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THE LEADING FLORICULTURAL JOURNAL IN THE REGION

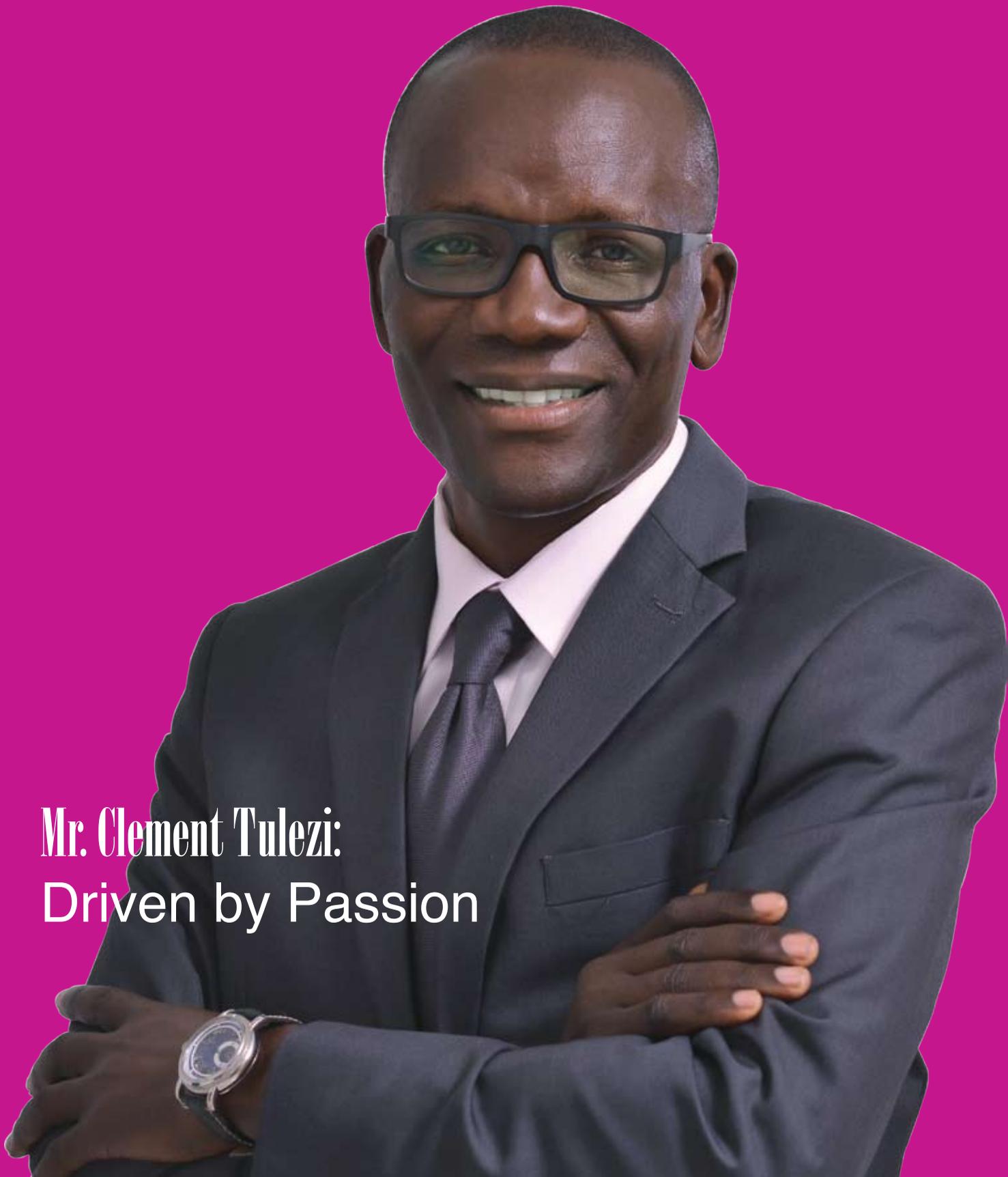
# FLORICULTURE

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**Mr. Clement Tulezi:**  
**Driven by Passion**



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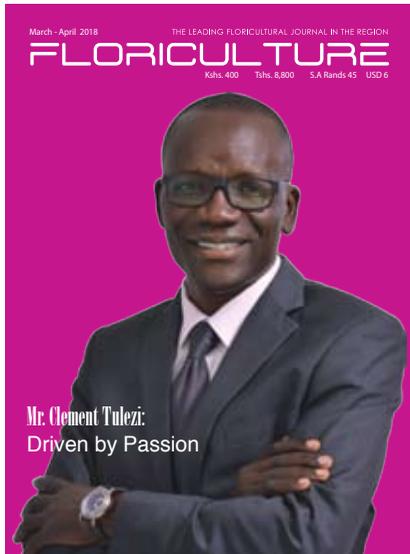
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## The Leading Floriculture Magazine

Contributions to **Floriculture** are welcome. Although every effort will be made to return manuscripts and photographs, these are submitted at owners' risk. Opinion expressed by contributors are not necessarily the views of **Floriculture**.

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*Stepping up means leaving your excellent performances behind. It means reconfiguring yourself so you can catch up with the demand of time. It means leaving your comfortable environment to navigate a newer way we do our business. It means growing up, learning from past experiences, gathering more tools, sharpening our minds, developing our talents, adding more skills, meeting new people, expanding our level of influence, and many more.*

*It seems easy but nothing can be more difficult than doing what appears to be easy.*

*The truth is, we all need to find that compelling reason to change for the better. Is your life only about what you get from this world? Is your life only about money? Is your life only about comfort? Is your life only about your career or business? Is your life only about you?*

*Those questions are easy questions. Most people may probably say, "Of course not!" But come to think of it. Do we really challenge ourselves to become a better person after every good performance that we make? Do we aspire to challenge ourselves to do whatever it takes so we can all live a better life? Do we really innovate? Are we willing to endure the pain that change requires us to bear?*

*The truth is, we all have to work. The only thing that makes us different from each other is our level of understanding towards what we do. How do you*



*understand your work? How do you see it? Is work a punishment? Is work a real blessing?*

*What will differentiate you from others in the next few years is the choice that you make every day. There are only two choices: Step up or stay put (thus be left behind). I promise, you don't want to be irrelevant.*

*Masila Kanyigi*



*Publishers of Floriculture Magazine*

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# ADAMA

# Kenya National Agoa Strategy Review

## Draft for US cut flower market for Kenya

The East African Trade and Investment hub a USAID funded project organized for a validation workshop on the findings of AGOA strategy on 18th January at Nairobi. In attendance was the Ps for ministry of Trade, Industry and cooperatives Dr. Chris Kiptoo. Kenya Flower Council was also represented.

During the workshop, a number of issues were brought to the table among them the escalating costs of freight and possible solutions such as making negotiations with the airlines for predetermined freight charges and seeking government support through national carrier KQ were suggested. In the meeting it was stated that Kenya is granted 6400 duty free tariff lines including floriculture which has been given the first priority.

The US is ranked as the world's largest importer of cut flowers. An approximate of 68% of cut flowers sold in the US is imported. Ecuador, Colombia and the Netherlands dominate the US market occupying 92% of the market share whilst Kenya only holds a trifling 1% of the market share .The AGOA strategy sought to highlight the hindrances barring Kenya from entering the US market and suggests possible solutions to how to handle the matter.

## Challenges

The workshop identified the main challenges are: Lack of awareness of the standards and other export requirements for imports to the US.

Inadequate commercial representation by Kenyan embassy in the US, long flight distances to the US and Phytosanitary and

packaging issues.

## Recommendations

Rather than competing amongst each other, collaboration with neighbouring countries whose flower sector has flourished can bring technology, marketing and packaging capacities. For instance, Kenya should

Strengthening of relations between APHIS and KEPHIS, will increase confidence in Kenyan products as well as make it easy to monitor interceptions and carry out pest risk.

There is need to ensure that all logistics are put in place to ensure that the quality of



**Dr. Kiptoo with participants during the workshop**

consider collaboration with Ethiopia who has a number of direct flights in operation. Brand Kenyan flowers to possess exquisite characteristics e.g. shipping consumer ready flower bouquets.

Kenyan flowers is maintained after shipping is done.

Exporters should be familiar with the paperwork required when exporting flowers as well as comply with those requirements.

Expand and consolidate trade links with the US buyers.

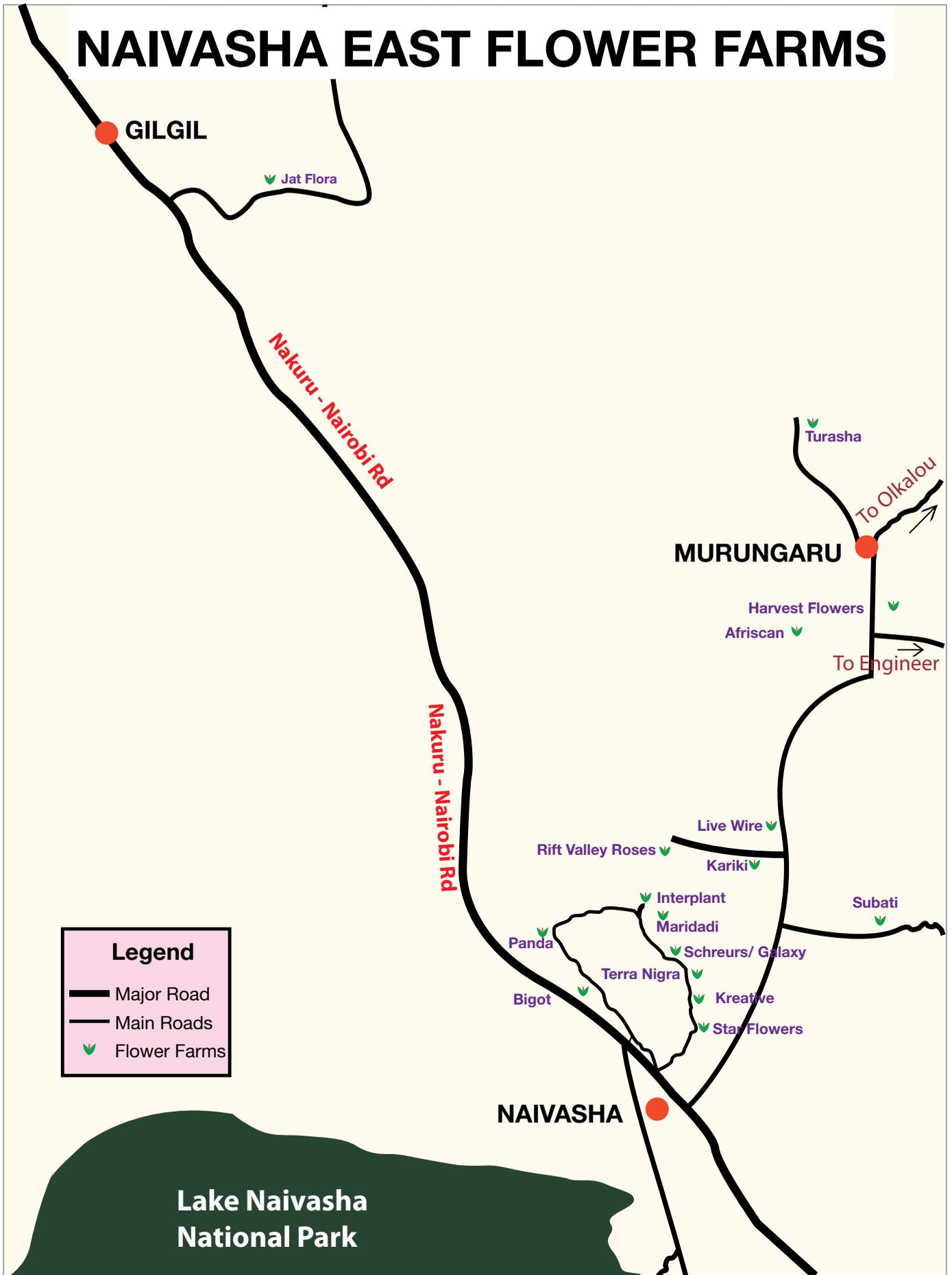
Improve competitiveness through quality assurance, improved logistics and packaging.

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Know Where Our Growers are Located

# NAIVASHA EAST FLOWER FARMS



# Mr. Clement Tulezi

## DRIVEN BY PASSION

Steering the flower umbrella body towards creating a lasting Kenya brand that competes as a first class product across the world; maintain the current markets, and make noticeable inroads into selected emerging markets.



### **B**riefly discuss Mr. Clement Tulezi (Background and Professional life to your current position)

My professional background involves a large amount time as a communication and marketing expert, with experience spanning over 23 years in the main stream media, advertising, gender, social welfare, governance, entrepreneurship and conflict resolutions. I also have masters in project Management and I am a certified international mediator. I have worked in a number of trade associations, non-profit making institutions and later the United Nations, where I was plucked into the flower industry.

Within those roles, I learned a lot about strategic thinking and the value of establishing a very clear focus and working with teams to achieve unique and timely corporate results. It entails everybody essentially rowing in the same direction and appropriately applying the resources within the organisation to meet the shared goal.

### **How would you describe your time as CEO Kenya Flower Council? Are you passionate about what you do?**

I am two months old but it has been rewarding so far. I have met key partners and created a close working relationship with them. My staff and the KFC Board of Directors have been very supportive. I am passionate about the industry and I am open with everyone associated with it. I am therefore optimistic of succeeding. But let me hasten to add that as CEO, I need to be broad-minded. For instance, I have to figure out what the keys are to marketing effectively Kenyan flowers, looking at the end-to-end supply chain from production to the market, and determining how KFC secretariat is actually following up with members support. My role running KFC secretariat is more about helping to find macro-solutions with other players that influence the whole flower industry.



**Other than KFC have you worked in any other agriculture related field before? With so many great organizations to work with why KFC?**

Prior to this appointment, I have worked in other agricultural value chains in Kenya. My focus has been how to utilize information systems to impact to put money in the hands of small-scale growers. This background has given me familiarity with the agricultural sector and the basic operations of the flower industry, and cross-learning, which is much-needed in this industry. I have kept contact with the Kenya Flower Council since 2012. So, when an opportunity arose and I took it. I considered the how I could utilize the knowledge I have gathered all the years in putting our fantastic product on every table or shelf globally. I saw a huge opportunity to drive us forward and see where we could go in terms of expansion of the industry.

**What are some of the key attributes you need in order to undertake your role?**

The ability to create conversations across industry players, from producers, host communities, regulators and service providers to markets for the benefit of our members is essential, as well as a good knowledge of global markets and strong negotiation skills. I engage and inspire new entrants, especially small-scale producers. Floriculture, also requires a deep respect for diversity cultural appreciation.

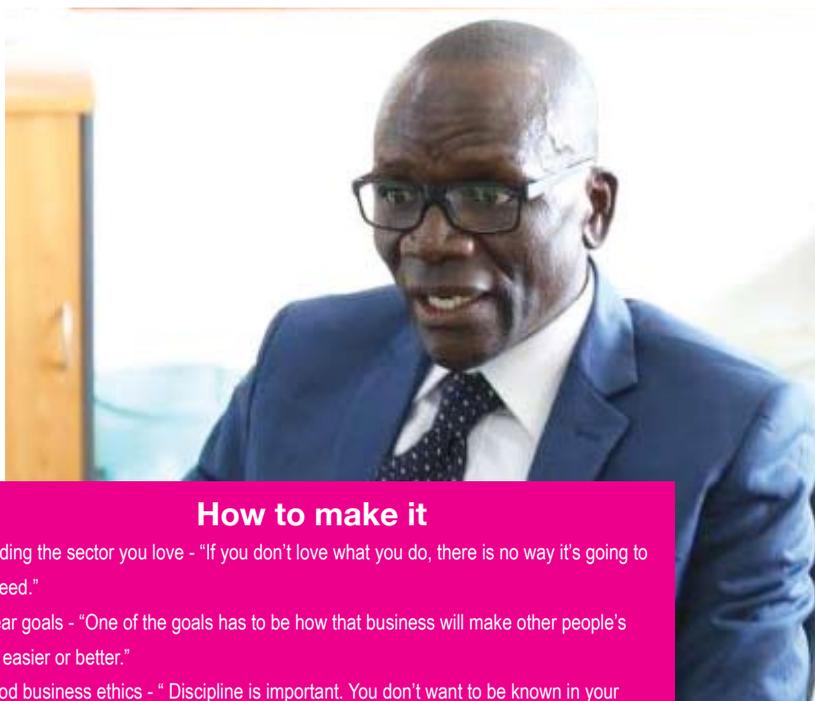
**What is your vision for the flower sector? What are your top priorities? Can you tell me about something specific that you dream for the sector that you represent?**

At a certain point, every business faces a tactical fork in the road: should it try to be all things to all people and spread the risk across multiple revenue streams? Or should it look to establish a foothold by dominating

a niche? The right option is definitely the latter. My priority is steering the flower umbrella body towards creating a lasting Kenya brand that competes as a first class product across the world; maintain the current markets, and make noticeable inroads into selected emerging markets. My dream is to see the Kenyan flower in over 100 countries globally. Every consumer must ask his retailer, do you have Kenyan flowers? Every visitor on arrival into the country must appreciate Kenya as the country of the sort-after flowers.

**This seems to be a hard task for you to achieve**

You don't often get the opportunity to take on a role like this, but I could see that working with key industry players it's possible and that's what made it an appealing move. I want to bring everybody who holds a stake on board. Our working relationship with the national government should be more of a partner than merely regulator. We also need support from the national government in bilateral trade agreements in the emerging markets, and work closely with our missions abroad to market Kenya as a major cut-flower producer. We need to strengthen linkages across the value chain, including those involved in logistics and freight to see themselves as part of the industry. Our task as KFC is to help connect these important players for growth of the industry. We have to work closely to enhance the image of Kenya's flowers in potential markets. There is an opportunity to capture customers who are looking for something a little different from what our competitors offer. We need to bring a degree of quality you see other leading exporters, with the service and personal touch. Nonetheless, we remain confident about the future of the industry.



**How to make it**

- Finding the sector you love - "If you don't love what you do, there is no way it's going to succeed."
- Clear goals - "One of the goals has to be how that business will make other people's lives easier or better."
- Good business ethics - "Discipline is important. You don't want to be known in your industry for cutting corners, not meeting deadlines or unethical conduct."
- Learning from those around - "It doesn't matter if people around you sell sweets or run multibillion companies, there is an opportunity to learn from everyone."
- Never giving up - "Always keep going and learn from whatever mistakes you make."

## From page 9

### **Briefly discuss the KFC team? How would you inspire them into full production?**

It is a great team. My task is to get the most out of the team. It will be my duty to hone one or a few main areas in which they excel and function at the optimum. However, if one loves what he or she does, then motivation will always come from within. I think we're wrong to think of work-life balance as a set of scales with life on one side and work on the other. It's much more permeable. The more that you like what you do, the more you are able to find ways of getting your non-work and work life into a useful balance.

I believe in the 'six E's' which is crucial to the success of staff. The first five are pretty self-explanatory: expectations, empowerment, empathy, equal opportunity and excitement. The last one, however – epic failures – is pretty much counterintuitive. Except it's not. I think experiencing epic failures is important to future success. As long as you're honest with yourself, you can really learn from them. I have failed many times and learned a lot from the experience to make me a better person.

### **We have had interceptions of some flowers from Kenya. What is the current status? What measures have you taken as KFC to tackle the issue of interception?**

Our growers are technically great and with the support of KEPHIS (Kenya Plant Health Inspectorate Service), they have often identified these challenges and handle them appropriately. KEPHIS has also kept the growers informed on market requirements to bring cases of interception to as low as possible. The FCM is currently a threat. KFC has worked closely with all the relevant bodies to find a common solution. We have also been able to bring grower to grower forums where they discuss some of this issue and so far it has paid dividends. This is because a ban will affect the country export but not merely a particular farm.



