 -2019	<p>The aim of the project '3R Kenya' is to identify ways to scale up running, small-scale projects in the horticulture, aquaculture and dairy sector that are financed by the Netherlands. The projects focus on small and medium scale producers. As part of the Dutch transition strategy from aid to trade in Kenya, the project will assesses and validate lessons learnt from the Netherlands Embassy's Agriculture and Food and Nutrition Security programme and other related programmes that support competitive market-led agricultural development. The overall aim is to have well-informed stakeholder actions supporting the transition from aid to</p>	EKN

			sustainable trade (people, planet and profit) in the selected value chains. <b>Target value chains:</b> Horticulture, aquaculture and dairy sectors	
9.	Kenya Agricultural Value Chain Enterprises (KAVES) - FINTRAC	2013 – 2018	<p>KAVES aims to increase the productivity and incomes of smallholder farmers, and other actors along the value chain, who are working in the dairy, maize (and other staples) and horticulture sectors. The activity goals include:</p> <ul style="list-style-type: none"> <li>• Improve economic stability and food security</li> <li>• Improve nutritional outcomes, reduce chronic under-nutrition</li> <li>• Build and diversify sustainable value chains</li> </ul> <p>Approach The Kenya Agricultural Value Chain Enterprises (KAVES) activity works with smallholder farmers, businesses, and national and county government partners to address constraints up and down the value chain (such as agro-processors, input suppliers, transporters, exporters, retailers, financiers) and develop fully-functioning, competitive value chains. Engagement with the private sector in a meaningful, comprehensive way ensures the sustainability of the activity's work. The total number of beneficiaries is estimated to 500,000 smallholders <b>Areas:</b> 22 counties in high rainfall, arid and semi-arid areas. US\$ 40 Million</p>	USAID
10.	Kenya Horticulture Competitiveness Project (KHCP) - FINTRAC	2012 – 2016	<p>The Kenya Horticulture Competitiveness Project (KHCP) is a five-year United States Agency for International Development (USAID) initiative helping small farmers and allied agribusinesses take advantage of local, regional, and global market opportunities. Designed on the premise that the horticulture industry can be transformative for rural income, employment generation, and food security, USAID-KHCP focuses on:</p> <ul style="list-style-type: none"> <li>• Enhanced productivity</li> <li>• Increased value-addition</li> <li>• Improved value-chain coordination, marketing, and trade promotion</li> <li>• Improved business environment, and institutional capacity</li> </ul> <p><b>Approach:</b> USAID-KHCP is implemented in cooperation with Kenyan private and public sector partners and actively encourages women and youth to participate. Primary interventions and services are: product diversification, market diversification, technology transfer, market Intelligence, standards, infrastructure (new wholesale markets and product handling facilities, on-farm</p>	USAID

			postharvest - cooling huts, collection sheds, and portable pack houses), and policy and smallholder business development. <b>Areas: Nyanza and Western Kenya. US\$ 82.4 Million</b>	
11.	Smallholder Horticulture Empowerment Promotion Project for Local and Up scaling (SHEP PLUS) - MOALF	2017 - 2022	The project aims to improve farmers' livelihoods. <b>Approach:</b> Training of farmers on a range of activities with a clear focus on market-oriented farming. The farmers' awareness and behavior transform as a result of this package offered and they start commercial farming, as opposed to subsistence farming, to meet the market demand. The capacity development package ensures that the farmers keep motivated and acquire agricultural and managerial skills that are necessary to gain access to, and succeed in the competitive market <b>Area:</b> 8 counties in Rift Valley and Central Kenya Regions	JICA
12.	Smallholder Horticulture Marketing Programme (SHOMAP) - MOALF	2007 – 2014	This programme aims to improve farm productivity and incomes, and the health and welfare of rural Kenyans, by increasing the quality and consumption of fruit and vegetables. The programme covers 8 of Kenya's 35 horticultural districts and was designed as a pilot initiative for possible replication throughout the country. It targets poor rural households and unemployed and underemployed people in areas of Kenya where horticulture is an important source of income, as many poor small-scale farmers in these areas sell a portion of their output on the domestic market. <b>Approach:</b> The programme invests in value chains and market infrastructure in order to improve the supply of inputs and the functioning of marketing chains. It also seeks to build the capacity of private-sector service providers, government institutions and farmers' IFAD loan: <b>US\$ 23.4 million</b> ; IFAD grant: <b>US\$ 0.5 million</b>	JICA
13.	Youth in Modern Agriculture Project (YMAP) - MOALF	2012 – On going	This is a GOK funded project whose objective is to create a sustainable and gainful self-employment for the youth in agriculture. The aim is to increase youth participation in agricultural production, agribusiness and agro-processing. <b>Areas:</b> 5 Counties. Total cost to date KES 118 Million	Government of Kenya
14	Agricultural Sector Development Support Programme (ASDSP) - MOALF	2012 – 2016	The purpose of the programme is to enhance equitable income, employment and improved food security of male and female target groups as a result of improved production and productivity in the rural smallholder farm and off-farm sectors. ASDSP focuses on commercialization, agribusiness and market	Government of Kenya Government of

