## FLORICULTURE

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# **Biological Control - What Future?**



#### **ELGON KENYA LIMITED**

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**Cover Photo Courtesy of National Resource Institute, UK** 

#### The Leading Floriculture Magazine

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All rights reserved. Reproduction in whole or in part without written permission of the publishers is strictly prohibited. Floriculture is published six times a year and circulated to personnel in the Horticulture Industry, foreign missions and Kenyan Embassies abroad, Flower Growers, Exporters and Consumers, extension officers in the Ministry of Agriculture, research offices and suppliers of agricultural inputs in Kenya.

#### **My Loving Growers**



We have been persuaded by some that are careful of their safety, to take heed how we commit ourselves to growing flowers, for fear of poisoning. I assure you, I do not desire to live to distrust my faithful and loving readers. So I will address their fears. I have always so behaved myself that, under God, I have placed my chiefest strength and

safeguard in the loyal hearts and good will of my readers.

And therefore I am amongst you at this time, not as for my pen or paper, but being resolved, in the midst and heat of the discussion, to live or die amongst you all; to lay down, for my God, and for my readers, and for my customers, my honor and my blood, even the dust. I know I have but the body of a weak and feeble writer; but I have the heart of a buyer, and of a buyer of flowers from Kenya, too; and think foul scorn that grower or exporter, or any anyone, should dare to sale toxicities in name of flowers: to which, rather than any dishonor should grow by me, I myself will take up arms; my pen will be your general, judge, and rewarder of every one of your virtues as a buyer.

I know already, by your forwardness, that you have deserved rewards and crowns for supporting the economies of a struggling Kenya; and I do assure you, on the word of my pen, they shall be duly paid you. In the mean my writers shall be in my stead, than whom never a magazine commanded a nobler and worthy subject; Biologicals in Kenya not doubting by your obedience to growers, by your concord in the auctions, and by your valor in the supermarkets, we shall shortly have a famous victory over the enemies of clean flowers.

There is no blinking at the fact that Henry wainwright is among the pioneers of biologicals in Kenya. From his office at Real IPM, he gave a very candid interview. With confidence and victory in our hands, we visited Dudutech in Naivasha and met John Ogechah. The reknown biological trainer did, a must read article for any grower. Maurice Koome joined the train by penning down the best on flower farming in Mt. Kenya.

But in a larger sense, we cannot dedicate all our efforts to biological without discussing market; the final destination. Back in Naivasha, Fair trade farms have changed the face of the district hospital. This is a must read by all. Kenya's efforts of strenlining the sector are bearing fruits as CARROT is launched

Let us therefore brace ourselves to our duties, and so bear ourselves that if we love flowers and want to buy the best, readers I will still say, 'This was your finest issue.

Have your finest reading.

Masila Kanyingi

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Masila Kanyingi

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#### Swiss, German and Austrian Retailers Supporting IPM in Kenya Flower Production.

uropean retailers are often subject to lobbying by "green groups" to abandon the flowers grown in Kenya because of their over use of pesticides and water resources. It is easy from Kenya to shrug these issues off as minorities views, however the retailers have to walk the narrow path between the demands of these pressure groups and working with their suppliers. Instead of just telling suppliers what to do, Coop, (Swiss), Rewe (German) and Rewe International (Austrian) based retail companies have a leading position in the development and marketing of sustainable products decided to do something about addressing these issues and proposed a pilot IPM project working with their flower suppliers in Kenya.

The objective of the pilot project was to achieve a pesticide reduction by fostering enhanced IPM methods on individual pilot plots per flower farm. Once proven successful, IPM methods should be scaled up to commercial stage. Coop invited the three IPM suppliers in Kenya, namely Dudutech, Koppert and Real IPM to collaborate with both Coop and their flower suppliers to achieve this objective. The project was designed to run for one year and many of the flower suppliers to Coop, such as the Finlay group, Oserian, Penta, Bigot, Panda to name just a few are involved.