**Mr. Tulezi in his office working**

### **Where do you think the most significant growth will occur in the flower sector in the next few years? What new competition are you expecting then?**

What we're looking at is an opportunity to diversify our markets to emerging markets such as the American, Far East, and Eastern Europe among others and try to complement products that are already in those markets

from other major exporters in Europe and South America.

We also expect growth in technology to bring productivity low hence compete favorably with other producers. Additionally, we expect growth in small scale growers.

### **What's the biggest challenge YOU feel the Kenyan flower sector faces, and how do you inspire your members to meet it head on?**

Flower business is extremely dynamic. The industry must cope with the ever changing market demands. This is very challenging. A key part of our focus is keep up with the ever changing requirements of the markets.

### **Taxation and the cost of inputs are some of the biggest threats to flower industry, what are you doing to protect both growers and your revenue.**

My simple clarion call is if you cannot subsidise us, then support us in service provision. The challenge is how to cope with the ever increasing cost of doing business in a sustainable way. Doing business in at the county level has become more and more expensive especially since the promulgation of the new constitution. Most growers are facing almost double taxation from the two government levels. There is need to set some guidelines on who should



**Mr. Tulezi displays some football skills, he is an ardent soccer fan**

do what. This has led to high production costs which are increasing all the time. This is despite the fact that some of our competitors are getting government subsidies. We need to continue engaging the government at all levels as partners on matters of creating an enabling environment to spur business, such as reliable energy source, infrastructure, management of water resources etc.

**As a professional in your own right, what advice can you give to growers to ensure they keep their market?**

Instead of basking in the glow of the current achievement, I think we need to have set new targets. We've to constantly think about the consumer and his or her unique preferences. Meeting this objective for the industry will require some serious hard work and even deeper customer engagement. We need to keep thinking about who else is going to come to the market and how we can open up more markets. It's an opportunity to broaden our thinking even further.

**The flower sector has come of age can you enumerate any CSR program they may be running? Are you sponsoring any activities as KFC?**

While most companies promote their corporate social responsibility initiatives, the flower sector approach is to integrate values of social responsibility into everything they do, rather than tacking standalone projects. Many growers partner in building schools, roads, environmental sustenance etc. We are very focused on being custodians of the environments we have invested and

committed to working collaboratively with local communities to ensure there are long-term benefits within the locality.

**What is your personal work ethic, and how does this affect the council culture?**

I believe I need to know enough of everything. These knowledge is always handy. I also respect deadlines. As an organisation, we must have a corporate strategy that all staff must see their contribution in accomplishing. This makes it easy for each staff to see the interlinkages within the team.

I also think it's important not to lose touch with reality. So many people externally demand my time. So, it's easy not to loose touch on the frontline of the organisation, and just let people tell you. My view, though, is that it's better to find things out yourself rather than rely on layers of organisational filtering to tell you what's going on. I take time to personally talk to staff and members as often as possible.

**What decisions have you made in your career that you look back on and feel where mistakes and what have you learned from them?**

I have failed so many times in an eagerness to realise quick results from my actions. But experiencing failures is important to future success. As long as you're honest with yourself, you can really learn from them. The good news is that I have matured with time and am no longer eager to make drastic changes. Most importantly, in sticking to the 'six E's', I adhere to two simple rules: "First, always have fun. Second, never forget the first rule.

**Describe your ordinary day? Do you have**



**Saturday: A day to relax after a busy week**

**enough personal time? Is there a particular moment or memory that stands out for you?**

My day usually starts right around 4:30 in the morning with my routine exercise. By 6.30am I hit the road to the office. In the office, I start drafting out a plan for the day. I like to have some time to myself free of office distractions to map out an agenda for what I want to accomplish each day. I typically draw up a grid divided up into four sectors: team, strategy, product, and growth, and then list out the tasks that need to be accomplished in each area. This helps me make sure that I touch all of the major aspects of my daily business and don't let anything slide. I love to work late but most of the times like to be home early enough to help my children with homework. Saturday is my day for friends and as an ardent soccer fan also take time to watch football. Sunday is my family day and after church, I will always have time to relax or go shopping with my family.

**Any other thing you would like us know about the sector?**

I am delighted to work in an industry that directly and indirectly employs over 2 million people. I applaud everyone who have made a contribution to the success of the industry. It has taken dedication and innovation. I would like to keep the upward trajectory. I believe I have the support within the industry to make this a reality.



**Time with friends: Mr. Tulezi playing chess with his friends**

Theresa May,  
UK Prime Minister



# Consequences of Brexiton Plant Variety Rights

The Brexit means that, unless a ratified withdrawal agreement establishes another date, all Union primary and secondary law will cease to apply to the United Kingdom from 30 March 2019, 00:00h (CET).

In view of the considerable uncertainties, in particular concerning the content of a possible withdrawal agreement, all breeders within the meaning of Article 11 of Regulation (EC) No 2100/94 on Community plant variety rights (hereinafter: the Basic Regulation) are reminded of legal repercussions, which need to be considered when the United Kingdom becomes a third country.

Subject to any transitional arrangement that may be contained in a possible withdrawal agreement, as of the withdrawal date, the EU rules in the field of Plant Variety Rights no longer apply to the United Kingdom.

**This has, in particular, the following consequences:**

- All Community Plant Variety Rights granted pursuant to the Basic Regulation will remain valid in the Union territory, regardless of the origin of the breeder or the location of the Examination Offices.
- The Examination Offices in the United Kingdom will no longer have the possibility to participate in the technical verification of the maintenance of the protected varieties pursuant to Articles 64 and 65 of the Basic Regulation. Technical verifications following 30 March 2019 will be organised by the CPVO in an EU-27 based Examination Office.
- According to Article 82 of the Basic Regulation, persons who are not domiciled or do not have a seat or an establishment within the EU territory may participate as party to proceedings before the Office only if they have designated a procedural representative who is domiciled or has his seat or an establishment within the EU territory. All interested breeders who are currently domiciled or have a

seat in the United Kingdom only should consider the need to designate in a timely manner a procedural representative to comply with the provisions of that Article.

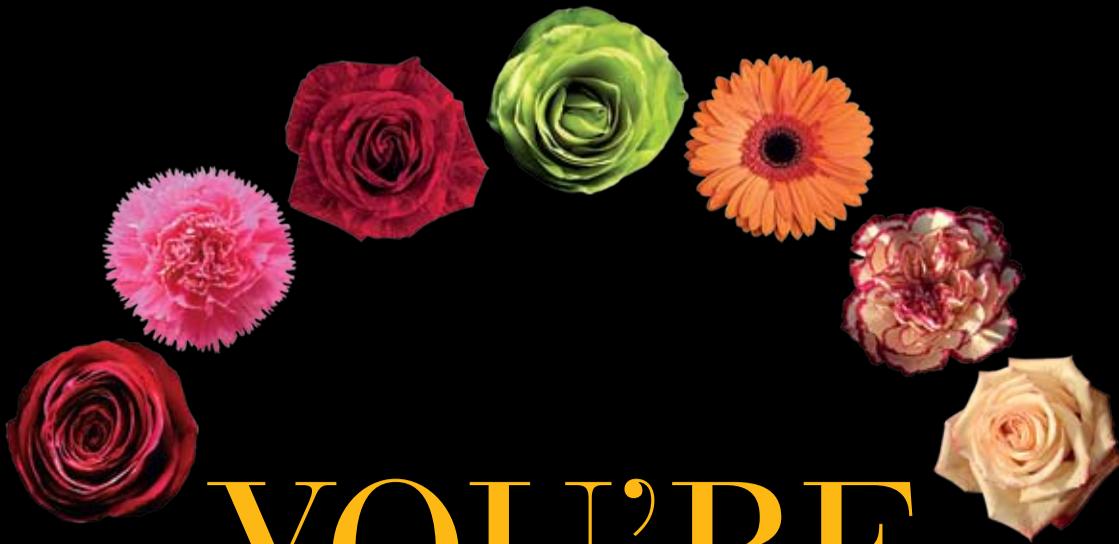
**Actions to be taken by the Community Plant Variety Office (CPVO)**

The Examination Offices in the United Kingdom are entrusted for 864 botanical taxa. Out of those, there are 678 botanical taxa for which no other Examination Office is entrusted in the Union. The CPVO has received applications regarding 324 of the aforesaid 678 botanical taxa. In order to ensure the continuity of the technical examination of varieties belonging to those botanical taxa, the CPVO has organised a procedure (the "new species procedure") to ensure as from 30 March 2019 at the latest the entrustment of Examination Offices in the Union to cover at least all 324 botanical taxa for which an actual application for a Community Plant Variety Right has been received by the CPVO. The procedure has progressed satisfactorily and six Examination Offices have been entrusted in the Union for 322 of the above species. However, taking into account the need for some Examination Offices to adapt to the new technical expectations, DUS tests for some species can only start in October 2018 or January 2019.

All information on entrusted Examination Offices and species are available on the CPVO website.

In order to avoid as much as possible transitional difficulties, CPVO will stop assigning the technical examination of varieties (Article 55 of the Basic Regulation) to the Examination Offices in the United Kingdom, where that examination is expected to last beyond 29 March 2019.

The website of the Commission, Directorate General 'Health and Food Safety', on Plants provides general information concerning Plant Variety Property Rights. These pages will be updated with further information, where necessary.



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# Flower Logistics: Cool, Competitive, Collaborative



**Packed flowers ready for export**

**The flowers in your living room may have crossed thousands of miles before reaching the vase and they smell as fresh as just being harvested. The credit goes to the logistics “cold chain” that is ensuring quick and efficient transportation to preserve the freshness of flowers.**



**B**e it the Valentine's Day, Mother's Day or any special occasion, flowers are undoubtedly one of the most traded produce globally. Quintessential to any celebration, flowers are of great importance and are integral to the human society. The cut flower industry, therefore, has been flourishing rapidly and widely, mainly on the back of air freight industry that has been instrumental in providing quick and efficient transportation to over 95 percent of the exported cut flowers. As an efficient support system, the air cargo industry ensures they have more than enough capacity to handle the constant

flow of the delicate cargo as eighty to ninety percent of purchases are shipped within 24 hours.

#### **Packing fresh flowers for transport**

With the snip of a stem – the clock starts ticking for growers who hydrate and place flowers quickly in coolers on site. Using special techniques, the flowers are then packed for transportation. The most common packaging is boxes in which the flowers are placed horizontally. Carefully loaded onto pallets, refrigerated trucks bring them to airports where they are loaded onto cargo planes.

#### **Crucial role played by air cargo industry**

The journey of flowers from the growers to the consumer isn't an easy one, for it requires specific temperatures to survive the drive. The extremely delicate nature of the grown product combined with the potential challenges of air transport means managing flower logistics demands specific expertise.

Significant air cargo players are developing special facilities designed for the transport of flowers.

One of the fundamental aspects for the transport of flowers, and of any type of perishable items, is the cold chain. The temperature control throughout the logistics chain is vital to maintain and ensure the product quality. Accordingly, airlines guarantees temperature controlled warehouses throughout the Cargo network; use of thermographs that allow the analysis of temperature information in different transport stages; temperature programming in warehouses of cargo aircraft and wide passenger airframe; and, in addition, reduced times of reception and delivery of the cargo.

Airports promote customer's refrigerated facilities, expert handling, and fumigation centres. They ensure they have enough customs and inspectors during peak season to handle the extra work load and provide the necessary truck parking and traffic flow to move the flowers off airport as quickly and efficiently as possible.

#### **Africa's flower market gathering speed**

Jane Ngige, former Chief Executive Officer, KFC, states, “Freight cost from Kenya remains one of the highest compared to other horticulture producing/exporting countries in the world. It affects the competitiveness of the Kenyan flowers in terms of cost and hinders direct exports to some destination as well as stifling those willing to venture in new destinations.”

African countries producing flowers are also grappling with the challenge of poor infrastructure. Making of a sustainable cool chain remains to be a prime challenge in Africa. Some of the farms, are actually one to three hours from the Airport, trucks take

longer to arrive, because of some challenges which come across the way, one of them being the infrastructure.

Sometimes the trucks are delayed because of the roads, especially when there is bad weather, or because of the security checks, on the way from farm to the airport. So the biggest challenge is how to make the cool chain.

While infrastructure at JKIA is catching up with the increase in production of recent years, cool chain facilitators are also doing their bit to smoothen the journey of flowers.

Jeroen van der Hulst of FlowerWatch explains, “The African flower industry grew big supplying the auctions. This is usually done through importers, who unpack, re-cut and re-hydrate flowers. Any issues with diseases, damages and opening stage can be corrected at that stage, but at considerable cost.”

“At FlowerWatch we are setting an industry standard for cold chain performance together with our customers. In our best performing cold chains our customers are grabbing new opportunities for shipping to new markets further away with higher load rates, less handling costs and a better quality. It is our firm opinion that innovation in the business can only work when our new cold chain standards are met,” adds Hulst.

With more and more efforts being put by all major stakeholders, the growers, the cool chain facilitators, air cargo players and the retailers-whose businesses are quite intermingled, the trends and opportunities in the fast-evolving floral industry looks dynamic, with the industry achieving significant growth rates year on year.



**Robert Wachira**

# Mastercop;

## The Science of Mastering Disease Control

**T**owards the end of the 19th Century, a major breakthrough in fungal control of diseases was accidentally discovered in Bordeaux region, France. To wade of passersby from eating his grapes that were along the road, a farmer used a mixture of CuSO<sub>4</sub> and lime. This made the sprayed grapes look unpalatable to the passersby. However, to his amazement this grapes were not hit by downy mildew that struck the rest of unsprayed vines that season.

This was the beginning to of a game changer in disease control in what was then to be called Millardet-David treatment. Flash forward, to this day, copper is still being used by farmers across the world to control a wide spectrum of fungal infections and bacteria. Since the Bordeaux Mixture, many other copper formulations have been developed and released for disease control all over the world. Be that as it may, this has not left us without a fair share of problems.

### Residues on leaves and produce

As it was in 1885, so it is now, no one wants to buy tomatoes, fruits or vegetables with a blue residue on it or any other residue for that matter. Therefore, after the use of powder coppers, farmers are forced to add extra labour to clean off the residue even after the Pre Harvest Intervals (PHI) have been correctly observed.

Secondly, unknown to many farmers, any other colour you add on the leaves masks the reception of light by the leaves that hinders optimal photosynthesis. In this case, disease is controlled but food resource build up in the crop is compromised. It is such a gamble!

Mastercop, does not allow you to gamble.

It allows you to have your cake and eat it. Mastercop give all the benefits of good old copper fungicides but without the annoying residues on leaves, flowers, fruits, and other forms of produce.



### Settling of Suspension in spray equipment

Most of the copper formulations form suspensions when mixed with water. This is an issue of distribution of the copper particles in the mixture. When this happens, the copper mixture may settle in the spray tank and requires constant agitation. Further, this may lead to the clogging of the same spray equipment.

In modern agriculture, the need to control soil dwelling pathogens is coupled with the possibility of doing so via drip irrigation. This can not be done with powder copper formulations because they also clog the drip lines. But even more importantly is the inability of this particle sizes to penetrate the leaf cuticle. Due to this problem, farmers have to use coppers at a higher application rates in order to have more copper particles distributed over the leaf surface. All the above problems come with serious cost implications, but also it ends up with a very high loading of copper in the environment creating new problems. It is such a hustle!

Worry no more! Mastercop is a true solution. This means that Mastercop does not form a suspension in water mixtures and therefore is a very good candidate for application via drip to kill the soil dwelling pathogen. Due to its solubility in water, Mastercop is

highly bioavailable and very well distributed on the leaf and this leads to very low application rates peated against its powder counterparts. Mastercop is therefore very friendly to the growers spray equipment and drip lines.

### Compatibility

Most of the copper formulations are not compatible with other pesticides. With this, they have to be sprayed separately and therefore it is more costly labourwise. In many parts of the world, farmers

have reported compatibility of Mastercop with some of the most commonly used pesticides. It is however highly recommended to conduct a compatibility test all the time prior to combining any two pesticides.

Mastercop is a Master in much more.....

- Mastercop is registered at Zero (0) days PHI. It additionally has an OMRI organic farming certification
- Mastercop has a very broad-spectrum mode of activity including bacterial diseases.
- Mastercop is a must have in the spray program that helps the grower reduce on the total number of active ingredients
- Mastercop has a multisite mode of action playing a key role in resistance management in IPM programs
- MASTERCOP is an Original Chemistry manufactured by ADAMA
- SCAN THIS BARCODE FOR MORE INFO

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# Harvesting and Handling Cut Flowers

disorders such as bent neck, improper development of pigmentation, or abnormal opening of the buds can result when flowers are harvested when they are too immature. If flowers are to be stored or shipped long distances, then they are usually harvested at an earlier stage.

## Prior to Harvest

- Plants should be healthy and turgid.
- Plastic buckets and cutting tools should be cleaned and sanitized.

- Avoid stacking buckets if the outside is not as clean as the inside.
- Cutting tools should be sharp. Dull cutting tools can result in crushed stems that reduces water uptake.

Many growers also add a biocide to the water. Biocides are chemicals that prevent the growth of bacteria, yeasts fungi and other microorganisms and are commercially available. Microorganisms and the substances that they produce can plug the xylem (water conducting tissue) of the plant, thus blocking the uptake of water. Researchers have shown that there is a strong inverse relationship between the number of microbes in the water and the longevity of cut flowers.

Common biocides are calcium or sodium hypochlorite (bleach), aluminium sulphate, and salts of 8-hydroxyquinoline. Regular household bleach is very short-lived (+/- 4 hours) compared to commercially available slow-release chlorine tablets (about 2-3 days

## Organic Flower Post Harvest Care

Biocides and preservatives are generally not approved for certified organic production.

Organic growers are advised to check with their certifying agent. It is important that certified organic flower growers practice excellent sanitation and harvest at the proper stage of development to ensure maximum vase life for flowers.

## Harvesting

Flowers should be harvested in the morning (after dew has dried) or evening, not during the heat of the day. Ideally, flowers should be harvested in the morning when temperatures are low and plant water content is high. Make cuts to the plant to obtain long, sturdy stems. Remove the foliage on the stems that will be below the water which will decay and encourage bacterial growth. Some flowers benefit from removal of most or all of their foliage. Also, for some flowers, side shoots on the main stem are often removed at the time of harvest. Stems can be cut on a slant or straight (square). Slant cuts will keep stems from lying flat on the bucket bottom and increase water uptake.

Flowers should be graded and bunched immediately after harvest. This practice reduces handling steps and minimizes mechanical damages that often occur on the flowers and leaves. If grading and bunching cannot be done immediately, then flowers should be placed in clean buckets. Warm, acidic water reduces air bubbles. Avoid over-filling the containers with flowers to prevent bruising and tangling. The depth of the water in the buckets should be deep enough to cover the bottoms of the stems, usually 1-6 inches depending on the size of the stems and buckets.

During harvest, some growers place buckets at the end of the rows where they place flowers as they cut. Flowers should never be placed directly on the ground or laid on dirty surfaces where they can

**M**any farmers grow cut flowers for export in Kenya. Proper harvesting and care of flowers after harvest are important to maximize the vase life and ensure a high quality product.

Maximizing the vase life of cut flowers is dependent on pre-harvest procedures too. Long before harvest, variety selection should be considered for postharvest longevity to provide the best possible varieties. The weather conditions and plant environment also affects the postharvest longevity.

## Flower Maturity Stage to Harvest

It is important to know the optimum stage of harvesting for each variety to ensure the quality of flowers after harvest. For maximum vase life of cut flowers, harvest flowers daily at their proper stage of development. Harvesting too early or too late significantly reduces the vase life of the flowers. If harvested after the optimum stage, the developing flowers use the carbohydrates that will be used for the development of smaller flower buds, thus, slowing down the growth of other flowers.