			<p>development activities of the agriculture sector.</p> <p><b>Approach:</b> ASDSP focuses on commercialization, agribusiness and market development activities of the agriculture sector. This is based on the assumption that deepened and equitable commercialization of Kenya's agricultural sector, especially at the smallholder level, will contribute to increased farm productivity and incomes; improve the availability of food in both rural and urban areas and enhance the sector's contribution to the overall national economy. The Programme supports actors along the value chain, to strengthen capacities and coordination within each value chain under the Programme. Special attention is given to the poor and vulnerable in order to promote increasingly commercialized farming practices, while ensuring that food security and nutrition needs are met. ASDSP supports the development of 29 prioritized value chains.</p> <p><b>Area:</b> 47 counties</p>	Sweden
15.	Integrated Agricultural Research for Development: Enhanced Food and Nutrition Security through Increased Production and Promotion of Agribusiness in Kenya - KALRO Feed the Future Programme	2017 - 2019	<p>The aims to improve household income, food and nutritional security in the selected areas will adopt the concept of Agricultural Product Value Chain.</p> <p><b>Approach:</b> The concept explores a whole continuum from technology development to consumption through commercialization. The approach is adopted in the planning for KALRO's proposed Feed the Future activities relating to three selected value chains; Staple food crops, Horticulture and Dairy</p> <p><b>Areas:</b> Nyanza, Western, Rift Valley regions and semi-arid areas of lower Eastern and Coast regions. <b>Cost US \$ 10 Million</b></p>	USAID
16.	Standards Market Access Programme (SMAP) -KEPHIS	2014 - 2017	<p>Enhanced market access and competitiveness of Kenya's plant based products, through greater adoption of relevant international standards and improved regulation and enforcement in the country. Much of the support (70 %) is for equipment purchases. equipment is to be supplied from October 2016</p> <p><b>Area:</b> National coverage</p>	European Union
17.	COMPRO - KEPHIS component (new phase)	2015 - 2017	<p>Improved crop yields of smallholder farmers in sub-Saharan Africa through dissemination of effective agricultural commercial products and institutionalization of regulation procedures to guarantee quality of these products. Product screening and implementation of the quality control SOPs for bio-fertilizers; Testing and validation of SOPs in the KEPHIS lab. Printing copies of SOPs. Survey for bio-fertilizers compliance to the registration guidelines/interim</p>	Bill and Melinda Gates through IITA

			measures; extra funds added to the project <b>Area:</b> National	
18.	RIIP – COMESA - KEPHIS	2015 - 2017	Addressing any Non-Tariff Barriers. Supported International Phytosanitary Conference 2016 – over 110 delegates from 25 countries present. <b>Area:</b> EAC level	COMESA (Through National treasury)
19.	Breaking Barriers, facilitating trade - KEPHIS	2015 - 2018	Simplified and coordinated implementation of SPS measures; Improvement of understanding and formulating SPS measures; Increased understanding of the costs and benefits of SPS measures; Joint border meeting with Uganda. <b>Area:</b> EAC level	WTO-STDF / COMESA (Through CABI)
20.	SASHA - KEPHIS	2014 - 2017	The Sweet potato Action for Security and Health in Africa (SASHA) is a 5-year initiative designed to improve the food security and livelihoods of poor families in Sub-Saharan Africa by exploiting the untapped potential of sweet potato. Enhanced capacity of virus testing at PQBS; revision of seed standards for sweet potato; organize stakeholder awareness <b>Area:</b> Regional	International Potato Centre and Bill and Melinda Gates Foundation

### 3. Summary of emerging investment opportunities

Potential investments (joint ventures and/or FDIs) have been identified in this scoping exercise include the following areas:

- (i) **Investing in increased production** and productivity for export oriented fruits (avocado and passion fruit) high value vegetables (tender stem broccoli) and herbs (chives, basil, etc.) in new farms or in strategic collaboration with existing investors in Kenya. Mara Farming Ltd (now called Mara EPZ) is piloting an India Model for planting avocado trees and is already open to discuss with potential investors.
- (ii) **Investing as third party logistics (3PL)** company specialising in establishing ***cold chain*** from farm level to the export point (JKIA for airfreight) and Mombasa Port for sea freight). Celtic Cooling has already designed mobile cold rooms/containers that can be used as mobile collection centres and could be loaded on trucks. These containers use power efficiently. Celtic Cooling has Office in Nairobi Kenya and already offers storage solutions for a number of horticulture exporters in Kenya
- (iii) **Fruit canning and pulping facility** especially for fruits (Mangoes, papaya, etc.). Mara EPZ is already processing mango slices for one of its client in EU; however, they are open to consider joint venture (JV) for setting up such facility in EPZ in Kenya.
- (iv) **Investment in Marketing and Distribution** in the source markets (UK & EU) in partnerships with Kenya exporters.
- (v) **Investment in potato storage technologies** and developing inventory credit system (ICS) that can assist potato producers and traders. There are Kenyan investors who are looking for partners to design and invest in this timely and highly demanded investment. EKN/SNV project (HortIMPACT) is interesting partner in this initiative and could make matching grant available for a competitive and innovative concept.
- (vi) **Investment in quality supply chain of niche products (fresh herbs and TSB) from Kenya:** especially chives, basil coriander, thyme and rosemary for EU market as well as Tender stem broccoli (TSB) for the UK market.

## ANNEXES

### ANNEX 1: PRODUCTION (MT, KES) AND TARGET MARKETS FOR FRUITS AND VEGETABLES – KENYA

Table 9: Trends of horticulture crops performance in Kenya 2010 – 2015

Indicator	2010	2011	2012	2013	2014	2015*
Area (Ha)	538,005	565,086	529,482	596,574	605,057	620,183
Production (Millions MT)	7.63	7.77	6.49	7.26	7.88	8.08
Value (Millions US\$)	1.80	1.98	1.74	1.81	1.90	1.95
Export value (Millions US\$)	0.55	0.89	0.87	0.81	0.82	0.87

Source: HCDA 2011, HCD 2014; \*Provisional

Table 10: Production trends of assorted vegetables in Kenya 2012 – 2015

Produce	2012			2013			2014			2015*		
	Area ('000) Ha	Volume (MT)	Value ('000 US\$)	Area ('000) Ha	Volume (MT)	Value ('000 US\$)	Area ('000) Ha	Volume (MT)	Value ('000 US\$)	Area ('000) Ha	Volume (MT)	Value ('000 US\$)
Potatoes	114.00	1,570.00	215.24	117.00	1,759.00	243.50	131.00	1,757.00	259.28	134.00	1,801.00	272.25
Tomatoes	19.00	364.00	100.83	21.00	384.00	113.13	24.00	400.00	114.59	25.00	410.00	120.32
Cabbages	15.00	412.00	43.85	16.00	451.00	49.94	15.00	443.00	47.87	15.00	454.00	50.27
Kales	23,758.00	308,012.00	40.32	24,158.00	352,839.00	41.52	24,422.00	348,637.00	47.03	25,033.00	357,353.00	49.38
Sweet potatoes	22.00	311.00	32.51	23.00	300.00	34.52	23.00	365.00	46.28	24.00	374.00	48.60
Kales	24.00	308.00	40.32	24.00	353.00	41.52	24.00	349.00	47.03	25.00	358.00	49.38
Garden peas	9.00	39.00	8.56	11.00	43.00	9.86	11.00	43.00	9.91	11.00	44.00	10.41
Runner beans	0.38	2.00	1.57	0.35	2.00	1.25	0.40	2.00	1.69	0.41	2.00	1.77
French beans	5.00	84.00	50.92	5.00	112.00	42.54	5.00	123.00	48.91	5.00	126.00	51.36
Courgettes	63.00	6,174.00	1.75	587.00	6,229.00	1.72	548.00	5,278.00	1.39	562.00	5,410.00	1.46
Carrots	6.00	170.00	20.87	5.00	199.00	25.68	6.00	90.00	18.95	6.00	92.00	19.90
Green maize	1.00	4.00	0.74	1.00	5.00	1.06	26.00	111.00	7.97	27.00	114.00	8.37
Butternut	1.00	12.00	2.02	1.00	8.00	1.66	1.00	13.00	2.17	1.00	13.00	2.28
Sweet pepper	1.00	9.00	2.70	1.00	14.00	4.03	2.00	12.00	3.16	2.05	12.00	3.31
Snow peas	1,702.00	13,741.00	5.53	1,820.00	12,215.00	6.60	1,605.00	17,363.00	8.41	1,645.00	17,797.00	8.83
Sugar Snaps	660.00	4,187.00	2.34	705.00	4,383.00	2.24	2,684.00	16,867.00	4.75	2,751.00	17,289.00	4.98
Spinach	4,794.00	48,863.00	7.37	4,716.00	75,821.00	11.22	5,005.00	62,817.00	8.52	5,130.00	64,387.00	8.95
Broccoli	509.00	6,973.00	1.40	706.00	8,125.00	1.78	240.00	2,623.00	1.06	246.00	2,689.00	1.11
Butter nut	602.00	12,407.00	2.02	523.00	7,540.00	1.66	630.00	13,146.00	2.17	645.00	13,475.00	2.28
Baby corn	436.00	3,354.00	0.72	643.00	4,793.00	0.94	567.00	4,784.00	1.07	581.00	4,904.00	1.12
Lettuce	91.00	1,467.00	0.45	117.00	3,787.00	0.81	85.00	1,404.00	0.41	87.00	1,439.00	0.43
Cauliflower	93.00	3,782.00	0.69	69.00	1,871.00	0.21	80.00	3,644.00	0.60	82.00	3,735.00	0.63
Cucumber	171.00	1,557.00	0.34	198.00	2,093.00	0.32	162.00	1,549.00	0.26	166.00	1,588.00	0.28