The project involved comparing two green houses on each farm, one using IPM methods whilst the other involved the use of conventional crop protection methods. The key performance indicators of the project are not only looking at pesticide residues but also the cost of the programmes, yields, the

percentage of crops that are sellable and ease of implementation. The residues are being evaluated by looking at the number of residues, the total quantity of residues (mg/kg) and the scoring system that incorporates both quantity and acceptability of the type of pesticides (classified as white, green, amber, red and black) Raphael Schilling, the Sustainability manager of Coop said recently at the mid-term review meeting "this project is a unique opportunity to work with our suppliers to achieve a common objective, which is a sustainable production of flowers in an environmentally friendly and ethically sound manner". The mid-term review project allowed all partners to discuss the successes and challenges that still exist. Results were encouraging on pesticide reduction; however circumstances like weather were seen as major influencing factors. Also the need for reliable and consistent sampling and analytical procedures were in need of refinement.

Growers are nervous about constraints to the way they manage their crops, including what they can spray. Especially as margins are always under pressure with limited price increases and constantly increasing costs of production. However it is refreshing to work with a retailer such as Coop, who are willing to not only work with their supplier but put their money into such a pilot project. There is an opportunity if the pilot project is seen as a success to roll this project out to make a significant impact on the adoption of IPM in flower growing in Kenya.



#### Controlling Nematodes the natural way

Neem (Mwarobaini) based nematicide & insecticide



#### Amiran's OptiNet 50 mesh and Amiran Plastic Mulch to help in crop protection and water saving respectively

#### REDUCE YOUR CHEMICAL EXPENSES



As a company that cares and is always willing to invest in new technology, Amiran continues to give solutions to growers through

good crop management at reduced costs.

Amiran Kenya has a new improved technology that entails the use of insect netting with optical addictives called the Optinet 50 mesh. With normal insect netting, farmers can only protect their crop by the size of the mesh, but insects



are still able to get through the net into the structure. Amiran Kenya's Optinet 50 mesh will give farmers 95% protection by using the size of the mesh and with added optical addictives on it, the insect will be repelled.

At the same time, the net gives 50% shade with good ventilation. The net can be used in greenhouses on the vents and sides, secondly on the nethouse you can combine it with the shade netting as side or roof material. The material is UV treated for 5 yrs.



#### SAVE ON WATER AND STILL CULTIVATE YOUR CROPS



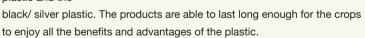
It is well known that water is essential for growing plants thus the need for good water preservation. Using plastic for Mulching is a solution that is being encouraged by Amiran Kenya for both the floriculture and

horticulture growers.

#### When you cover your growing beds/ area with plastic mulch you are:

- Reducing too much evaporation thus you will irrigate less and save on water
- The soil is more moist
- Reducing weeds that compete with your crop for water, which saves on labor
- Your are providing an excellent area for root development because crops need darkness and oxygen thus yields are hetter

 Decreasing nutrient leaching during the rainy season results in reduction of pollution Amiran provides farmers with two colored plastic mulch options; the white/ black plastic and the



Amiran recommends the use of good quality drip lines when using plastic

mulch and also a tension meter (manual or computerized) in order to check how much to irrigate and gauge soil moisture.



Amiran has embraced 3 pillars to successful and sustainable agribusiness: Knowledge, Practical know how or 'do how', and high quality inputs. Respecting these 3 pillars and ensuring that all details are addressed, will ensure the success of the farmers. Amiran continues to work closely with farmers offering them agricultural innovations and advice on all aspects of farming, all with the goal of ensuring farmers enjoy their farming experience and reduce risks.



#### **CROP PROTECTION AGAINST INSECTS**



OptiNet is a patented technology that integrates two methods for control of greenhouse thrips and other insects. The dual protection significantly reduces the number of pests entering the structure, while maintaining adequate airflow. As a result, fewer pesticide treatments are needed, complying with European standards, and saving costs.