Each variety has a minimum harvest maturity stage in which flowers can be harvested without affecting their postharvest quality. In some varieties,

collect dirt and contaminate the stems and buckets. Flowers and foliage stems should always be kept clean. In addition to clean buckets, cutting tools should be regularly disinfected. Some growers place a bucket containing disinfectant solution and clippers at the end of the row to encourage harvesters to easily exchange used tools for clean ones as they finish a row.

It is best to harvest small quantities at time and bring them into a cool area and place them into the prepared buckets. Buckets placed under portable tents or patio umbrellas work well to create shady areas and reduce heat in the field. A shady area lowers the temperature, reduces water loss and respiration rate of the flowers, and therefore increases the postharvest life and quality of the flowers.

#### After Harvest Care

After harvesting, flowers are then moved to a cool area where stems can be recut and placed in solutions depending on the specific need of the flowers. Once harvested, flowers continue to transpire and will wilt rapidly. Most flowers will fully recover from wilting if recut and placed in a warm, rehydration solution. Stems are recut by removing about an inch of the end of stems under water prior to placing them in their solution. This helps prevent air bubbles in the water conducting tissue. Air bubbles reduce the uptake of solutions. Always treat flowers before they are sleeved to hasten uptake into the stem.

#### Importance of Cool Temperatures and High Relative Humidity

Proper temperature management is an important factor for maintaining the quality and vase life of cut flowers. As storage temperatures increase, respiration and water loss increases and wilting occurs. It is important to cool harvested flowers to remove field heat.

For convenience only, export flowers should be moved to a cooler as soon as in order to best preserve quality. The best practice is to harvest flowers at their optimum stage and store them at the lowest possible



**Harvesting of flowers is an art not for all**

temperature you can provide without causing freezing or chilling injury.

Generally, the lower the temperatures, the longer the flowers last. Most flowers will retain their quality if stored at temperatures near the freezing point. Others, such as those originating from subtropical and tropical regions, develop chilling injury if stored at temperatures below 50F. Symptoms vary depending on plant species and may include darkening or water-soaking of the petals and death of flowers. Relative Humidity is another factor that affects uptake of solution. High relative humidity reduces transpiration and keeps flowers from drying out.

#### Water Quality, Hydrating Solutions

Replace the solution often to avoid allowing the solution to become cloudy, which indicates of the presence of high counts of microbes. Dirty water contains bacteria that will prevent uptake of water. Another important factor is the specific ions contained in the water. Water quality that is good for human consumption may not be

good for cut flowers.

#### Supplying Food

Once harvested, cut flowers are typically placed in a low light or dark environment where photosynthesis is at a minimum. Photosynthesis is a biological process forming carbohydrates (from CO<sub>2</sub> and H<sub>2</sub>O in the presence of light), and carbohydrates are needed for the cut flowers to continue to develop. Much of the carbohydrates needed come from starch and sugars stored in the stem, leaves, and petals but the levels may not be adequate.

In addition to clean, acidified water with a biocide, a continuous supply of food (sugars) is needed by some flowers for maximum postharvest life of the cut flowers. Water and the addition of preservatives to the solution will result in the best performance of many flowers. Numerous brands and mixtures of floral preservatives and flower care products are commercially available and each is formulated for a different purpose.

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Flowers transported from farm to pack house

## From page 17

### **The basic types of flower care products include:**

**Hydrating solutions:** After harvest, hydrating solutions are used to facilitate water uptake and restore the turgor of wilted flowers. They are used immediately after harvest and are usually used for a short time, for example four hours. Some growers use hydrating solutions in the field to help prevent flowers from wilting and to restore wilted flowers.

**Holding solutions:** In addition to a biocide and acidified water, holding solutions also contain a carbohydrate source (sugar) to encourage bud opening and flower longevity. Holding solutions are usually used after the hydrating solution for several hours for up to two days.

Depending on the intended use of the preservative, the concentration of each ingredient may vary. For example, a preservative formulated for hard water will contain more citric acid or other acidifiers than the general purpose formula. Many, but not all cut flowers benefit from a solution containing 1 to 2% of sugars and a dilute biocide.

**Vase solutions:** (also called flower preservatives) often contain higher concentrations of carbohydrates than

holding solutions and are used by the consumer.

### **Ethylene**

Ethylene, an odorless and colorless gas, is a natural plant growth hormone that affects many physiological processes ranging from seed germination to senescence of plants. Flowers generate ethylene as part of the normal aging process. To maximize vase life of flowers, it is important avoid storing flowers with fruits and vegetables.

Certain cut flowers are very sensitive to ethylene and very small amounts (levels as low as twenty parts per billion) can be very harmful. This level of ethylene is common in supermarkets and in the atmosphere of large cities. Responses to exogenous ethylene vary with varieties, and include abscission, abnormal development of the flower buds, failure of the buds to open and death of the flowers.

In addition to cut flowers, some cut herbs that are being used as cut flowers are also sensitive to ethylene. It is thus important that flowers and greens used for cut flowers that are sensitive to ethylene be handled in areas devoid of ethylene contamination.

There are some commercial treatment products to prevent the effects of ethylene by susceptible flowers.

Typically, accumulation of ethylene is minimal in well-ventilated areas, making these spaces suitable for the handling of flowers. However, if flowers are handled in a closed environment, then, it is important to minimize contamination.

### **Maintaining Straight Stems**

Flower stems naturally bend away from gravity and this phenomenon is called geotropism. This bending of the stem away from gravity results in curved stems when they are later placed in a vertical position. These flowers should be handled upright whenever possible.

### **Mechanical Damage**

Mechanical damage to the leaves and flowers reduces the aesthetic value of the flowers and bruised petals and leaves are more prone to infection with disease organisms and ethylene production. The quality of cut flowers is best maintained with gentle and minimal handling.

### **Botrytis**

Cut flowers are susceptible to the fungus disease botrytis, which will cause flowers to turn black and decay. Botrytis has ranges of temperature and relative humidity that are necessary for spore germination, infection and disease development.

Spore germination and infection depends on a film of moisture for 8 to 12 hours, relative humidity of 93% or greater, and temperatures between 55-65F with colonization of plant tissues occurring at temperatures up to 70F.

**Management:** Botrytis can be managed by proper environmental management.

To prevent botrytis, avoid harvesting and storing wet flowers. Also, avoid moving flowers directly from cool to warm rooms which results in water droplets forming (condensation) on flowers, leaves and stems. Maintain dry floors in areas where flowers are processed. Do not dump buckets of water or hose down floors. Wet floors will increase relative humidity and increase the risk for botrytis infection.

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# Dutch Floricultural Industry is in for a Shock

Online sales is gaining ground very rapidly and that's going to cause a real shock to the current floricultural sector, which has been around for quite some time.

**T**he Dutch floricultural industry is going to see some big changes. And when it comes to adapting to the changing market demand, growers shouldn't hold back, but go full speed ahead. It's the only way the role of for example Royal FloraHolland can be preserved, stated Rabobank, the largest financial service company in the Dutch horticultural industry, in a recent study. "All entrepreneurs, from small to large, have to take their responsibility."

Rabobank is optimistic with regards to the opportunities lying ahead for the Dutch floricultural industry. In their study about the future of the sector, the cooperative bank forecasts a 2% growth per year for consumer spending on plants and flowers. The Dutch floricultural industry can benefit from this growth. But only if entrepreneurs throughout the entire chain, including breeders, growers and exporters, act now. "The organisation of the chain and the companies within it are going to experience some major changes", says Arne Bac, horticultural sector specialist at Rabobank. Bac conducted the study together with colleague Lambert van Horen, analyst with Rabobank's Fresh Produce sector team.

They concluded that the chain will have to adapt rapidly, because European consumer demand is going to show some drastic changes. Plant and flower sales through supermarkets and online shops are going to increase strongly until 2027, while sales through florists are going to go down during that period. Rabobank expects that in ten years time, all three distribution channels

will have reached a consumption value of €11.2 billion each, Europe-wide.

Online sales in particular, are really going to take off. The consumption value for Europe is at roughly €2.2 billion this year, but according to Rabobank it will be five times more in ten years time. The main reason for this is that the millennials, the generation born between 1985 and 2000, are buying more and more plants and flowers. And they're used to online shopping. Research showed that men, in particular, tend to buy plants and flowers with one push of a mouse button.

And more customers pick up a bunch of flowers or a plant when they're in the supermarket or the DIY store (retail). Bac and Van Horen expect that sales through the large European supermarkets are going to increase by 60% until 2027. However, sales through florists and specialist shops are going to go down by a third during the same period. This means that each of the main chains (florists, retail, online) would have a 30% share by 2027. "Ultimately, it's not going to be exactly equal of course", says Van Horen, laughing, "but the trend is clear." The floricultural chain has to respond to consumers' changing purchasing behaviour. The shift towards mainly online is a real game changer."

Online sales is gaining ground very rapidly and that's going to cause a real shock to the current floricultural sector, which has been around for quite some time. The role of Royal FloraHolland, nowadays the hub in the chain, is going to be crucial.



"The first, and very important question is: who is going to be the consumer's digital marketplace for plants and flowers?", says Van Horen. "The digital playing field for business to consumer only has room for two, maybe three, large players. That's all the consumer needs. FloraHolland could be one of those, but it might be a service provider or exporter who is going to take care of supply management for the online shops in the market. Don't forget, there's an awful lot of work involved with the physical handling of online orders."

The online market is an extremely intricate chain, where speed and reliable IT systems are crucial. Large amounts of small orders need to be delivered to customers quickly, preferably the same day. "As a service provider, FloraHolland could excel in the organisation of this physical flow", says Bac. "But only if the auction is able to adapt effectively, as new providers can join the market, too. And they are not burdened



**Rabobank Headquarters**

with ingrained patterns from the past.” All in all, Rabobank concludes that the position of FloraHolland is under pressure. Just like Lucas Vos, former CEO of FloraHolland, the bank feels that the increase of the world production and trade is clearly larger than the growth in the Netherlands and the turnover of FloraHolland in particular.

The share of the Netherlands in the global flower export has gone down the last ten years, from 50 to 43%. According to the bank’s forecast, this will see a further decline to 35%. Countries like Kenya, Ethiopia, Colombia and Ecuador are organising their distribution without the help of the auction more and more. And the Dutch production companies are not going to benefit from the enormous growth of plant and flower sales in Asia.

The forecast is that the Asian consumption value is going to increase by 80% the next ten years. “We are questioning whether



Dutch production companies will be able to benefit from this growth in the long term”, indicates Van Horen. Intercontinental transport of plants and flowers is not sustainable. The increasing demand on other continents is going to be fulfilled by those continents themselves.”

Van Horen also expects that FloraHolland will have to let go of retail, despite the fact that they are trying very hard to keep this segment on board. The retail

chain is going to organise its product flows without the help of the auction, that goes for assortment, distribution and especially payment. Rabobank thinks that FloraHolland will be able to maintain its current role in the market for florists and specialist shops. But that segment is going to be reduced by a third the coming ten years. “So getting in on the online segment is crucial for FloraHolland” according to Bac. “That’s why Floriday is a good initiative, but it remains to be seen how the market is going to respond

### **Fewer companies means narrower assortment**

The number of Dutch floricultural companies cultivating in greenhouses, is going to be halved the next ten years. From 1,972 companies in 2016, to around a thousand by 2027. The main cause for this decrease is the lack of a successor. Although the total acreage of greenhouse plants and flowers won’t be halved, Arne Bac does consider this development to be risky. “The breadth of the assortment will be under pressure, when many smaller companies offering interesting niche products, are at risk of disappearing.”

In its study, Rabobank indicated they expect that in the coming years, many nurseries will merge, and growers are going to manage sales themselves. The added value of such mergers could be that companies no longer focus on one particular crop, but on a wider assortment instead, suggest Bac and Van Horen. And in that case they will no longer depend on trading companies in the chain so much and they’ll be a more interesting partner for the retail sector.

Bac thinks that a potential solution for the nurseries might be the so-called threading system that Dümme Orange applied in the breeding sector. They brought together various breeders, large and small, who work on different types of crops. “That might be the best model to maintain differentiation within the chain.”

# The True Price of Management Fees

By Catherine Ngina Mutava

Tax treaties are supposed to serve two purposes. They are meant to avoid double taxation and to prevent tax evasion. In practice, they all too often turn out to be double non-taxation agreements.

Tax is like a cake. Everybody wants to have a slice, but you really only want to share it with people you like. If everybody who wishes to have a piece gets one, the cake is gone soon. For this reason, governments agree on tax treaties that spell out what country gets to tax what part of an internationally run business.

Tax agreements are complex legal arrangements, but it can generally be said that they distinguish active from passive incomes. Typically the host country has the right to tax activities that take place within its borders, while the country where the company resides is entitled to collecting taxes on dividends, royalties, interest payments and other kinds of passive income. The passive income, of course, reduces the profit made in the host country – and thus the host country's scope for taxation.

One term that helps to boost passive income is "management fee". It is so vague that it doesn't really mean anything much at all. A foreign company can simply charge its African subsidiaries management fees for any kind of advice or service it provides, syphoning off profits from the host country.

Corporate giants like Google, Amazon or Starbucks use management fees and royalties to shift profits to tax havens. They claim that their various subsidiaries are paying for intellectual property rights, management services and other things. In reality, of course, the multinationals are not running serious operations in the tax



**Times Tower: KRA Headquarters**

havens concerned.

Kenya is one of the largest flower exporters to Europe. Despite this, some flower companies in Kenya do not pay taxes in Kenya. Foreign owners, provide the capital and have found clever ways of shifting profits by charging the Kenyan flower companies all sorts of fees including marketing and management fees. In accounting terms, they are not making money in Kenya.

We must not take for granted, moreover, that the flower companies pay taxes in Netherlands. Rich nations' tax systems have all sorts of loopholes, and their governments are creating tax havens of their own. The Netherlands are known to be a low-tax country.

The truth is that Kenya needs government revenues to build infrastructure and provide public services, but a large number of companies that are active in an important sector of the economy are probably not being taxed at all. This is not fair, but it is perfectly legal.

It would be wrong to blame only the rich nations' governments for this sad state of affairs. African governments are signatories of the treaties too. The truth, however, is that there is a lot of elite capture, which is why the African Union is unlikely to become a force for positive change in international tax matters. After all, the people who make decisions in the AU context are the people who have money in Swiss banks.

Tax treaties tend to contain very many loopholes. Combined with national loopholes, they often add up to double non-taxation agreements. The good news is that African countries have begun to close national loopholes. If tax authorities work hard on improving their transfer pricing units, moreover, they can claw back some money from multinationals. Kenya has recently been quite successful at doing so.

On the other hand, African leaders are tempted to create tax havens of their own. When the public was not paying attention before the elections in summer, Kenya passed a law to establish the Nairobi International Financial Centre. The official mission is to create an internationally competitive hub for the financial industry, but the hidden agenda is to have a tax haven. Strict secrecy rules will apply to firms registered there, and the central bank will not have oversight. Top policymakers, including the president, are on the Centre's board, and they will be in control.

They are determined to have a tax haven of their own, but whether they will succeed, remains to be seen. Kenyans are known to be fond of litigation, and the new centre is likely to be challenged in court.

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# Alstroemeria: sparkling colours and enduring friendship

A special flower that's available in many sparkling colours.

When you see the freshly cut flower, the Alstroemeria hides its beauty in the bud. But when it opens it surprises you with many sparkling colours. The six to eight flowers on the stem become visible, often in some form of tiger print, combining sparkling colours of white, yellow, red, orange, purple or pink. Another characteristic is the stem with beautiful twisted leaves.

## Symbolic

A great reason to use this flower in bouquets is its symbolic meaning of enduring friendship. All six of the Alstroemeria petals are very important. They stand for understanding, humour, patience, empathy, commitment and respect.

Your customers can decide for themselves which petal represents which quality. All the more reason that these should be enjoyed as long as possible in the vase!

## Post-harvest treatment

The right treatment to keep your Alstroemeria's beautiful after harvesting is Chrysal BVB (0,15 ml/l). It prevents the yellowing of the leaf and ensures that the buds open fully. When you combine the treatment of Chrysal BVB with Chrysal AVB (0,5 ml/l), the Alstroemeria is also protected from ethylene. It prevents the dropping of buds and premature aging of the flowers.



**Chrysal AVB** prevents dropping of buds and premature aging.

**Chrysal BVB** ensures buds open fully and prevents leaf yellowing.

For more information on our products and services - contact us at [info@chrysal.co.ke](mailto:info@chrysal.co.ke)

**CHRYSAI**

# Current State of the Potato Sector

Currently, potato is considered as the second most important food crop (to maize), and a major source of income for an estimated 800,000 farmers. The crop has very good prospects for business-to-business linkages along the value chain, led by a growing processing sub-sector in Kenya and the need for service provision along the value chain.

**P**otato (*solanum tuberosum*) has become an important food crop. Its high yields, relatively shorter growth cycle (90-120 days) compared to other food crops, and nutritional properties (carbohydrates, protein, vitamin, and potassium) make it an important crop in the quest for food security. Furthermore, the demand for (processed) potatoes in urban and rural centres is growing exponentially which is due to a fast growing middle class.

Currently, potato is considered as the second most important food crop (to maize), and a major source of income for an estimated 800,000 farmers. The crop has very good prospects for business-to-business linkages along the value chain, led by a growing processing sub-sector in Kenya and the need for service provision along the value chain.

Potatoes can be in two forms; ware potatoes or seed potatoes. Ware potatoes are potato tubers that can either be used as boiled vegetables (called table potato) without any form of prior primary processing, or used for processing into crisps/chips.

Currently, potato production is largely a smallholder activity. Average cultivated land sizes are less than two hectares in Kenya, and farmers mostly perform farm operations manually with traditional farm tools and production techniques. This situation results in low yields (of about 8-10 tons/ha of potatoes

in Kenya), high losses, and poor quality of produce. The market for potatoes mostly operates under free market conditions. Potato marketing is mostly done in three forms; seed potatoes, ware potatoes for the fresh market, and potatoes earmarked for processing.

#### Field Visit

Potato farming is one of those businesses that can either make or break you. You can get good returns provided you are willing to learn how to navigate your way up or you can literally "burn" your whole investment in less than 3 months. In Kenya Potatoes are highland crops and they grow well in most major parts of the nation including Molo, Kinangop, Taita Hills, Yatta, Timboroa and parts of Laikipia.

**Seed Potatoes** Most farmers do not have adequate storage facilities for seed potatoes. Some potato seed tubers are stored at home, until planting time. In Kenya, seed potatoes are generally stored on the floors of farmhouses and in round huts made of mud bricks and straw constructions. High losses occur because of diseases (rot) and pests (rodents) attack. Some small to medium scale seed potato producing farmers constructed diffused light stores. They constitute a minimum of 10% of the farmers in Kenya. A far less percentage that is large commercial farms has their own cold stores for the storage of seed potatoes.

#### Tips For Picking Land For Potatoes

- Should not be too far from tarmac (1-2Km



recommended)

- Look for one with reddish soil (toney)
- Avoid land with a bad history of potato production
- Avoid land that lies adjacent to a river to minimize chances of frost bite

#### Tillage

Manual tillage of land using hoes, animal driven ploughs, and other rudimentary tools is still practiced by potato farmers in Sub-Saharan Africa. Those who use the tractor to plough their land, often do so with disc ploughs. Tillage by hand or with a disc plough is both inadequate, as they tend to turn the soil at a very shallow depth. Manual tillage, for example, seldom exceeds a depth of 10-15cm while disc ploughs reach a maximum depth of 20cm. Disc ploughs and animal driven ploughs leave big clods on the land, which makes soil seedbed preparation difficult. In addition, such fields do not facilitate the development of young plants and tuber development.