Source: HCD 2015; \* Provisional

Table 11: Production trends of assorted fruits in Kenya 2012 – 2015

Crop	2012			2013			2014			2015*		
	Area (Ha)	Volume (MT)	Value ('000 US\$)	Area (Ha)	Volume (MT)	Value ('000 US\$)	Area (Ha)	Volume (MT)	Value ('000 US\$)	Area (Ha)	Volume (MT)	Value ('000 US\$)
Bananas	48,022.00	1,331,959.00	125.58	50,719.00	1,437,566.00	172.34	52,102.00	1,430,217.00	176.35	53,405.00	1,465,972.00	185.17
Pineapples	11,551.00	422,399.00	82.94	12,479.00	461,908.00	86.69	12,989.00	496,036.00	98.53	13,314.00	508,437.00	103.46
Mangos	41,411.00	573,720.00	60.35	44,018.00	644,829.00	74.46	47,620.00	744,639.00	86.43	48,811.00	763,255.00	90.75
Pawpaw	9,799.00	150,234.00	30.46	11,681.00	160,171.00	31.54	12,729.00	160,848.00	31.23	13,047.00	164,869.00	32.79
Avocados	8,450.00	152,936.00	30.95	11,439.00	177,799.00	36.40	12,966.00	225,808.00	37.26	13,290.00	231,453.00	39.13
Passion	2,617.00	28,652.00	10.79	3,440.00	38,640.00	13.89	4,288.00	57,953.00	19.17	4,395.00	-	-
Oranges	4,715.00	62,186.00	14.27	5,199.00	57,760.00	15.11	6,650.00	79,211.00	15.72	6,816.00	81,191.00	16.51
Water	2,698.00	55,210.00	16.19	3,660.00	84,375.00	20.96	3,485.00	59,216.00	15.37	1,345.00	36,019.00	9.65
Tangerines	1,107.00	32,913.00	5.63	1,033.00	29,966.00	5.26	1,312.00	35,140.00	9.19	1,440.00	12,672.00	2.72
Lemons	931.00	10,044.00	2.04	1,150.00	10,603.00	4.87	1,405.00	12,363.00	2.59	885.00	12,512.00	3.70
Tomato	620.00	6,068.00	1.99	617.00	4,679.00	1.30	863.00	12,207.00	3.53	103.00	166.00	0.56
Tree	500.00	5,397.00	1.85	474.00	4,067.00	1.19	619.00	5,111.00	1.52	634.00	5,239.00	1.59
Strawberry	56.00	885.00	0.91	68.00	921.00	1.12	100.00	162.00	0.53	103.00	166.00	0.56
<b>Total</b>	<b>132,477.00</b>	<b>2,832,603.00</b>	<b>383.94</b>	<b>145,977.00</b>	<b>3,113,284.00</b>	<b>465.14</b>	<b>157,128.00</b>	<b>3,318,911.00</b>	<b>497.43</b>	<b>161,056.00</b>	<b>3,401,884.00</b>	<b>486.59</b>