OptiNet blocks penetration of insects in two ways:

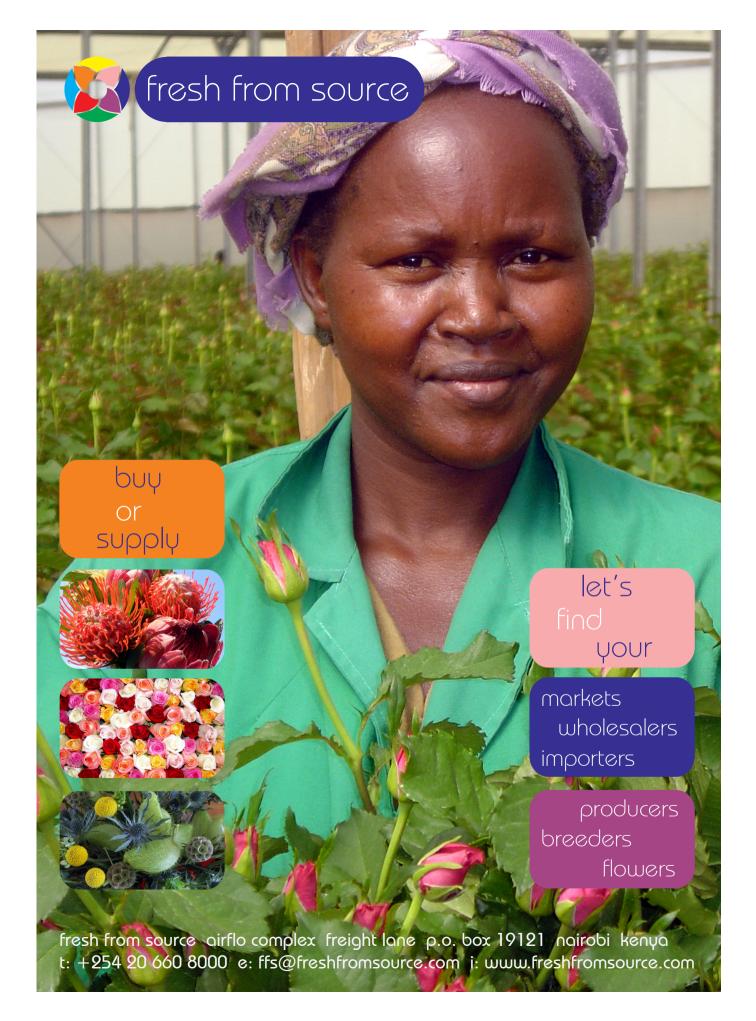
- Optic protection: Insects are repelled by the screen's optical additives.
- Physical protection: The fine 50 mesh screen provides a second line of protection.

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Our Knowledge, Your Success.







Founded in January 2013, Fresh From Source (FFS) is a new company with representative offices located in the heart of the flower producing countries in Africa. FFS specialises in supplying customers world wide with fresh cut flowers directly from the source.

#### **Objectives**

Fresh From Source is a member of the Dutch Flower Group family. The company was founded with the objective of meeting the growing demands of customers wishing to get closer to the source, and have a more direct supply chain. This trend, coupled with the demand to meet the specific needs of these customers (such as efficient sourcing, quality Control, and consolidation of varieties and growers) led to the start of FFS.

#### **Partnerships**

FFS is focussed on the creation of strong partnerships both with the growers and customers. The aim is to source and supply top quality flowers as far down the consumer chain as possible, through an efficient, cost effective service.

#### Customers

Meeting the needs of our clients is a priority and we work closely with the growers to ensure that this is achieved.

The customer portfolio is diverse – with customers located in Russia (the ability of FFS staff to communicate in the Russian language is a distinct advantage), Ukraine, UK, Italy, France, USA, Australia, South Africa, Poland, Middle East, Singapore, and Japan. Both the wholesale and the retail sectors are serviced, with customers having the ability to buy on the 'spot market' basis, weekly, monthly and on period/year round standing order basis.

#### Suppliers

The supply base of FFS is equally diverse, and the different climates throughout the growing regions in Africa provide options for consistent supply throughout the year. With experienced teams in Kenya and Zimbabwe, FFS sources the freshest quality flowers from growers throughout Africa.

Growers are carefully selected based on quality, reliability, consistency and social responsibility. In addition, strict environmental compliance by the producers ensures sustainability. FFS supports growers that are accredited with MPS, Fair Trade, Kenyan Flower Council, and GAP.

#### Matching needs with supply

Matching the customer requirements with the suppliers is a key role of FFS. Many customers have preferences for the varieties and growers that they would like to receive product from. The ability to offer the customers the full range of product from the selected growers is key.