#### Buy Certified Seeds

You may be tempted to take a short-cut by buying seeds from other farmers but you should know that this is the biggest mistake that most farmers make. If you want to get the best harvest, then you have to get the best disease-free seeds.

#### Tips For Buying Seeds

- Only buy certified seeds
- Talk to local farmers about which breeds



Potato field

do well in the area around your farm.

- Examples of potato breeders are

Tigoni, Kenya Mpya, Asante and Shangi  
Planting / Seed Potato Tubers

Planting is done manually by making holes with a hoe and covering the tubers with soil. As the plants sprout and grow, ridges are then formed by a hoe. But the shallow and narrow ridges hinder tuber development. The process



Potato Seeds

is also very labor intensive. Farmers with larger plots rent tractors that pull the ridgers. In such cases, initial steps are taken to mark the rows, place the seed potatoes in the marked rows by hand before the ridger covers the tubers with soil forming smaller ridges.

#### Cultivation / Weed Control

Cultivation and weed control is mainly carried out by hand. Weeding and hilling are performed using exclusively forks and hoes. Farmers also hire labor for this. Large commercial farms apply herbicides and use tractor mounted ridgers. A few service providers having ridgers cannot make use of the equipment for cultivation because they have no access to the type of tires required to drive in between the rows. This is also indicative of the potential lack of spare parts to ensure proper maintenance of equipment.

#### Plant Protection and Nutrition

If crop protection measures are applied, small-scale farmers mainly do this with hand-driven knapsack sprayers. Most small holders own such a knapsack. One limitation with the use of this sprayer is the difficulty to keep an appropriate application rate through the operation, especially on larger plots.

Most farmers furthermore, do not know what nozzle sizes to use for particular chemicals at different times of spraying. Additionally, farmers apply DAP fertilizer in combination with manure.

#### Tips For Buying Chemicals

- Go for nematicides if you notice small wounds on potato roots
- Go for fungicides in case of signs of blight

#### Harvest

The majority of potato farms harvest the potatoes manually with a hoe and/or fork "jembe", which results in significant damages and losses of potatoes. Damage caused by casual labor and harvesting tools represents 7.4% of on-farm losses. Farmers also harvest immature potatoes for different reasons. In Kenya, the

early harvesting is practiced because farmers want to enjoy higher prices, which occur before the peak of the season. Harvesting is labor intensive and the use of inappropriate tools results in damage and poor quality of tubers. Currently, there are no known service providers in Kenya, from whom farmers can rent harvesting machines.

#### Conclusion

It is one thing to plant potatoes; selling them and getting the best prices is another. In the potato world, there exist some sharp individuals called brokers. They come with Lorries and move from door to door buying farm produce at some punitive prices. The good thing with brokers is that they save the farmer the hassle of finding the market, but the bad thing is that the prices they give are sometimes unsustainable and that explains why many first-time potato farmers "burn".

So what's the secret to dealing with brokers? The first strategy is to plant your crop at around December so that you harvest it at around February or March when there is short supply and prices are favorable. In addition, you can source your own market.

In total, you will require about Ksh80, 000 for an acre of potatoes (from planting to harvesting). Going by the current market price for a sack of Shangi potatoes is Ksh4, 000. An acre of land can produce 80 bags of potatoes in 3 months. So let's do the math.

$Ksh4, 000 \times 80 \text{ bags} = Ksh320,000$  (Revenue)

$Ksh320, 000$  (Revenue) –  $Ksh80, 000$  (Expenses) =  $Ksh240, 000$  (Net Profit) in just 90 days.

**NB:** Amounts from a local small holder not scientific proven. Not reliable.

#### Final Word

Potato farming is a good venture. It is not a get-rich-quick scheme (though) and majority of first time investors may lose their money due to obvious mistakes. All it takes is a bit of discipline, hard work and strategy

**NB:** In our next issue we will discuss the Kenyan potential and professional farming



**■ - BASF**

We create chemistry

## Orvego®

Confidence and convenience FOR THE GROWER  
in control of downy mildew in roses and Blights in potatoes

Orvego® is the innovative fungicide from BASF that combines the well-known active ingredient Dimethomorph with the new active - Initium to form a premium preventive shield against downy mildew in Roses and blights in potatoes.

### Product Profile

Active ingredients	Dimethomorph 225g/L + initium® 300g/L
Formulation	Suspension Concentrate
Crops	Roses and Potatoes
Dose Rate	0.8L/Ha or 16ml/20L water
Activity	Preventative and Curative
Timing of Application	Preventative before disease onset
Diseases controlled	Downy mildew, Late blight
Spraying interval	5 – 12 days in spray program
Mode of Action	Inhibition of respiration and cell wall deposition
FRAC Code	Code 45 - Respiration and Code 40 - Cell Wall Biosynthesis

If you expect more from a new fungicide, Orvego® is the new opportunity. Orvego® has excellent regulatory profile, meeting not only your own needs but also those of consumers and the environment. Overall, this ensures high yields and reliable crop quality – adding to your confidence and convenience.

### Key Benefits of Orvego®

Feature	Benefit
New generation fungicide with dual mode of action	Excellent tool for resistance management
Highly effective and long-lasting activity against downy mildew and phytophthora species in Roses and potatoes	Gives you peace of mind
IPM compatible	Gives you flexibility in use
Short re-entry period	Safe for the workers
Superior SC formulation	Yields high quality and residue free flowers



# Avocado Billions

## Who is Ready to Grab them?

Avocado is an important commercial fruit grown mainly by both small and large scale farmers. The main avocado varieties grown for export market are Hass and Fuertes. In addition, three others are traded in the local market which includes Puebla, Duke, and G6.

Monthly Profit & Loss Account Year 2													
Gross Farm Sales in Kshs	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	TOTAL
No of Avocado Containers sold	-	15	30	45	40	30	25	15	-	-	-	-	200
Sale Price Per Container EU (63000 US \$)	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	
Sale Price Per Container Middle East (57000 UD \$)	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	
Gross Sales in US \$ Middle East EU	0	945000	1890000	2835000	2520000	1890000	1575000	945000	0	0	0	0	12,600,000
Gross Sales in US \$ EU	-	855,000	1,710,000	2,565,000	2,280,000	1,710,000	1,425,000	855,000	-	-	-	-	11,400,000
Average Gross Sales in US \$	0	900,000	1,800,000	2,700,000	2,400,000	1,800,000	1,500,000	900,000	0	0	0	0	12,000,000
Total Cost of Goods Sold	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	TOTAL
Avocado Purchase	-	99,000	198,000	297,000	264,000	198,000	165,000	99,000	-	-	-	-	1,320,000
Field Transport Costs	-	54,000	108,000	162,000	144,000	108,000	90,000	54,000	-	-	-	-	720,000
Processing & Packing Costs	-	45,000	90,000	135,000	120,000	90,000	75,000	45,000	-	-	-	-	600,000
Boxing	-	18,000	36,000	54,000	48,000	36,000	30,000	18,000	-	-	-	-	240,000
Freight Costs	-	54,000	108,000	162,000	144,000	108,000	90,000	54,000	-	-	-	-	720,000
Labour Costs	-	27,000	54,000	81,000	72,000	54,000	45,000	27,000	-	-	-	-	360,000
Miscellaneous Cost	0	27,000	54,000	81,000	72,000	54,000	45,000	27,000	0	0	0	0	360,000
Total Cost of Goods Sold	0	324,000	648,000	972,000	864,000	648,000	540,000	324,000	0	0	0	0	4,320,000
Gross Firm Income	0	576,000	1,152,000	1,728,000	1,536,000	1,152,000	960,000	576,000	0	0	0	0	7,680,000
Other Expenses													
Personnel Expenses	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	64,800
Operational Cost	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	17,940
Total Other Expenses	6,895	6,895	6,895	6,895	6,895	6,895	6,895	6,895	6,895	6,895	6,895	6,895	82,740
Net Farm Income	-6,895	569,105	1,145,105	1,721,105	1,529,105	1,145,105	953,105	569,105	-6,895	-6,895	-6,895	-6,895	7,597,260
Cumulative Monthly Income	-6,895	562,210	1,707,315	3,428,420	4,957,525	6,102,630	7,055,735	7,624,840	7,617,945	7,611,050	7,604,155	7,597,260	



As the fruit matures at different times in the year depending on altitude, rainfall and temperatures, farmers market their fruit differently to a range of outlets. The avocado value chain has developed with a business oriented approach that aims at capturing the best return at each stage of production, processing and trading. The chain is made up of several individual players, who are closely linked to each other and depend on each other's trust, co-operation, communication and ability.



“Exemplary great and growing fast!!” That was the clear answer from a Kenyan grower, when I went calling to understand the avocado market. “Global avocado consumption is growing by about three percent every year; however, production growth remains a little behind. Worldwide investments in the product are on the rise but cannot match the demand. For now, the market is big enough for all players involved”, he added.

When the Investor had engaged a consultant two years ago to understand the market which led him to the bank to apply for a loan, he wasn't sure whether he will get his money back. He had no experience as a grower, he had just been retrenched as a civil servant and wanted to try his luck. The consultant was crystal clear to him. “If you do not know how the global sector operates you cannot get far with the investment. You need to understand the seasons and the market dimensions”, he told me as we toured his expansive farm. “Worldwide, investments in avocado are on the rise. However, consumption is growing rapidly especially in North America and Europe. Europe is recording high prices due to low supply but in America, prices remain at a reasonable level while China is a major import market”, he added.

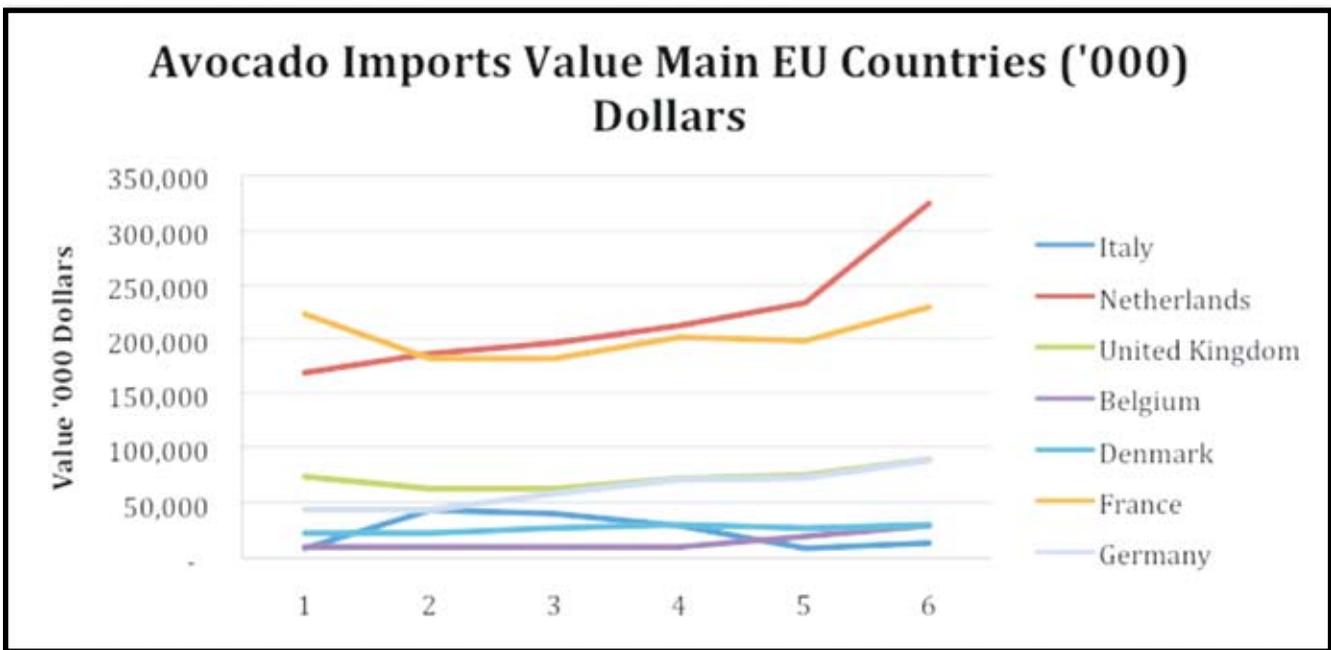
#### World Avocado Production Review

“For a start, the market for avocado is one of the most dynamic in the fresh produce trade”, the grower told me. The demand of horticultural products is quite steady in recent years due to the economic downturn but the market for avocado is has been growing and is expected to grow about 2% per year at the world level and 2.6% in the European Union countries by 2018.

#### Understand the Market Dimensions

“You do not need to invest in the sector to compete but to compliment”, he began. “Therefore you need to understand the global production, the seasons and target market. This is the only way you will understand your entry point”, he went on. “So let us start our global tour from Mexico. Mexico focuses too much on their next door neighbours, the U.S. During the 2015/2016 season, they exported over 1 million tons of avocados worldwide. Of these, 860,000 tons were shipped to the United States and more than 15,000 tons to other markets. Down south in South America is Chile. The Chilean ‘Hass’ avocado industry is mainly exporting to China. The Chinese market which was opened in 2014 has sharply grown. Across the border is Peru whose exports are now stable. The demand for Peruvian avocados has been very good in several markets with a huge part going to Spain”, he said.

From America, the farmer took me to Europe where Spain is the main gateway especially for the Peruvian and South African avocados. The Spanish domestic market is also developing with consumption growing between 15 and 20 percent annually. In the Caribbean's, where the seventh ranked exporter, the Dominican Republic is domiciled, avocado is a major export fruit.



From the Diaspora, the farmer brought me back home. “Kenya has potential for production and export. In the case of ‘Hass’ avocados, Kenya has a potentially great production because it features the appropriate weather conditions. This variety hits the market in May, while the ‘Fuerte’ variety is available from March to September”, he told me.

Adding, “Kenyan avocados are shipped to different markets around the world, from Russia to Egypt. Exports are expected to continue growing in the coming years. Thanks to improvements in production and logistics, it is now possible to export to the Middle East and the European Union”.

On other parts of Africa, the farmer informed me our southern neighbour, Tanzania is also doing a lot of avocados and their volumes are expected to continue growing. While down south, South Africa export volume is growing slightly. A portion of the avocados remains in South Africa and are used locally. The African countries target the same market, Europe with Kenya biased to France.

Elsewhere, he said, “quality and sizes of the New Zealand Avocados are good with great prices and strong demand from Australia and Japan markets. Israel is expected to increase production compared to previous seasons.

Israel has become one of the leading players in recent years as a supplier to the European market.

Kenya’s Avocado Growth, Trends and Potential The grower then introduced me to his consultant. My instincts dictated that I understand the life of an Avocado consultant. From the start we were in agreement that he will not see or introduce me as a journalist anywhere. We set up as colleagues and the day started at six in the morning. From the various growers we visited during our trip, I learned Avocado is an important commercial fruit grown mainly by both small and large scale farmers. The main avocado varieties grown for export market are Hass and Fuertes. In addition, three others are traded in the local market which includes Puebla, Duke, and G6.

The consultant’s data which he availed to me, showed in 2016, avocado contributed Kshs 4.63 billion from 246,057 tons of fruits accounting for 8% by value of the fruit sub-sector. The value increased from 4.45 Billion in 2015 to 4.63 in 2016 which was a 4.2% increase from 2015. The area under production increased from 10,383 Ha in 2015 to 11,017 in 2016 a 6.1% change that was attributed to planting of new orchards in non-traditional areas of the rift valley while production increased from 230,984 tons to 246,057 in 2016 representing 6.6% increase.

The consultant did his work diligently covering from seed to fruit. I only asked, “is there market for avocados, room for more investors and are farmers making money?” The three in one question was answered with a single answer of YES by every grower provided one meets the three main Importer Requirements

- **Consistency**  
It is necessary a farmer is able to supply the market regularly during the marketing season: the quantities supplied must be constant in volume and precise according to the agreements established with the importers. In any case shipments must be prepared according to exigencies of varieties, quality, sizes, packaging and labelling indicated by the buyers. The fruits quality must be optimal in each shipment and in all shipments.

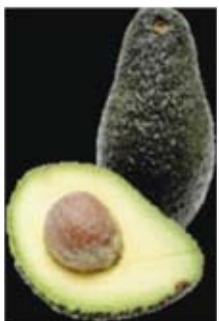
- **Organization of the supply capacities**  
The importers must be guaranteed that the logistic for the products transport is effective and efficient alongside all steps of the supply chain so that the product can be shipped and delivered fresh. The supply chain cannot have any interruption from the packing houses to the selling point; the functioning of the cool chain during storage and transport must therefore be guaranteed.

- **Product concept**  
The services related to the commercialization



### Reed

This variety of California origin has succeeded in conserving the qualities of its parents 'Nabal' and 'Anaheim' without their negative features. Spheroid, with medium thickness, has slightly rough pliable skin. Average weight is 400 to 500g, oil content 19 to 20%



### Hass

It has dark green and brown at maturity skin, not very thick, warty, small seed. Average weight is 250g to 350g, the oil content is 20%. Fruits vary in shape in some production regions, ranging from pyriform to ovoid. The fruits size is fairly small in hot regions



### Ettinger

This variety was bred from Fuerte in Israel where it is mainly grown; the fruits are similar to those of Fuerte. Narrowly obovate, has bright green, fine and fairly smooth skin and fairly large seed. Average weight is 250 to 350g, the oil content is 18 to 22%



### Pinkerton

This recent variety was bred in California and is probably the result of a Hass X Rincon cross. Pyriform, has dark green, rough, tough and pliable skin, medium thick and easy to peel. Average weight is 270 to 400g, oil content 18 to 25%.



### Fuerte

It originated in Mexico. Of obovate shape, has green, matt, smooth, medium thickness skin, pliable and tough, easy to remove. Average weight is 250 to 400g, oil content is 16-18% and seed is large.



### Nabal

Medium to large in size has green-near skin nearly smooth, thick and granular. Flesh is of high quality, oil content vary from 10-15 to 18 to 22%, seed is small, tight.

are frequently a crucial point in a buyer purchasing decision. The product concept nowadays does not refer to the only product itself but also to all services related to its commercialization such as the product preparation and presentation, the quality of the packaging, the precision of shipments, the follow-up of negotiations and supply as well as the products marketing and promotions.

### Why Invest in Kenya

From my interactions with the growers, consultant and some other industry players, my conclusion was, investors should pack their suitcases and head to Kenya. Kenya is privileged by the facts that concurrence is lower in the middle part of the year and that at the beginning of its marketing season the products origins are shifting having in most cases smaller volumes and decreasing quality; on the other hand, it cannot dispose of big volumes at the beginning of the season.

However, the enhancement of the exports of avocado seems to need the strengthening of the collaboration with existing importers, for the consolidation of the existing market shares. The attention to the products concept should be worked together with trading partners in order to gain the confidence of the market accordingly to increasingly exigent market standards. This should involve products quality, sizes, packaging, product servicing, marketing and promotion.

This led me to a discussion with the investors in the different areas of the value chain. From carton suppliers to shippers through marketers, I realized they were far much ahead of the farmers and ready for any expansion. Anyone with the above information will be left with only one call, Kenya is ready for investors to grow Avocado.