Source: HCD, 2015

\* Provisional

## ANNEX 2: USEFUL CONTACTS

S/NO	NAME	DESIGNATION + ORGANISATION	E-MAIL	CONTACTS
1	MR ART WRIGHT	GENERAL MANAGER – PERISHABLES PANALPINA – AIRFLO JKIA	<a href="mailto:art.wright@panalpina.com">art.wright@panalpina.com</a>	+254 702 564 228 +254 206 915 209
2	MR STEPHEN WACHIRA	DIRECTOR – WAMU INVESTMENTS AIRPORT NORTH ROAD, EMBAKASI	<a href="mailto:wachira@wamu-investments.com">wachira@wamu-investments.com</a>	+254 722 591 089 +254 202 642 168
3	MR ANTHONY MOTISO	OPERATIONS MANAGER – FPEAK	<a href="mailto:anthonymutiso@gmail.com">anthonymutiso@gmail.com</a>	+254 711214396
4	MR HANS VAN GEMEREN	OPERATIONAL MANAGER – CELTIC COOLING LUZEMESTRAAT 53, 2153 GM NIEUW – VENNEP NL	<a href="mailto:hg@celtic.nl">hg@celtic.nl</a>	+31 682 835 132 +31 252 240 950
5	MR OKOTH NELSON	TECHNICAL MANAGER – CELTIC KENYA AIRPORT NORTH ROAD, AMEE PROPERTIES	<a href="mailto:tm.kenya@celtic.nl">tm.kenya@celtic.nl</a>	+254 728 787 636
6	MR ALEX MUNGE	SALES MANAGER – WILHAM K LIMITED EAG GROUP	<a href="mailto:alex@eaga.co.ke">alex@eaga.co.ke</a>	+254 20 827488/85
7	MR ZAKAYO MAGARA	INTERIM DIRECTOR – AFFA HORTICULTURE CROPS DIRECTORATE (HCD)	<a href="mailto:md.hcd@gmail.com">md.hcd@gmail.com</a> <a href="mailto:zmmagarah@yahoo.com">zmmagarah@yahoo.com</a>	+254 722 683 605 +254 202 131 561
8	MS GRACE KYALLO	MANAGER, TECHNICAL & ADVISORY SERVICES – AFFA HORTICULTURE CROPS DIRECTORATE (HCD)	<a href="mailto:jnatecho@gmail.com">jnatecho@gmail.com</a> <a href="mailto:jnatecho@yahoo.com">jnatecho@yahoo.com</a>	+254 722 619 530 +254 202 131 560
9	MS JOSEPHINE SIMIYU	MANAGER REGULATIONS & COMPLIANCE – AFFA HORTICULTURE CROPS DIRECTORATE (HCD)	<a href="mailto:jnatecho@gmail.com">jnatecho@gmail.com</a>	+254 722619530
10	MS ANNE GIKONYO	MANAGER MARKET RESEARCH & PRODUCT DEVELOPMENT -AFFA HORTICULTURE CROPS DIRECTORATE (HCD)	<a href="mailto:awggikonyo@gmail.com">awggikonyo@gmail.com</a>	+254 722651812
11	MR CHRISTIAN BENARD	CEO – MARA FARMING	<a href="mailto:cb@marafarming.com">cb@marafarming.com</a>	+254 722 516 308
12	MS GILLIAN KADENYI	ADVISOR – HortIMPACT – SNV KENYA	<a href="mailto:gkadenyi@snvworld.org">gkadenyi@snvworld.org</a>	+254 721 846 247 +254 203 873 656
13	MR FRANCIS M. SHIVONJE	ADVISOR – HortIMPACT – SNV KENYA	<a href="mailto:fshivonje@snvworld.org">fshivonje@snvworld.org</a> <a href="mailto:franciss@solidaridadnetwork.org">franciss@solidaridadnetwork.org</a>	+254 721 217 450 +254 203 873 656
14	MR PATRICK GARNER	MANAGING DIRECTOR – GEERLOFS KENYA LIMITED	<a href="mailto:patrick.garner@geerlofs.co.ke">patrick.garner@geerlofs.co.ke</a>	+254 733 749 024 +254 721 279 929 +254 203 871 490
15	DR IRENE KOOMEN	PTC NUFFIC & 3R PROJECTS WAGENINGEN UR	<a href="mailto:irene.koomen@wur.nl">irene.koomen@wur.nl</a>	+31 317 482 986 +31 623 204 301
16	MR DAVID MULWA	DIRECTOR – KANDIA FRESH PRODUCE SUPPLIERS LTD	<a href="mailto:david@andia.co.ke">david@andia.co.ke</a>	+254 203 500 866 +254 722 350 552 +254 733 200 015