### Why we need more Investors in Production, Technical Support and Marketing

The consultant turned partner of the

day agreed with most of the growers that, the initial development of the Kenyan imports of avocados was controlled by a number of large French importers who used Kenyan production to cover gaps in the market. However, the buying patterns in Europe have changed significantly and the French have lost their dominance. Kenya's production can be classified as one of the best in the market. Small to medium-sized fruits are more suitable for the commercialization. Smooth, thin or fairly thin, pliable, green skin is preferred by the consumer. This is what is majorly produced in Kenya. This gives Kenya room to take over the Avocado market as it has done to the rose market. However they agreed that investors in the different parts of the value chain should:

- Invest in product quality and products concept (preparation, presentation, packaging and servicing), fruits quality, uniformity and precision of shipments would be essential and promotional campaigns supporting the marketing efforts extremely beneficial.
- Repeatedly positive season in terms of quality and precision of supply would reposition the image of the Kenyan avocado in evolved markets.
- Exploit as much as possible the periods of undersupply in March and September investing in earliness and length of the marketing seasons and related shipments plans.
- Target countries with high market growth rates (e.g. the Netherland) and emerging countries (e.g.: Russia, China, the Middle East) as well as emerging market segments (ready-to eat).
- Pursue markets diversification through a further development of the market linkages in relatively new markets (Mediterranean countries, Eastern Europe).
- Develop contacts in the Scandinavian

ANNUAL PROJECTED PROFIT AND LOSS ACCOUNT			
	YEAR 1	YEAR 2	YEAR 3
	Annual	Annual	Annual
Firm Sales			
Avocado Sales (100 -24 Ton Containers)	7,875,000.00	12,000,000.00	12,000,000.00
<b>Total Sales</b>	<b>7,875,000.00</b>	<b>12,000,000.00</b>	<b>12,000,000.00</b>
Cost of Goods Sold	2,625,000.00	4,320,000.00	4,440,000.00
<b>Total Cost Of Goods</b>	<b>2,625,000.00</b>	<b>4,320,000.00</b>	<b>4,440,000.00</b>
<b>Projected Gross Income in Kshs</b>	<b>5,250,000.00</b>	<b>7,680,000.00</b>	<b>7,560,000.00</b>
<b>Other Expenses in Kshs</b>			
Personnel Costs	64,800.00	64,800.00	64,800.00
Operational Costs	17,940.00	17,940.00	18,540.00
Loan Interest Charges			0.00
<b>Total Other Expenses in Kshs</b>	<b>82,740.00</b>	<b>82,740.00</b>	<b>83,340.00</b>
<b>Profit/Loss before Taxation</b>	<b>5,167,260.00</b>	<b>7,597,260.00</b>	<b>7,476,660.00</b>
<b>Revenue Reserves b/f</b>	0.00	5,167,260.00	12,764,520.00
<b>Revenue Reserves c/f</b>	<b>5,167,260.00</b>	<b>12,764,520.00</b>	<b>20,241,180.00</b>

market where small sizes are in demand.

- Enhance the regional market as the product development expected in evolved markets would be facilitated by a strong trade at the regional level.
- Diversify target distributors targeting not only importers, wholesalers and supermarkets but, where possible, also hotels sector and institutional market.
- The Kenya Government and other stakeholders should help growers to exploit and maintain markets like Middle East, North America, Canada, Japan and China which have shown some serious growth.
- Strategically focus on improving the production of the fruit in the fields, develop stronger and more attractive packaging.
- Work on a number of different add-ons that will help modify the atmosphere in the reefer containers that would help the fruit travel and last longer.
- Invest in more stringent controls on maturity index and opening of export season by the government regulators.

All said and done, much of the investment is needed in the growing and the country has plenty of land.

### There is Room to Invest in Value Chain

As the fruit matures at different times in the year depending on altitude, rainfall and temperatures, farmers market their fruit differently to a range of outlets. The avocado value chain has developed with a business oriented approach that aims at capturing the best return at each stage of production, processing and trading. The chain is made up of several individual players, who are closely linked to each other and depend on each other's trust, co-operation, communication and ability.

### Technical Advice on Harvesting and Post Harvest Handling

**Harvesting:** I learned that any investor with no agricultural background should know that avocados are climacteric fruits with special characteristics. They must be harvested after reaching a sufficient advanced stage of development because only then are they capable of synthesizing a sufficient amount of ethylene to be able to start ripening. Avocado cannot start ripening as long as

remain on the tree. The inhibiting effect of ethylene remains for 24 hrs after picking. It is important to consider the visual appraisal, fruit weight and diameter and changes in the skin colour. The harvest date is therefore extremely important.

**Grading:** The initial sorting of fruits is done at the point of harvesting. The final and more thorough grading is done at the factory level where sorting is done visually and then each fruit is washed, brushed, waxed, dried, and graded through electronic sizing machines that sort the fruits by their weight. The required sizes by the market are counts 12, 14, 16, 18, 20, 22, 24, 26 and 28. The sizes co-relate to international standards that links the count to the weight of the fruits.

**Storage:** A variety of methods can be applied after harvesting to prolong the shelf-life and prevent rotting. A distinction is made between physical and chemicals methods.

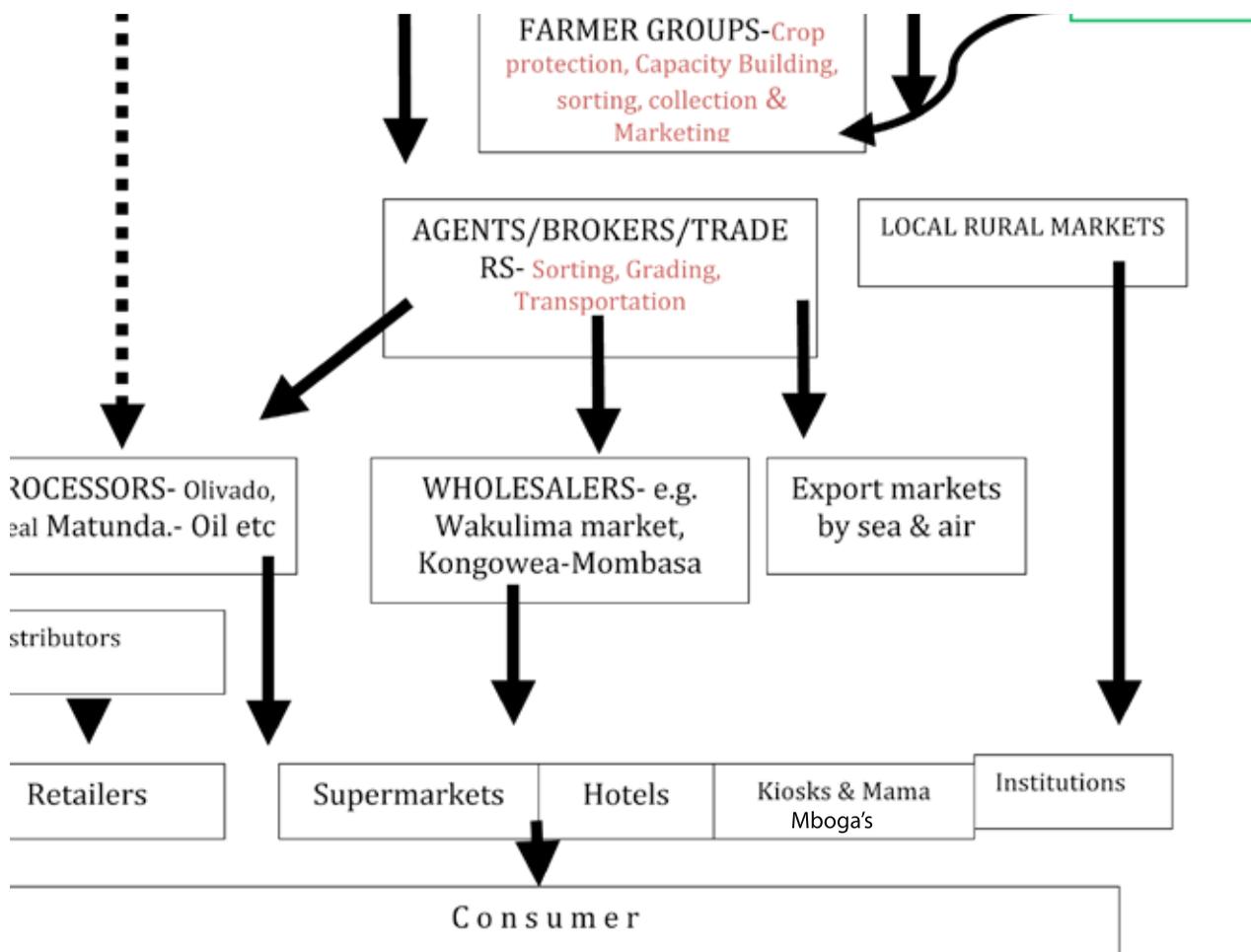
The physical methods includes in particular cooling, refrigeration, fumigation and use of controlled atmospheres while the chemical uses are treatment with calcium and use of fungicides.

**Packaging and Sizes:** Each market has its own packing requirements. But generally, Avocados must be handled with care and packed and padded in single or double-layer boxes or cartons for shipment. The fruits must be removed from the cold stores only for a very short period of time for grading, sizing and packing.

Fresh avocados are marketed in telescope folding cardboard boxes, preferably in open trays made of solid or corrugated board, with reinforced corners and stacking edges. Packaging is intended to preserve the quality of the fruit during the whole transport and marketing and protect the fruit against impacts and vibrations.

To comply with the European packaging regulations the packaging cannot be waxed and should be of recyclable material. The standard packaging size, to be observed to ship towards Europe, is 35 x 28.5 x 9 cm dimension which enables the optimization in standard pallets. The box must have adequate ventilation holes (10% of the surface).

Avocado for the European market



should be packed in counts 10-12', 14-16', 18-20' or 22-24' in 4 kg boxes; sizes 8' and 26' are also used but less common. The boxes must be such a way that the bottom layer cannot suffer damage as a result of the pressure caused by the weight of the layers stacked on top of it. In the United States avocados are packed in boxes of 5.67 kg or 11.34 kg (43 x 32.6 x 17.5 cm. for the 11 kg box.); in the Japanese market boxes are for containing 6 kg of the fruit (43.9 x 33.1 x 11 cm).

**Transport:** Avocados can be shipped by sea and

airfreight provided that all recommendations concerning postharvest treatment have been followed. Only the product that have been properly prepared and cooled can afford transportation without suffering any damage.

Transport is considered successful if the fruit is virtually ripe when arriving and can be kept fresh by the recipient for another ten to twelve days at 10-15°C and 90% Relative Humidity until is sold. Boxes must fit exactly in the pallet or in the container and must not be shaken during loading and unloading. In the case of sea freight, continued

refrigeration is essential (at a minimum temperature of 5°C). Fruits can be shipped for 22-24 days in mid-season and no longer than 20 days at the end of the season.

### Kenya Needs Investors in Avocado Processing.

After a boring technical lesson for a writer, I couldn't cure my curiosity without talking about investment in value addition. "Avocado fruit oil is very important in cosmetic industry as well as product for making cooking oil is there room to invest in value addition"? I asked.

"As volumes pick up it is important to ensure that the secondary markets develop to take up the extra volumes that will not be exported nor consumed fresh in the local market", said my host. The options are oil extraction, guacamole, and frozen paste, processing into refined oil for cooking, salads and for cosmetic use. Currently there are four processors who extract oil that is then exported in its raw form to importers who then carry out the final processing and refining. This Meant there is more room for Investment.

# The Soil Mystery

*Dr. Christy van Beek, senior soil scientist at SoilCares, shares her expertise on soil fertility and fertiliser recommendations in a series of blogs. She now shares her view on the applicability of sensor-based technologies for developing fertiliser recommendations in this new blog.*

## The soil mystery

Soil data is used to develop fertiliser recommendations as it reflects the stock of nutrients in the soil that the crop can extract. Conventional laboratory procedures can only measure nutrient concentrations in a solution. One of the most critical aspects in conventional soil laboratories is the choice of the most relevant extraction method. Notably, parts of the nutrients are readily available (i.e. already in solution). Other parts are sorbed to the soil complex and can become available after desorption.

To some extent, crops can stimulate the desorption of nutrients from the soil complex. Hence, the 'trick' of conventional laboratories is to use an extraction method that indicates the availability of nutrients in the soil for crop uptake at several time scales. And here starts the fussiness.

## What extraction represents the availability of nutrients best?

Extractants are solutions where the solutes replace sorbed nutrients to a lower or higher extent. The fussiness is about the extent of replacement. Imagine a very weak extractant (e.g. water or calcium chloride). It will desorb only a very small fraction of the adsorbed nutrients, whereas a very strong extractant will solubilise a much higher fraction. Scientists have been arguing for decades about what extent of extraction best represents the availability of nutrients during a cropping season and can thus be of best use for developing fertiliser recommendations. Excuse me, but I largely consider this a trivial discussion.

## We should look at a wider context of use

In my view, we should not look at the soil parameter in isolation, but in its wider context of use. In the context of fertiliser recommendation, this is to represent the seasonally available stock of nutrients, which is then used in an equation that in its very basics looks like this:

Fertiliser recommendation = (crop uptake + unavoidable losses - soil stock) \*  $a$

where the factor  $a$  represents all kinds of fertiliser efficiencies and crop uptake efficiencies. I argue that if the soil stock is determined with a weak extractant,  $a$  will become larger and when the soil stock is determined with a strong extractant,  $a$  will become smaller. This means, amongst others, that field trials are needed to validate the fertiliser recommendation, no matter what approach is used. This, is something scientists all over the world agree on.

## Alternative approaches: sensor technology

For some time, there are alternative approaches available for the determination of the soil nutrients, which I think are very promising. Others, by the way, concur that indeed sensor technology can cause a paradigm shift in agriculture (e.g. Bushong et al., 2016; Rossel and Bouma, 2016). In short, sensors (mid infrared and/or near infrared) measure the electromagnetic spectrum of a medium, in this case soil. This spectrum is subsequently converted into the required data using prediction models based on a calibration database. Obviously, the accuracy of this methodology largely depends on the accuracy and comprehensiveness of the calibration database and the algorithms used to do the conversions.

Sensor based technologies in general provide total contents, namely the amounts of nutrients. As explained above,

I argue that fertiliser recommendations can be correctly determined irrespective of the chemical parameter as long as the parameter is adjusted accordingly. I therefore proclaim that instead of comparing conventionally determined soil data (i.e. determined by a wet chemistry laboratory) with sensor based data, fertiliser recommendations for a specific yield target for a specific crop at a specific site should be compared, if one wants to judge the applicability of sensor based technologies for developing fertiliser recommendations.

## Trial

This is exactly what happened in a small trial. In two sites soil samples were taken by a conventional ('wet chemistry') laboratory and by a sensor-based ('dry chemistry') laboratory.

Both organisations were asked to provide recommendations for a target yield of 35 bags per acre (6000 kg per hectare). Independently, the two organisations reported nearly similar recommendations despite very different procedures to determine the soil status (Figure 2).

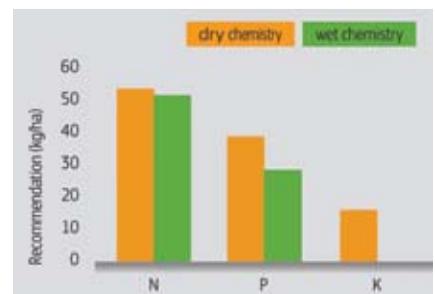


Figure 2. Fertiliser recommendations developed for maize in Kenya based on conventional soil chemical methodologies (wet chemistry) and based on sensor technologies (dry chemistry).

Figure 2 shows that proper fertiliser recommendations can be developed irrespective of the laboratory method used to determine the soil nutrient stock.

INSECTICIDE

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# ‘If You Don’t Liaise With Customers, You Won’t Get Anywhere’

“Ninety days! Ninety days!” That was the clear answer from a grower, when a group of growers visiting asked him about his experience with direct sales, without a dominant role for the auction. Payment terms are what keeps growers awake at night. “We are divided. You are all allied thanks to the auction system and that’s extremely important.”

When a grower, originally from Europe, emigrated to Kenya and made his way to the bank over there a few years later, to apply for a loan to start growing flowers, he wasn’t sure he would get any money at all. He had no experience as a grower. Back in Europe, he’d been working as a sales representative with a buyer. But when the bank heard this, they actually considered it an advantage. “If you don’t know how to find customers or how to approach them, you won’t get anywhere”,

Yes, there are auctions. Some growers make use of the auction. But typically only for part of their production. Auctions played a major role in flower growing at inception; it’s just one of several channels to distribute plants and flowers. In large part, growers need to manage their own sales, is what a group of growers witnessed during a tour around Kenya floricultural companies.

## From trucks

The main distribution channels that growers in Kenya make use of, in addition to the auctions, include direct markets in all flower markets. From the various growers I have visited, I learned that they all tackle the issue of sales in their own way. On one end of the spectrum are the growers who leave the entire sales process to consolidators or fellow growers. On the other end are the growers who developed their business into a company with its own production. For many of those types of growers, there’s no place for the auction in their sales strategy. In the middle of the scale are the growers who sell part of their production to direct market, another part directly to brokers and a small part through the auction.

A few farmers in Kenya are an example of farms that don’t manage their own sales. Since they started they have never sold anything directly to an end customer. The growers most of them, originally from Europe sell their entire production through auction. And that isn’t going to change now or any time soon “Sales is a totally different profession. I’d have to employ a sales manager.

But when peak times are over, there’s always a period when production is slow What would I do with my sales manager during that time?” asked a grower.

An example of a company at the other end of the spectrum is a farm whose 80% of flowers is sold direct The farm employs sales people and marketing managers. And another team that supports the marketing department. 85% of the company’s trade is distributed to buyers in East Europe and in middle east, 15% goes to wholesalers and supermarkets. The company manages their own logistics too. The marketing team sit down to negotiate with the large supermarkets themselves.

## Own sales force

Distributing your own flowers to end customers requires a sales force. A grower was quick to point this out. The size of sales and marketing team says enough. Compared to the others, the marketing costs are also pretty high.

Considering there isn’t a place to ‘dump’ their produce, it’s important that growers’ production is in line with the market’s demand. They’ve got to customise their production. If they don’t, they won’t be able to sell their plants and flowers. That’s exactly what growers experience during their first six months – there isn’t anyone to sell their flowers some are lucky in the sense that they could still send to the auction. When there’s no demand, flowers will have to be thrown away. These days, a number of growers sell 80% of the produce , in advance. It’s not uncommon for growers to sell before they’ve set up production. And sometimes they learn what the demand is from past experience.

This type of customised cultivation means that growers tend to have a large assortment, because that’s what the market demands. There aren’t too many companies that are specialised in one particular plant or flower. A large assortment ensures customer loyalty as customers can get everything they need in one place (one stop shopping).

The flower market is very much driven by days like Valentine’s Day, Mother’s Day and Easter. This means that demand is the biggest in this period. Some greenhouses are almost empty thereafter – because there’s less demand. For some varieties, it can sometimes be difficult to meet market demand. A popular

choice around Valentine’s Day is red. Around Mother’s Day, consumers want pink. So growers need to produce both, in equally large plots.

## No dumping place

The fact that there isn’t a real ‘dumping place’, also means that growers can’t expand without constraints. There has to be a market for it. Most growers gradually expand, step by step.

## Getting paid

An advantage of the auction in the Netherlands, is that growers who sell their flowers through the auction, will always get paid. Within a few days, that is. When you’re trading outside the auction, that’s totally different. One grower had a bad experience when a big customer, who used to buy two-thirds of his produce, went bankrupt. In fact, this led to his own bankruptcy. When he started a fresh he made sure he supplies to several different wholesalers.

Several other companies also pointed out that they’re spreading the risk; nobody wants to depend on one large customer. It’s expensive to take out insurance against non-paying customers. Someone mentioned a percentage of 5%. I got the impression that this isn’t something many growers do and that most growers generally do receive their money anyway.

One grower said that each year, less than 1% of the invoices isn’t paid. Grower do hire a money collector, though. Some growers learned the hard way and they now maintain a strict, 30-day payment period.

Growers do also check customers with regards to their creditworthiness. Or they ask someone else to do this on their behalf. In some cases, customers have to pay in advance. And for direct trade, potential adverse effects of a drop in the exchange rate.

## 180 days

According to many growers, the payment period is the main problem of direct trade. It can end up being far too long. Some don’t get paid until after 180 days.

Other growers said that the period can be as long as ninety days sometimes.



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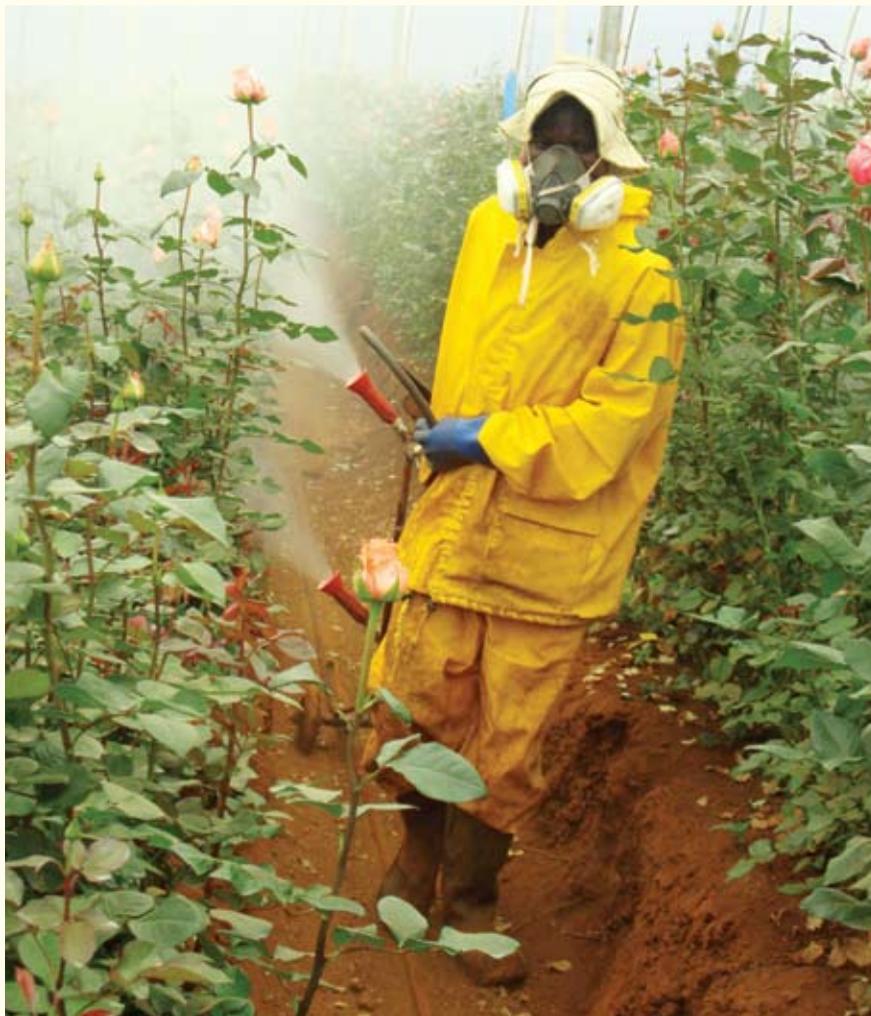
# Identify Fake Pesticides With Authenticated Solutions

## Agriculture in the whirlpool of large and niche market

The Agriculture Industry, which is the backbone of our economy, is facing multiple threats from the growth of fake pesticides. According to a latest study conducted, the fake pesticides industry in India was estimated at billions of US dollars globally, which account for 25 per cent by value and 30 per cent by volume of the domestic pesticides industry. The Study indicates that this market is expected to grow at the rate of 20 per cent per annum in terms of value, and if not addressed, can reach to approximately 40 per cent share by value in the pesticides industry by 2019. The problem is extreme in many countries including Kenya.

## Consequences of Counterfeit pesticides:

The Contribution of agriculture sector in the GDP is already declining. This trend is worrying and will create a natural stretch on the agriculture sector in the future.



**A sprayer carrying his duties diligently**

The growth of spurious is adding fuel to the fire as Kenya has suffered a loss of tons of food grain production. In light of this, Kenya's position as food sufficient country and exporter in the world is also at stake. There is no denying that the damage through such products is multi-fold and the counterfeit pesticides pose a significant threat to various stakeholders

### These include:

#### **Farmers: Risk of life & valuable crop loss:**

Various cases of farmers committing suicide due to loss of crops have been reported by the media. Although there are various reasons for the loss of crops, the involvement of fake pesticides can't be ignored or denied. Spurious pesticides are known to damage the crops resulting in a decreased yield or at times, even destroying a field.

#### **Consumers: Risk of Health:**

Counterfeit pesticides pose increased risks to consumers through unknown and untested

These products are often sold in simple packs (white bottles) with minimal information on the label about their use and no mention of any health or environmental precautions.

residues. Unlike legal, registered products, spurious pesticides could contain unknown toxic impurities and have not been tested for human health impact. Residues of unknown and untested substances could get carried into harvested food and compromise consumer health, whilst also posing health threats to farmers through exposure during application. A number of people have died after they consumed contaminated food containing monocrotophos pesticides.

### **Government: Risk of reputation, export and economic damages**

Increased cases of spurious pesticides make the public lose their confidence in the government's ability to regulate the agriculture sector effectively. Yearly, Kenya exports millions of flower stems and tons of fruit and vegetables. In such a scenario, Kenya's position as one of the leading fresh produce exporters in the world is also at stake as there is increased possibility of rumours or sabotage by other countries or rejection of Kenyan exports goods items from developed countries. In recent years, the European Union temporarily stopped buying some varieties of vegetables from Kenya after detecting pesticide residues in the exported produce. Kenya officials say such cases result from the overuse of chemicals. Not only this, the government loses not just the tax revenue but also its prestigious goodwill and reputation.

### **Industry: Loss of sales and reputation**

Due to the presence of counterfeit pesticides, the farmers lose faith in legitimate products and companies, which result in loss of reputation and customer trust. Also at stake are the Kenyan crop protection industry, along with the Food Retail industry.

### **Environment risk**

There is high risk of environmental contamination and adverse effects on groundwater, following crops and biodiversity. Firstly, the production of counterfeit products may subvert

environmental regulations leading to the production processes and waste contaminating the land, air and water.

Secondly, the use of counterfeit products, such as pesticides, may cause severe crop and environmental damage. Thirdly, the destruction of counterfeit products can result in more landfill waste or toxic fumes from incineration.

### **Types of counterfeit Pesticides:**

To fight any type of counterfeit activity, one needs to first understand the nature, extent and reasons behind the increase of such activity in various sectors as it varies by market and can originate from many different sources in different forms. The three main forms of counterfeit pesticides are;

#### **Fake pesticides:**

These products are often sold in simple packs (white bottles) with minimal information on the label about their use and no mention of any health or environmental precautions. They contain anything from water or talc, to diluted and outdated or obsolete stocks, including banned or restricted materials. Some fakes also provide a degree of biological control, as they sometimes may contain an illegal and untested copy of the proprietary active substance.

#### **Counterfeit of genuine branded products:**

These are sophisticated copies of legitimate branded products usually with high quality of labelling and packaging. Most contain a copy of the original active substance; however, its biological efficacy is often diminished owing to high level impurities of manufacturing and process by-products. Such products are often difficult to be distinguished from the genuine ones. Mostly, farmers are fooled into buying them unknowingly in absence of proper education and awareness.

In various cases, counterfeiters purchase genuine, empty bottles from the farmers on as high as 25 per cent of the M.R.P. mentioned on the original bottle. This

way, the counterfeiters put substandard ingredients into the bottle and resell it.

### **Illegal Parallel imports:**

These are legitimate parallel traded products substituted with illegal generic copies, repackaged and sold as legitimate products. Reasons behind increase of counterfeit pesticides of counterfeit pesticides The problem is increasing because of various factors like;

### **Difficulty in identification of fake products with legitimate one due to lack of awareness:**

In Kenya, majority of the farmers are of moderate education and there exists a lack of education and awareness at the farmer level. Only 25-30 per cent of farmers are aware of the correct use of pesticides. Many do not ask for specified chemicals or brands and often ignore if specific details are not available on the products. Ironically, even though the food manufacturers and producers are consumer-oriented companies, they do not speak publicly about this problem. Many food companies do recognize the challenges but prefer to resolve these quietly and directly with their suppliers.

The main disadvantage of this practice is that it does not bring the problem out in the open and consequently thousands of food producers remain uninformed about the existence of this grave issue and thus how to deal with it. It is important that farmer organisations and Co-ops play a leading role in increasing awareness about the risks of using counterfeits.

### **Lack of monitoring and surveillance**

In Kenya, the responsibility of enforcement is divided between the regional and national authorities but the political divisions and sensitivities have led to weak enforcement coordination and action. At national levels, this requires multi-disciplined specialists' teams with skills in policing and

## From page 39

prosecution, chemicals, agriculture, customs, environment, etc. These skills are available, but more often than not are not working together.

### Focus on high-Profile sectors

National anti-counterfeit activities tend to focus on high profile sectors where the VAT losses are longest (luxury goods, CDs, clothing, software, pharmaceuticals). Less high profile sectors like farmers do not get the requisite resources-despite the acute environmental and health threats posed by counterfeit pesticides.

### Inadequate judicial frameworks and penalties

Kenya does not have adequate legislation to properly prosecute counterfeiting. For example, in some countries, it is illegal to buy or sell counterfeits, but not to possess them. Other countries have inadequate penalties. In some cases, a convicted counterfeiter found in possession of hundreds of tons of illegal pesticides is only given a very small fine compared to the damage.

### Challenges of quantifying the problem

It is difficult to present detailed data of the extent and growth of the problem because of its illegal nature. This is the same problem encountered by all sectors who face counterfeiting. Even in areas where judicial authorities devote significant resources, like illegal cigarette smuggling or narcotics, the estimates of the size of the problem vary wildly.

### Role of authentication Solutions in fighting this menace

Counterfeiters today are tech savvy and can easily produce packaging material similar or better than that of genuine products. But, if there is a problem, there are solutions.

Technology-based solutions could be one of the strategies to counter the problem. Various studies and scholars



have attempted to propose technology-based solutions to combat fake agro-inputs products in the supply chain. The Proven adoption of these technologies by some countries can be treated as case studies.

These authentication solutions have multiple benefit as they provide

1. Tamper proof packaging;
2. Product authentication and
3. Tracking and tracing of product

### Proposed solutions for Kenya.

In Kenya, farmers do not have any tool/ medium to differentiate genuine pesticides from fake ones at the time of purchase. Due to lack of awareness and illiteracy, they rely on the visual appeal and can only check the quality of products with the marking of KEBS. However, with the advancement in digital technology, it has become easy for unethical manufacturers to produce fake KEBS product as well. Farmers only come to know about counterfeit pesticides after there has been a loss of crop or field. However, until that happens, there is no way to analyse the contaminants in the fake products as the farmers apply them in all of their crops, or use up the packing materials. Therefore, there remains a constant need to spread awareness on 'How to identify genuine pesticides from the fake ones?'

The usage of authentication technologies on pesticides products can be great help to the farmers and authorities, not only in identifying the fake products but in identifying the counterfeiters involved in the fake pesticides' business as well. Further, the government authorities can use

anti-counterfeiting devices comprising of overt, covert and forensic security features. Example of such tools are security hologram seal and labels, tamper evident security film, low cost transponder tags, and light sensitive ink designs. Integrated with track and trace technologies, these solutions can help farmers and enforcement authorities in identification of genuine and fake pesticides.

All these anti-counterfeiting solutions (label) can be linked with the database of our Kenyan Government PCPB. Accordingly the Kenyan Government, can have a toll-free-number where farmers register. The farmers can easily check the originality of pesticides by giving a missed call or SMS at the toll-free number by confirming the unique number printed at label. A message is then sent to each farmer in his preferred language and contains information about the pesticide's batch number, expiry date and originality.

### Conclusion

Adopting authentication solutions is a win-win situation for all the stakeholders; as the brand owner and the authorities enjoy the revenues and tax/duties respectively and the consumer has access to the original product. These authentication solutions also help the end consumer to identify a genuine product in turn winning his loyalty and boosting the brand value.

Some associations are committed to educate stakeholders about the adoption of authentication solutions and conducting series of workshop for professional involved in farming, tax revenues, supply chain management, quality & product packaging providing them information on importance of authentication solutions in fighting fakes. Stake holders must review consumer experience, role of Government, overview of current authentication technologies to evolution of new generation technologies in fighting counterfeiting.



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## Plan a Date with **Select Breeding's Show House** at Oserian Two Lakes

**W**hen I first visited Select Breeding at their new show case at Naivasha, it was on invitation by Michael de Geus; the Managing Director, Select breeding. This was on 25th to 27th of January when the company held their first showhouse at Oserian two lakes to display their commercial varieties available in the market and other new varieties.

I met a team honoured to satisfy the curiosity of their customers who kept on tripling every minute courting for their attention. By count I could not tell the number of times they walked in to the new show case with a different customer then back to the reception area for either continual discussion with the same client or for a fresh discussion with a new client. On a close follow up, I realized that inside the show case was more technical and less commercial whereas in the reception was more commercial and less technical. These men had a wide knowledge of the two worlds of rose breeding. In between the customers, I stole some few minutes and managed to get a few minutes of interview with several of them. "Select breeding tests their latest cultivars and showcases their commercial varieties which are already planted for display", says Mr. Michael. The event was a kickstart for the year, moving forward growers, rose's buyers and other stakeholders in the industry are highly welcomed to visit the showhouse at Oserian two lakes company during working hours to explore commercial varieties and new varieties in select breeding's showhouse.

### **Select Breeders varieties.**

In any discussion with growers, the name Volcano will be in most of their lips. It has left memorable ideas, images and stories in growers' minds. However, you will be unknowledgeable to think that it is the only variety criss-crossing their lips. Sun palace

and Karma have also been the talk in most growers' forums. In addition Arisha has also been doing well in the market as a high productive white. Following the success of most of their varieties, the company is set to introduce many more into the market.

### **Why Naivasha?**

Before conception of the idea, one thing was clear to the managements' minds, success of their varieties. Though they have their breeding in Holland and Colombia, there was need to show the growers the actual specifications of the varieties they chose under the same circumstances they are growing themselves. Growers in Kenya will be able to determine the actual stem length, production, head size, vase life and colour. In addition, the company will be able to collect data on their varieties and many codes tested in Naivasha which will help them translate this back into their breeding program.

With this in mind, they settled for Naivasha the hub of flower growing in Kenya. In 2012 the company actively started its operations in Kenya. Towards the end of last year the company launched its headquarters at Oserian Development Company which is now dubbed as Oserian two lakes so as to offer; test-showhouse services to their esteemed clients.

### **State of the Art Investment**

The company has invested a lot in research activities; it does its main breeding in Holland and other representatives in Columbia which covers the Latin America market. They have dedicated their time and resources to enhance outstanding commercial qualities, release policy and adaptive supply. To achieve their vision, Select breeding has learnt over the years the need to work closely with growers and roses buyers during the development and introduction of new varieties so as to maintain competitive prices for roses in the

market.

The looming competition in breeding business has made Select breeding emphasize on specific cultivar characteristics which are on high demand in different markets. Their development of quality cultivars and maintenance of a release policy has provided excellent results in new varieties. They have tailored their varieties for both higher and lower altitudes. Select breeding entirely have a sense for roses.

### **After sales service.**

Select Breeding believes in partnering with their customers. This is why they have invested a lot in marketing their varieties to flower consumers. They regularly visit marketing outlets to promote their varieties to the end consumers. The company staff regularly discuss with growers on how to position the different varieties into the market. This ensures they do not flood the market and kill the variety. In addition, they frequently pull and push into the market different varieties for growers' benefit. As we say at Select Breeding 'we have a sense for roses'.

Though this is not enough, the team is only a phone call away from the growers for any technical support. Even before this, the company has what they call an early client involvement program as a joint effort with growers to select the best varieties. This is the involvement of the major clients in selection of the different varieties. It helps them to make decisions on the best varieties. They regularly visit the growers for trial follow ups and discuss the performance of the variety in the farm.

### **Parting Shot**

Next time when you visit Naivasha, pay a visit to the two lakes company, a dedicated team is awaiting to take you through some of the best rose varieties in the country.

# PICTORIAL: *Select Breeding*





# Valentine Day and Mother's Day Flower Exports Double Trips for Freight Firms

**K**enyan air freight companies doubled flower exports, and flights to Europe, due to valentines day, Mother's Day, commemorated on February 14th and March 11th this year in the UK.

Global industry experts described the weeks leading up to both occasions as the biggest of the year for florists, as consumers buy fresh flowers to gift to their lovers matriarch.

According to 2016 research from Analysys Coresight Research, flowers are the most popular Mother's Day gift in the UK, bought by 25 per cent of consumers.

The UK is one of Kenya's main markets for flowers, this has also prompted an increase in the number of cities that the Kenyan flowers are transported to the UK, with the air freight now also being trucked to the British cities of Newcastle, Manchester and Southampton.

"We use an Airbus A330-300 for exports to Europe. Before Mother's Day, we were exporting approximately 65 tonnes on each flight and since we fly five times a week, it amounted to 325 tonnes, but doubled our flights to 10 a week in order to transport 650 tonnes of flowers to other cities in Europe," said an industry insider.

"We export to the UK, the Netherlands, Turkey, Switzerland and Germany. Now that the demand has increased, we still go to the same destinations; however, flowers are now trucked to other cities. The same case goes for the Netherlands; other than Amsterdam, flowers

are now also trucked to Maastricht after landing in Amsterdam Airport Schiphol." The fortunes of Kenya's air freight services are closely tied to the flower market, given that Kenya is a major exporter to the European Union, which buys 38 per cent of all of the country's cut flowers, with the main markets being Holland, UK, Germany, France, and Switzerland, according to the Kenya Flower Council.

"On special occasions like Mother's Day, we have our biggest sales," said Clement Tulezi, the CEO of Kenya Flower Council. "In terms of the export market, and given that we command a big market share in Europe, it is when most exporters conduct their business, because there is always a sharp rise in demand".

## European Valentine's Day sales

Valentine's Day was celebrated, and for the second time since 2014, it fell on a weekday. Historically speaking sales during weekdays are good. In several areas in the Netherlands, Germany and Belgium, Carnival was celebrated, but it did not seem to affect the Valentine's Day sales.

## Royal FloraHolland

Royal FloraHolland reported figures comparing them with those of last year, only the number of plants sold increased: from 20 million to 25 million. The number of flowers sold, 300 million, did not change.

## Consistent sales at Euroveiling - Belgium

According to director Roger Fierens of Belgian auction Euroveiling, their figures are roughly identical to last year's. He had expected Carnival and the holidays to negatively affect sales figures, but that was hardly the case, he

said, pointing to the favorable weather. During the four main auction days before Valentine's Day (Thursday, Friday, Monday and Tuesday), 2.4 million flowers were auctioned. Like in previous years, roses were the top sellers. "750,000 roses were auctioned - a small increase over last year. The red rose is most popular, followed by white."

## Florists: Red or not?

After the Valentine's Day peak for most auctions, florists had a busy day ahead. And they were just selling the classic red rose this year. One Dutch florist told us: "The red rose still does well, but we're now also focusing on multi-colored bouquets of wildflowers. We notice people often appreciate those more than a bunch of roses."

Another florist said: "The red flowers were down a bit, it's headed more towards pink or colored, because then you get more flowers for your money. Red flowers were still very expensive," she explained. "And by combining various colors, you end up with a nice bouquet for a nice price."

## Busy at airports

In the run-up to Valentine's Day many airports were busy with the flower shipments, at Maastrich Aachen airport too. A Dutch newspaper (Algemeen Dagblad) posted a video of the arrival of boxes of flowers on their website. The flowers that arrived at this airport were flown in from Nairobi, Kenya. In order to deliver the shipments at the traders as quickly as possible, they employed more people. Per flight around 20 tons of flowers were delivered at the airport and around 200 tons per week. The shipments are loaded on trucks who will deliver it to traders, for 80 percent in the Netherlands and for 20 percent to Germany.

# How Flowers Can Impact Your Health



**All gimmicks are used for flower marketing but not health**

requiring a prescription or costly gym memberships. By learning how plants can reduce stress, increase feelings of happiness, and promote better moods we can tailor our seedlings and plants to meet these needs in our customers. We can also use our knowledge of herbal medicine and plants to provide product that taps into these newer markets to help meet a growing consumer demand.

This can have big benefits for our business, especially when we consider that in 2016, we spent an average of \$10,348 per person on healthcare. After all, we have the unique opportunity to grow quality products year round that do more than look pretty in a window sill. The health benefits of plants are vital for us to consider, because more and more people are turning to natural remedies and cures to improve their health. As growers, we have the ability to cater to our consumers needs, tastes, and trends and grow in the process.

*It's no secret that we know the ins and outs to every part of the equation to growing quality plants and blooms.*

*However, even after we have analyzed the ratios of ingredients to mix the perfect fertilizer or mastered the ideal watering system, we might still be surprised to find out that our beloved plants and flowers can do more than decorate our landscapes or accent our home decor. Research is now able to prove what we have long known: flowers can improve and benefit a person's overall well being by impacting their physical and mental health.*

**W**hen we consider how flowers can impact our health, allergies to pollen are often the first idea to come to mind. In fact, allergies affect 30 percent of all adults. While many people do suffer from seasonal and pollen allergies, it is important to realize there are several hypoallergenic plant options available to grow and sell. For instance, we can provide allergy friendly arrangements and plantings by including the following plants in our catalogues: hostas, hydrangeas, roses, orchids, asiatic lilies, tulips, and more. This allows everyone, even the ones who typically avoid flowers, the ability to enjoy the natural and organic health qualities our goods provide while expanding our markets.

In addition, plants provide a variety of mental health benefits without

**By learning how plants can reduce stress, increase feelings of happiness, and promote better moods we can tailor our seedlings and plants to meet these needs in our customers.**



**Happy to have flowers**

## Oserian Flowers Introduces Music School

**A**s the Kenyan government introduces a new curriculum in the country's education sector focusing more on talent development than academic pursuit, flower grower and exporter Oserian Development Company has introduced a music school at its supported educational institutions.

Speaking at the unveiling of the farm's music instruments, Head of Administration Kirimi Mpungu said it is important to develop talent alongside academic grades to create a rounded individual as well as avail past time activities that are helpful in living a healthy life as per the farm's overriding Flori4Life slogan.



### Students from the music school

The tagline captures Oserian's four main development lines - Flori4Water, Flori4Food, Flori4Schools and Flori4Nature. These show the community support focus programmes for education, water, food security and

environment for sustainability of life. Each is aligned to the world's Sustainable Development Goals (SDGs).

### Under SDGs No 4, Quality

**Education:** Providing equal access to affordable vocational training and to eliminate gender and wealth disparities with the aim of achieving universal access to a quality higher

education, Oserian Flowers has built seven schools running from daycare to secondary schools within its expansive farm to cater for staff children and the community. The music school is open to all interested in the art.

## Kakuzi Farmers Day Exposes A Lucrative Window In Avocado Farming In Kenya



"Kakuzi is passionate about addressing social issues, in order to contribute to the creation of a sustainable society and provide the opportunity for development for all. The welfare of Kakuzi's employees and of the surrounding communities is therefore at the core of its operations."

The event brought together hundreds of farmers mainly drawn from the surrounding Murang'a and Nyeri counties. This annual event is only a part of the various education and training programmes conducted by the company for the benefit of smallholder farmer.

In the event, attending farmers got a wealth of information from experienced Kakuzi managers and skilled local farmers. The stands mainly included workshops on avocado husbandry, but also offered training on macadamia husbandry for the local farmers who are unable to grow avocados due to their soil ecology.

### Event Highlights

Very interesting facts came out during this training. Aspiring farmers should know the following:

1. Kakuzi buys Hass Avocado at between Ksh 19 and 35 per piece depending on size. Now that is a high giving farmers a potential income of Ksh.1.5 million per acre on average.
2. In addition to the buying price, farmers supplying the company get an annual bonus at the end of every year. The best smallholder farmer last year got a cheque of Ksh.300,000.
3. The fruit has a limitless market in Europe and we just can't satisfy it. The majority of the Hass exports (70%) are to France, while 15% goes to the UK with the balance distributed through other EU countries, Switzerland and Scandinavia.
4. Avocado is the best paying fruit among the fruits sold overseas therefore presenting a sustainable high profit venture for Kenyan farmers.

**K**akuzi, the largest buyer and exporter of the Hass and Fuerte varieties of avocado in Kenya, held its annual Avocado Small Holders Field Day yesterday, 08/12/17.

The event which was attended by the Murang'a County Governor Mwangi Wa Iria, is the company's passionate initiative aimed at educating, supporting and promoting increased productivity of avocado by Kenyan farmers.

## Uganda: Rosebud dominates flower exports



**Packed flowers ready for export**

When Zimbabwe crumbled and halted dominating the export of flowers to Europe, Rosebud, Uganda's largest exporter of roses commanding around 35% of Uganda's rose-export market, popped out to fill the gaps, according to East African Business Week.

"Rosebud has a high regard for quality which has reinforced the company as the major resort in the Ugandan market for buyers across the world," says director Meera Ruparelia. "The greenhouses cover a total of 42 hectares producing and exporting over 9 million stems per month."

Equipped with state of the art equipment and employing highly skilled staff, the roses produced are given the attention a surgeon gives a patient on the operation table.

Quality is priority to satisfy the sophisticated Western world. They serve large and small orders in a time.

"We produce a wide variety of flowers comprising: Red Calypso (bright red), Viva (bright yellow), Valentino (dark red), Chelsea (orange), Akito (white), Marie Claire (orange flame), Blushing Akito (pink), Poeme (pink), Meera (champagne), Lambada (orange) and Samoa (deep orange)."

Commanding 40 % of the roses export, the company based in Entebbe, remains the country's largest exporter of the product. The green houses on the farm covers a total of 50 hectares producing and exporting over 12 million stems per month. These stems, due to the favorable weather conditions experienced throughout the year, result in their being of the desired standard.

## Zambia: Airline relaunch expected to revive flower industry

Transport and Communications Minister Brian Mushimba has assured that the Zambian government will not interfere in the running of Zambia Airways.

In an interview in Lusaka, Mr Mushimba said government will stay off clear from the day to day running of the national carrier. Mr Mushimba said the bringing of Ethiopian Airlines as an equity partner will further guarantee independence in the running of Zambia Airways.

Mushimba: "We see the larger picture,



there is the domino effect of setting up the airline because it will grow certain industries like tourism, agriculture and horticulture. Remember, we used to have a flower industry here and it died with the death of Zambia Airways. You can't export your flowers through Kenya Airways which stops three, four times before getting to Europe because your flower will die."



# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
AAA- Flowers-Rumuruti	Roses	Rumuruti	Shailesh	0722 203750	shailesh.rai@aaagrowers.co.ke
AAA- Flowers -Chui Farm	Roses	Timau	Shailesh	0722 203750	shailesh.rai@aaagrowers.co.ke
AAA Growers	Vegetables / Flowers	Nairobi			
AAA-Chestnut		Narumoru			
AAA-Growers		Nakuru			
AAA-Hippo	Vegetables	Thika	Vincet	0726999080	vincet@aaagrowers.co.ke
Acacia Farm-Sunripe		Naivasha	Antony	0711827785	naivasha@sunripe.co.ke
Africala	Cuttings	Eldoret	Meindert	-	meindert@africalla.com
Africa Blooms	Roses	Salagaa	Ravindra Chaudhari	0723159076	ravindra.chaudhari@xflora.net
African Kenya Ltd	Hypericum	Naivasha	Charles Mwangi	-	-
Alani Gardens	Roses	Nakuru	Judith Zuurbier	0722 364 943	alani@alani-gardens.com
Aquila Development Co	Roses	Naivasha	Abhay Marathe	0729776656	gm@aquilaflowers.com
Bamboo Farm-Sunripe		Nakuru	Reuben	0723920237	
Balaji Flowers	Roses	Olkalou	Erastus Simiyu	0711393248	erastus190@gmail.com
Baraka Farm	Roses	Ngorika	Lucy Yinda	-	lucy@barakaroses.com
Batian Flowers	Roses	Nanyuki	Dirk Looj	0720102237	dirk@batianflowers.com
Beautyline	Flowers	Naivasha	Peter Gathiaka	0722676925	peter@beautyli.com
Big Flowers	Roses	Timau	Simon Blinco	0723234927	simon@mauflorea.co.ke
Bigot Flowers	Flowers	Naivasha	Kakasaheb Jagtap	0722205271	jagtap.kt@bigotflowers.co.ke
Bila Shaka Flowers	Roses	Naivasha	Joost Zuurbier	0722204489	bilashaka.flowers@zuurbier.com
Black Petals	Roses	Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
Bliss Flora Ltd	Roses	Njoro	Appachu Sachin	0789101060	appachu7@yahoo.com
Blue Sky	Summer Flowers	Naivasha	Mike	0720005294	info@blueskykenya.com
Bloom Valley		Salgaa	Ramnath Sarbande	0780314387	ramnath.sarbande@xflora.net
Blooming Dale Roses Kenya Ltd	Flowers	Nanyuki	Sunil	0718991182	info@bloomingdaleroses.com
Buds and Blooms	Roses	Nakuru	Shivaji Wagh	0720895911	shivjaniket@yahoo.com
Carzan (K) Ltd	Summer flowers- Hypericum, Carnations	Salgaa	Mahesh		seb.chambers@carzankenya.com
Charm Flowers	Flowers	Athiriver	Ashok Patel	020 352583	ashki@charnflowers.com
Colour Crops	Hypericum	Nanyuki	Kennedy Wanyama	0716389472	colourcrops@tmu.com
Colour crops	Summer Flowers- Hypericum, Veronica	Bahati	Patrick Kipkurui	0727806184	kipkirui89@gmail.com
Colour crops Naivasha	Flowers	Naivasha	Geoffrey Mwaura	0722200972	nva@colourcrops.com
Credible Blooms	Flowers	Rumuruti	Eliud Njenga	0722382859	eliud@pigeonblooms.com
Credible Blooms	Flowers	Ngong	Eliud Njenga	0722382859	eliud@pigeonblooms.com
Dale Flora	Roses	Mogotio	Ajay Sutar	0711102266	ajay.sutar24@gmail.com
Delemere Pivot	Vegetables	Naivasha	Daniel Ondiek	0720395963	daniel.ondiek@vegpro-group.com
Desire Flowers	Flowers	Isinya	Rajat Chaohan	0724264653	rajatchaohan@hotmail.com
De ruiters	Breeder Roses	Naivasha	Fred Okinda	0722579204	Fred.okinda@deruiter.com
Double Dutch	Cuttings	Naivasha	James Opiyo	0723516172	Opiyojames160@gmail.com
Duro Farms	Hypericum	Naivasha	George Anguko	0725762099	george@durofarms.com
Dummen Orange	Flowers Breeders	Naivasha	Steve Outram	0733 609863	s.outram@dummenorange.com
Elbur flora	Roses	Nakuru	Daniel Moge	0721734104	kimmanexp@gmail.com
Enkasiti Thika	Flowers	Thika	Tambe	0734256798	enkasiti@gmail.com
Equinox	Flowers	Nanyuki	Harry Kruger	0707266956	harry@equinoxflowers.com
Everflora Ltd.	Flowers	Thika	Bipin Patel	0735873798	everflora@dmbgroup.com
Exotic Peninah	Roses/ Carnations	Athiriver	Dan	0734626942	dan@exoticfields.com
Fairy Flowers	Flowers	Limuru	Sylvester	0753444237	sylvesterkahoro@yahoo.com
Fides Kenya Ltd	Cuttings	Embu	Francis Mwangi	068-30776	francis.mwangi@dummenorange.com
Flamingo Holdings Farm	Flowers	Naivasha	Peter Mwangi	0722204505	peter.mwangi@flamingo.net
Flamingo Holdings-Kingfisher Farm	Flowers	Naivasha	Charles Njuki	0724391288	charles.njuki@flamingo.net
Flamingo Holdings- Kingfisher Farm	Flowers	Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@flamingo.net
Flamingo Holdings-Siraji Farm	Carnations, Roses	Nanyuki	-	-	-
Finlays -Tarakwet	Flowers	Kericho	Lelon Chepkwony		
Finlays Chemirel	Flowers	Kericho	Aggrey Simiyu	0722601639	aggrey.simiyu@finlays.co.ke
Finlays- Lemotit	Flowers	Kericho	Japheth Langat	0722 863527	japheth.langat@finlays.co.ke
Flamingo Flora	Roses	Njoro	Sam Nyoro	0721993857	s.ivor@flamingoflora.co.ke
Flora ola	Roses	Solai-Nakuru	Lucas Choi	0721832710	lucas.floraola@gmail.com
Flora Delight	Summer flowers	Kiambu/ Limuru	Marco	0710802065	marcovansandijk@yahoo.com



# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Florensis Ltd	Cuttings	Naivasha	Anne Marie		annemarie@florensis.co.ke
Florenza Flowers	Roses	Solai	Yogesh	0737453768	farm.florenza@megaspingroup.com
Fontana Ltd-Salgaa	Roses	Salgaa	Kimani	0733605219	production@fontana.co.ke
Fontana Ltd - Akina farm	Roses	Njoro	Mahindra Patil	0798254199	--
Fontana Ltd - Ayana Farm	Roses	Mau Narok	Gideon Maina	0721 178974	gideon@fontana.co.ke
Fox Ton Agri		Naivasha	Jim Fox	0722204816	jim@foxtonagri.com
Frigoken K Ltd	Vegetables	Nairobi			
Gatoka Roses	Roses	Thika	Robert Mutembei	0720639392	info@gatokaflowers.com
Gladioli Ltd		Naivasha	Pieriguichi / Claudia	0722206939	torres.palau@yahoo.com
Golden Tulip	Roses	Olkalao	Umesh Choudhery	0739729658	umesh@bth.co.ke
Gorge Farm	Roses	Naivasha	Patrick Mulumu	0722498267	pmulumu@vegpro-group.com
Groove	Flowers	Naivasha	John Ngoni	0724448601	grovekenya@gmail.com
Harvest / Manjo Plants	Roses	Olkalao	Paul Salim	-	-
Harvest Ltd	Roses	Athiriver	Julius Oloo	0721465853	julius@harvestflowers.com
Highland plantations	Cuttings & Herbs	Olkalao			production@highlandplants.co.ke
Imani Flowers	Summer Flowers	Nakuru	Raphael Otieno	0792302466	raphael@imaniflowers.co.ke
Indu Farm	Vegetables	Naivasha	Wesley Koech	0715546908	
Indu -Olerai Farm		Nakuru	Everline Debonga	0723383160	everlyne.adhiambo@indu-farm.com
Interplant Roses	Roses	Naivasha	Gavin Mouritzen	0733220333	info@interplantea.co.ke
Isinya	Flowers	Isinya	Rajesh	-	pm@isinyaroses.com
Jatflora		Naivasha	James Oketch	0724418541	jatflora@gmail.com
Jesse AGA		Mweiga	Thuranira	0754444630	davidt@eaga.co.ke
Karen Roses	Flowers	Nairobi	Peter Mutinda	0723353414	pmutinda@karenroses.com
Kariki Ltd.	Flowers	Thika	Samwel Kamau	0723721748	production@kariki.co.ke
Kariki Ltd - Nanyuki	Eryngiums	Nanyuki	Richard Fernandes	062-31023/6	bondet.production@karik.biz
Kariki Ltd - Hamwe	Hypericum	Naivasha	Peter Kamwaro	0721758644	hamwe_fm@kariki.biz
Kariki Ltd - Hamwe - Molo	Fowers	Molo	Joseph Juma	0725643942	production_fm@kudenga.co.ke
Twiga Flowers	Flowers	Naivasha	-	-	-
Kenflora Limited		Kiambu/ Limuru	Abdul Aleem	0722311468	info@kenflora.com
Kentalya	Cuttings	Naivasha	Linnet	0733549773	lynette@kentalya.com
KHE		Nanyuki	Elijah Mutiso	0722254757	mutiso@khekenya.com
Kisima Farm	Roses	Timau	Martin Dyer	0722593911	martin@kisima.co.ke
Kongoni River Farm - Gorge Farm	Roses	Naivasha	Anand Patil	0728608785	anand.patil@vegpro-group.com
Kongoni River Farm - Liki River	Flowers	Nanyuki	Madhav Lengare	0722202342	madhav@vegpro-group.com
Kongoni River Farm - Star Flowers	Flowers	Naivasha	Dinkar	0789487429	dinkar@vegpro-group.com
Kongoni River Farm - Kongoni	Flowers	Timau	Oppaso Bandgar	07120070053	oppasobandgar@vegpro-group.com
Kongoni River Farm -Bemack	Flowers	Timau	Rakesh Kuttaiah	0724631299	rakesh.kuttaiah@vegpro-group.com
Korongo Farm		Naivasha	Macharia	0721387216	
Kreative	Roses	Naivasha			
Lamorna Ltd	Roses	Naivasha	Mureithi	0722238474	admin@lamornaflowers.com
Lathyflora		Limuru	Mbauni John	0721798710	mbaunij@yahoo.com
Lauren International	Flowers	Thika	Chris Ogutu/Carlos	0722783598	laurenflowers@accesskenya.co.ke
Laurel Investment	Roses	Nakuru	Rajendra Jadhav	0738359459	rajendra.laurel@bht.co.ke
Livewire	Hypericum	Naivasha	Esau Onyango	0728606878	management@livewire.co.ke
Lobelia Ltd/ Sunland	Roses	Timau	Peter Viljoen	0721632877	info@lobelia.co.ke
Lolomarik	Roses	Nanyuki	Topper Murry	0715 727991	topper@lolomarik.com
Loldia Farm		Naivasha	Gary/Rotich	0720651363	
Longonot Horticulture		Naivasha	Chandu	0724639898	chandrakant.bache@vegpro-group.com
Longonot Horticulture		Naivasha	Patrick Mulumu	0722498267	patrick.mulumu@vegpro-group.com
Magana	Roses	Nairobi	John Ngugi	0725307509	productionmanager@maganaflowers.com
Mahee Flowers	Roses	Olkalao	Rao Venkatesh	0705401431	maheefm@eaga.co.ke
Maridadi Flowers	Flowers	Naivasha	Jack Kneppers	0733333289	jack@maridadiflowers.com
Maua Agritech	Flowers	Isinya	Madan Chavan	0738669799	production@mauaagritech.com
Mau Flora	Roses	Molo	Mahesh	0787765684	mahesh@mauflora.co.ke
Milmet/Tindress Farms	Flowers	Solai	Pravin		pravinyadav.29@gmail.com
Molo Greens	Summer Flowers	Molo	Justus Metho	0722 755396	justus@mologreens.com
Mt. Elgon Flowers	Roses	Eldoret	Bob Anderson	0735329395,	bob@mtelgon.com



# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Mwanzi Flowers Ltd	Roses	Rumuruti	Ram	0722265845	-
Mweiga Blooms	Flowers	Nanyuki	Stewart/ Mburu	0721674355	mweigablooms@wananchi.com
Mzuurie Flowers - Maji Mazuri	Roses	Eldoret	Mark Juma	0727471034	mjuma@majimazuri.co.ke
Mzuurie Flowers - Molo River Roses	Flowers	Kilelwa	Andrew Wambua	0724256592	awambua@moloriverroses.co.ke
Mzuurie Flowers - Winchester Farm	Roses	Karen	Raphael Mulinge	0725848909	rmulinge@winchester.co.ke
Mzuurie Flowers - Winchester Farm	Flowers	Bahati	Raphael Mulinge	0725848909	rmulinge@winchester.co.ke
Nini Farms	Roses	Naivasha	Philip Kuria	0720611623	production@niniLtd.com
Nirp East Africa	Roses	Naivasha	Danielle Spinks	0702685581	danielles@nirpinternational.com
Ol Njorowa	Roses	Naivasha	Charles Kinyanjui	0723986467	mbegufarm@iconnect.co.ke
Oserian	Flowers	Naivasha	Musyoka Stephen	0722888377	stephen.musyoka@oserial.com
Panda Flowers	Roses	Naivasha	Chakra	0786143515	chakra@pandaflowers.co.ke
Panocol International	Roses	Eldoret	Mr. Paul Wekesa	0722748298	paul.wekesa@panocal.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@pentaflowers.co.ke
Pendekeza	Roses	Nanyuki	Richard Siele	0722716158	tambuzi.sales@tambuzi.co.ke
Pj Dave	Flowers	Isinya	Simiyu	0723500049	pjdavetimau@pjdaveepz.com
Pj Flora	Flowers	Isinya	Palani Muthiah	0752607651	muthiah.palani1971@gmail.com
Pj Flowers Ltd	Roses	Isinya	Sanjiv	0737576966	sanjiv@pjdave.com
Plantation Plants	Cuttings	Naivasha	William Momanyi	050 20 20282	pplants@kenyaweb.com
Plantech Kenya Ltd	Propagators - Herbs, Roses & Vegetables	Naivasha	Idan Salvy	0702187105	idan@plantechkenya.com
Porini Flowers	Roses	Molo	Vivek Sharma	0731040498	gm@poriniflowers.com
PP Flora	Roses	Nakuru	Prakash	0718045200	ppflora2010@gmail.com
Primarosa Flowers Ltd	Roses	Olnjororok	Shantaram	0701464049	production.p2@primarosaflores.com
Racemes Ltd		Naivasha	Bonny	0721938109	bonny@kenyaweb.com
Rain Forest Farmlands Ltd	Roses	Naivasha	Benard Omwansa	0722912943	bomwansa@fleurafrica.com
Ravine Roses Flowers	Flowers	Nakuru	Peter Kamuren	0722205657	pkamuren@karenroses.com
Redland Roses		Thika	Aldric Spindler	0733603572	aldric@redlandsroses.co.ke
Redwing Flowers	Flowers	Nakuru	Simon Sayer	0722227278	sayer@redwingltd.co.ke
Rift Valley Roses (K) Ltd	Flowers	Naivasha	Peterson Muchuri	0716589898	fm@riftvalleyroses.co.ke
Rimiflora Ltd	Hypericum	Njoro	Richard Mutua	0722357678	richard@rimiflora.com
Riverdale Blooms Ltd		Thika	Antony Mutugi	0202095901	rdale@swiftkenya.com
Roseto	Roses	Roseto	Arvind	0734848560	gm.roseto@megaspingroup.com
Rozzika Gardens - Kamuta Farm		Naivasha	Mbuthia	0721849045	jwachiram@yahoo.com
Savannah international	Geranium	Naivasha	Ignatius lukulu	0728424902	i.lukulu@savanna-international.com
Selecta Kenya		Thika	Alnoch Ludwig	0738572456	l.allnoch@selectakenya.com
Sojanmi Spring Fields	Roses	Njoro	Ashesh Mishra	0792217088	ashesh@xflora.net
Schreus	Roses	Naivasha	Haiko Backer	-	-
Shades Horticulture	Flowers	Isinya	Mishra	0722972018	info@shadeshorticulture.com
Shalimar Flowers	Flowers	Naivasha	Anabarasani	0733604890	anbarasan@eaga.co.ke
Sian Roses - Maasai Flowers	Flowers	Isinya	Andrew Tubei	0722728364	atubei@sianroses.co.ke
Sian Roses - Agriflora (K) Ltd	Roses	Nakuru	Clement Ngetich	0723159619	cngetich@sianroses.co.ke
Sian Roses - Equator Roses	Roses	Nakuru	Nehemiah Kangogo	0725848910	nkangogo@sianroses.co.ke
Sian Roses - Equator Flowers	Roses	Eldoret	Charles Mulemba	0721311279	cmulemba@sianroses.co.ke
Sierra flora	Roses	Njoro	Sharieff	0787243952	farm.sierra@megaspingroup.com
Simbi Roses	Roses	Thika	Karue Jefferson	067 44292	simbi@sansora.co.ke
Sirgoek Flowers	Flowers	Eldoret	Andrew Keittany	0725 946429	sirgoek@africaonline.co.ke
Solai Milmet/Tindress	Flowers	Nakuru	Vinoj J. Kumar	0737801646	solairoses@gmail.com
Subati Flowers	Roses	Subukia	Naren Patel	0712 584124	naren@subatiflowers.com
Subati Flowers	Roses	Naivasha	Naren Patel	0712 584124	naren@subatiflowers.com
Suera Flowers Ltd	Roses	Nyahururu	George Kimathi	0724622638	gkbuuri@gmail.com
Sunland Timau Flair	Roses	Timau	Peter Viljoen	0723383736	info@lobelia.co.ke
Stockman rozen	Roses	Naivasha	Julius muchiri	0708220408	julius@srk.co.ke
Syngenta Flowers - Kenya Cuttings	Flowers	Ruiru	James Ouma	0725217284	john.odhiambo@syngenta.com
Syngenta Flowers - Kenya Cuttings	Flowers	Thika	Kavosi Philip	0721225540	philip.munyoki@syngenta.com
Syngenta Flowers - Pollen	Flowers	Thika	Joseph Ayieko	0733552500	joseph.ayieko@syngenta.com
Tambuzi	Roses	Nanyuki	Richard Siele	0722716158	tambuzi.sales@tambuzi.co.ke
Timaflo Ltd	Flowers	Nanyuki	Simon van de Berg	0724443262	info@timaflo.com
Transebel		Thika	David Muchiri	0724646810	davidmuchiri@transebel.co.ke
Tropiflora		Kiambu/Limuru	Niraj		tropiflora@africaonline.co.ke



# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Tulaga Flowers	Roses	Naivasha	Steve Alai	0722659280	tulagaflower@africaonline.co.ke
Tulaga Flowers	Roses	Rumuruti	Gideon Kariuki	0701153844	tulagamarmamet@africaonline.co.ke
Tk Farm		Nakuru	Gichuki	0721499043	davidgichuki20@yahoo.com
Uhuru Flowers	Flowers	Nanyuki	Ivan Freeman	0713889574	ivan@uhuruflowers.co.ke
United Selections	Roses -Breeder	Nakuru	Jeroen Van Marrewijk	0700176556	jvanmarrewijk@united-selections.com
V.D.Berg Roses	Flowers	Naivasha	Johan Remeeus	0721868312	johan@roseskenya.com
Valentine Ltd		Kiambu/Limuru	Maera Simon	0721583501	simon.maera@valentinegrowers.com
Van Kleef Ltd	Roses	Njoro	Rathan	0787266007	rathan@vankleef.nl
Vegpro K Ltd Vegetables		Nanyuki	John Kirunja	0729555499	john.kirunja@vegpro-group.com
Vegpro K Ltd	Vegetables	Nairobi	Judy Matheka	0721245173	jmatheka@vegpro-group.com
Vegpro K Ltd	Vegetables	Nanyuki	John Nduru	0722202341	jnduru@vegpro-group.com
WAC International	Breeder	Naivasha	Richard Mc Gonnell	0722810968	richard@wac-international.com
Waridi Ltd		Athiriver	P. D.Kadlag	0724-407889	kadlag@waridifarm.com
Wildfire	Roses/summer	Naivasha	Eliud Kimani	0727598349	roses@wildfire-flowers.com
Wilfay Flowers	Gypsophila/hypericum	Subukia	Makori	0723358644	makorwilfay@gmail.com
Wilmar Agro Ltd	Summer Flowers	Thika	Alice Muiruri	0722 321203	alice.muiruri@wilmar.co.ke
Windsor		Thika	Vikash	073705070	vikash@windsor-flowers.com
Xpressions Flora	Roses	Njoro	Brijesh Patel	0715469732	brijesh.patel@xflora.net
Zena - Thika Farm	Roses	Thika	Vincent	-	sales@zenaroses.co.ke
Zena - Asai Farm	Roses	Eldoret	Phanuel Ochunga	0722506026	pochunga@zenaroses.com
Zena Roses - Sosiani Farm	Roses	Eldoret	Phanuel Ochunga	0722506026	pochunga@zenaroses.com

## FLOWER FARMS IN UGANDA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Roses	Rosebud	Ravi Kumar	Wakiso	0752 711 781	ravi.kumar@rosebudlimited.com
Roses	Maiye Estates	Premal	Kikwenda wakiso		premal@maiye.co.ug
Roses	Jambo flowers	Patrick Mutoro	Nakawuka Sisia Wakiso	(254) 726549791	pmutoro80@yahoo.co.uk
Roses	Pearl Flowers	Raghibir Sandhu	Ntemagalo Wakiso	0772 72 55 67	pearl@utlonline.co.ug
Roses	Aurum flowers	Kunal Lodhia Shiva	Bulega, Katabi Wakiso	0752 733 578	kunal@ucil.biz
Roses	Eruma roses	Kazibwe Lawrence	Mukono	0776 049987	kazibwe@erumaroses.com
Roses	Uga rose	Grace Mugisha	Katabi Wakiso	0772 452 425	ugarose@infocom.co.ug
Roses	Kajjansi	K.K rai	Kitende Wakiso	0752 722 128	kkrai@kajjansi-roses.com
Roses	Uganda Hortech	M.D hedge	Lugazi Mukono	0703 666 301	mdhedge@mehtagroup.com
Chrysanthemums	Fiduga	Jacques Schrier	Kiringente , Mpingi	0772 765 555	j.schrier@fiduga.com
Chrysanthemums	Royal Van Zanten	Jabber Abdul	Namaiba Mukono	0759 330 350	j.Abdul@royalvanzanten.com
Impatiens, poinsetia	Wagagai	Olav Boenders	Iwaka Bufulu Wakiso	0712 727377	olav@wagagai.com
Chrysanthemums	xclusive cuttings	Peter Benders	Gayaza- Zirobwe rd	0757 777 700	pbenders@xclusiveuganda.com

## FLOWER FARMS IN TANZANIA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Roses	Kili flora	Jerome Bruins	Arusha	255 27-25536 33	jbruins@habari.co.tz
Roses	Mt. Meru	Tretter	Arusha	255 27 2553385	office@mtmount-meru-flowers.com
Roses	Tengeru Flowers	Tretter	Arusha	255 27 255 3834	teflo@africaonline.co.tz
Crysenhemums	Multi flower Ltd	Tjerk Scheltema	Arusha	255 27 250 1990	tjerk@arushacutting.com
Crysenhemums	Dekker Bruins	Lucas Gerit	Arusha	255 27 255 3138	info@tfl.co.tz
Crysenhemums	Arusha cuttings	Tjerk Scheltema	Arusha	255 27 250 1990	tjerk@arushacutting.com



# FLOWER FARMS IN ETHIOPIA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Cuttings	Abssinia flowers	Toon Van Kessel	Legedadi	+251 116653911	tvankessel@yahoo.com
Roses	Addisfloracom PLC	Kitema Mihret	Holeta	+251 912 264190	tasfaw@addisflora.com
Folwers	Afriflowers PLC	Mauricio Castillo	Holeta	+251 937977849	topigs@grepodelago.com
Fruits & Vegetables	Africa Juice Tibila S.C	Abayeneh Essayas	Adama	+251 221191203	info@africajuice.com
Roses	Agriflora		Holeta	+251 922 397760	flowers@ethionet.et
Roses	Alliance Flowers PLC	Navale	Holeta	+251 116184341	navele@nehainternational.com
Roses	Arsi Agricultural Mecahanization		Holeta		arsiflower@ethionet.et
Cut Flowers	Assela Flowers Farm PLC	Friedrich Wilhelm	Wolliso	+251 911431417	info@asselaflowers.com
Roses	AQ Roses PLC	Frank Ammerlaan	Ziway	+251 464414277	frank@aqroses.com
Cut Flowers	Beti Ornamentals	Henock Zerihun	Debre Zeit	+251 116521211	betiornamentaldz@gmail.com
Roses	Bukito Flowers	Anteneh Tesfaye	Debra Zyeit	+251 911 615571	
Roses	Braam Flowers PLC	Ben Braam	Ziway	+251 464413137	braam.roses@gmail.com
Cuttings	Desa Plants PLC	Ben Depraeter	Mojo-Ejersa	+251 116569195	ben@desaplants.com
Roses	Dire Highlands Flowers PLC	Seifu Bedada	Holeta	+251 113870308	dhf@ethionet.et
Roses	Dire flowers 2	Abenet Fiktu	Sebeta	+251 911 149 329	abifiktu@yahoo.com
Roses	Dugda Floriculture Dev't PLC	A dugna Bekele	Debre Zeit	+251 4336142/43	general@dugdaflora.com
Roses	Ethio dream PLC	Jan Prins	Holeta	+251 11 2372334/35	ethiodream@ethionet.et
Roses	Ethio Agri- CEFT	Asfaw Kejela	Welmera	+251 112372415/18	ethioagricft@ethionet.et
Roses	Enyi Ethio Roses	Endale Yirga	Kara Kore Sebeta	+251 113482143	enyi@ethionet.et
Roses	Eden Roses	Vaibhav Aggarwal	Sebeta	+251 8959343	vaibhav@edenroses.com
Roses	Ethio passion Agro PLC/Oda Flowers	Roshan Muthappa	Sebeta	+251 111561572/73	ethiopassion@ethiopassion.com
Roses	ET Highland Flora PLC	Tsegaye Abebe	Sebeta	+251 113383710	bnf2etf@ethionet.et
Roses	Euro Flora PLC	Shiranda Pia	Holeta	+251 118602075	eurolora@gmail.com
Roses	Evergreen Farm	Hiwot	Debra zyeit	+251 912 18 5065	Hiwot.Ayaneh@yahoo.com
Hydragiums	Ewf Flowers	Humphrey	Sebeta	+251 920 35 1931	production-manager@Ewf-flowers.com
Cuttings	Ethiopia Cuttings PLC	Sunil Hemdev	Koka	+251 224590151-55	akalu.ermias@syngenta.com
Cuttings	Ethipia Magical Farm	Daniel Bentora	Sendafa	+251 118606534	emf@ethionet.et
Summer Flowers	Freesia Ethiopia PLC	Ronald Vijverberg	Sebeta	+251 118101018	freesia@ethionet.et
Roses	Friendship Flowers	A. Tsegaselassie	Debre zeit	+251 91 130 49 67	friendship.flowers@yahoo.com
Roses	Flowerama PLC	Srinivasan Mini	Holeta	+251 112849349	floweramaa@hotmail.com
Cuttings	Florensis Ethiopia PLC	Ronald Vijverberg	Koka	+251 116525556/57	florensis@ethionet.et
Roses	Gallica Flowers PLC	Stephane Mottier	Menagesha	+251 112849368	gallicaethionet.et
Roses	Golden Rose Agro Farm Ltd	Ryaz Shamji	Sebeta	+251 113520282/84	goma@ethionet.et
Roses	Herburg Roses PLC	Huub Van Der Burg	Ziway	+251 464414281/79	huu@herburgroses.nl
Roses & Veges	JJ Kothari PLC	Jay Prakash Kothari	Sululta	+251 111860021	jjkothari@gmail.com
Fruits & Veges	Jittu Horticulture PLC	Jan Prins	Tikurwuha	+251 116189313/14	info@jittuhorticulture.com
Roses	Joe Flowers PLC	Wondirad Firdu	Holeta	+251 112372016	joeflowersplc@gmail.com
Roses, veges, herbs	Joytech PLC	Jagdish Eknath	Debre Zeit	+251 122370877	jagdish@joytechplc.com
Cut Flowers	Karuturi Farm/Ethiopia meadows	Anil Tumu	Holeta	+251 11 6632437/39	eth.meadows@gmail.com
Roses	KAF Flowers	Baker Elkadi	Holeta	+251 913 202 460	baker-elkadi@yahoo.com
Cut Flowers	Klaver Flowers PLC	Danny Koppes	Hawassa	+251 110916581769	klaverflowers@gmail.com
Roses	Lafto Roses PLC	Gerard van der Deiji	Sebeta	+251 115541485/83	pm@laftoros.com
Roses	Linssen Rose	Peter Linssen	Addis Alem	+251 11 3205668	linssenroseset@ethionet.et
Fruits, Veges	Luna Fruits PLC	Tesfalidet Hagos	Koka	+251 116627894	lunaexport@ethionet.et
Cut Flowers	Maranque Plants PLC	Marc Driessen	Merti	+251 22 1190750	md@maranqueplants.com
Veges, sum. flowers	Marginpar Ethiopia PLC	Andrians Vanrol	Holeta	+251 116547005	marginpar@ethionet.et
Roses	Metrolux Flowers	Akiko Siyum	Holeta	+251 114669273	export.mtx@ethionet.et
Roses	Minaye Flowers PLC	Yidnekachew Ayele	Debre Zeit	+251 113728666/67	minaye@ethionet.et
Summer Flowers	Mullo Farm PLC/ Derba PLC	William Koerts	Chancho	+251 116553910	office@derbaflowers.com
Roses	Oromia Wonders	Navale Kodaje	Holeta	+251 112372378	mekdesoromia@gmail.com

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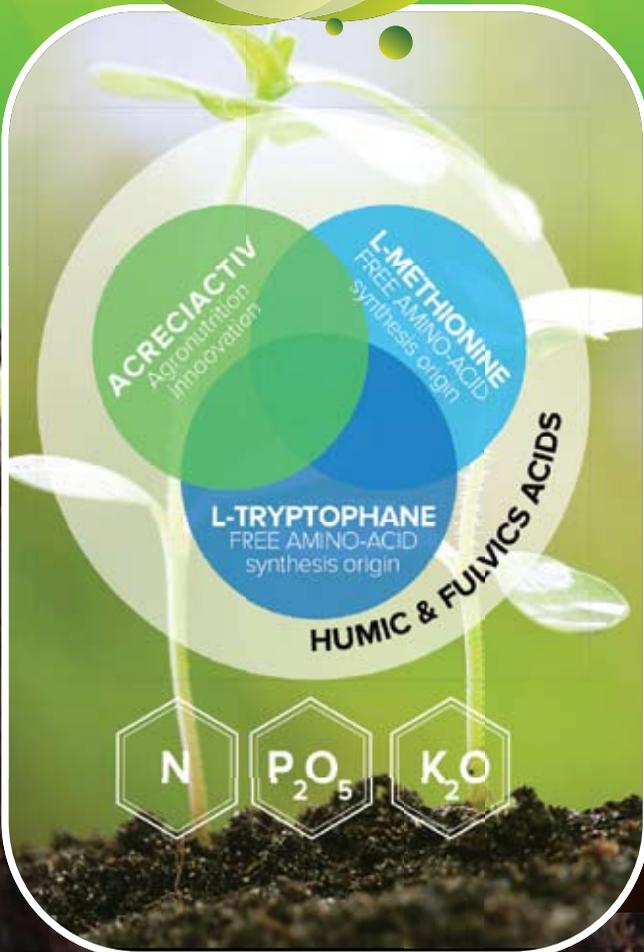


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