#### Consolidation and supply chain

Orders are made with the different growers to make up the entire 'basket' of products as ordered by the customers. Product is then consolidated at the cold store facilities at all points of departure.

Stringent quality control measures by the dedicated teams at these points is an integral part of the supply chain and is key to developing confidence in the reliability and consistency of supply.

FFS offers efficient and complete supply chain management, facilitating the cold chain from the airport to the customers. This includes temperature maintenance at the airport, vacuum cooling, and the management of freight logistics with strategic freight partners.

#### E-commerce

Online business has become a major part of the fresh cut flower business throughout the world with a significant proportion of the total flower trade now being conducted through webshops.

Fresh From Source has created an effective way of growers offering their 'virtual stock' directly onto these webshop platforms through a simple to use real time application.

#### This application is known as the VMP (Virtual Market Place).

- Growers are provided with a unique log-in and are able to offer available stock onto the system, with a price offer (determined by the grower).
- These offers are automatically transmitted onto the webshops of large wholesalers and retail suppliers in Europe, thereby reaching hundreds of customers throughout the world instantly.
- Customers make their orders onto the webshops and the orders are automatically transmitted through to the growers.
- Growers deliver the product to the airport and the logistics, consolidation and supply are taken care of by FFS.

This platform provides a risk free environment for growers to make offers of their product to customers all over the world.

The grower names are specifically mentioned on the offers and unique pictures of the grower's individual product are placed on the system. This creates an additional marketing opportunity for growers wishing to expose their product to a wide range of customers.

Fresh From Source has a strong belief in the importance of Africa (in particular East Africa) and the role that it plays (both currently and in the future) in the worldwide floricultural industry.

With an increasing number of customers wishing to purchase flowers from the source countries, Fresh From Source is ideally placed to bring the growers together with the market.



#### **Biological Control – What Future?**

#### Henry Wainwright, The Real IPM Company (K) Ltd

The crop protection industry is dominated by the large multinational agro-chemical companies such as Syngenta, Monsanto and Bayer Cropscience. The biocontrol business is minute in comparison, with only 3% of global sales of crop protection products. The future of the biocontrol industry is based on a range of interacting factors and difficult to predict the future, however many are suggesting that its future is likely to grow. There are numerous drivers for the use of biological control.

#### Pesticide resistance.

Whether a pest or a disease, most organisms have the ability to become resistant to a large range of pesticides. This is often seen in the field where one season a particular pesticide works well and later the efficacy is not there. Resistance has been reported in many common groups of insecticides and fungicides. There occurrence of resistance to a biological control is virtually unknown. For instance in Kenya the wide spread adoption of the use of predatory mites was mainly due the fact that many of the conventional pesticides were not working due to resistance.

#### Governments and the regulators.

Broadly around the global, the authorities are trying to reduce the reliance on conventional pesticides. For instance France launched their Ecophyto action plan which has the objective to reduce pesticides, in compliance with the EU's Sustainable Use Directive. The aim is to reduce the dependency of farms on plant protection products (up to 50% reduction in ten years), while at the same time maintaining agricultural production at a high level in both quality and quantity terms. Another and more dramactic example of how governments can affect the use of pesticides is that the EU has placed severe restrictions on the use of neonicotinoid insecticides in 2013 in the EU. As a consequence Syngenta has submitted a legal challenge to the European Commission's decision to suspend the use of thiamethoxam (Actara, Cruiser) on bee attractive crops. According to Syngenta, the Commission took the decision on the basis of a flawed process, an inaccurate and incomplete assessment by the European Food Safety Authority and without the full support of EU Member States. Whatever the outcome, the neonicotinoid group of pesticides which include imidacloprid (Confidor), thiaclorpid (Calypso), acetamiprid (Golan) and thiamethoxam (Actara) are likely to be under pressure for years to come and this will not only be reflected in the EU but also Kenya as well. For instance the UK supermarket has given notice to its suppliers world-wide that they do not want neonicotinids used on their crops after the end of 2014. Therefore can biological control fill the vacuum left by the regulators withdrawing pesticides?

#### Retailer pressure.

The European retailers are under pressure to reduce the use of pesticides in the products they sell, whether this is French beans or roses. This is for instance an important criteria in products labelled Fair Trade. As a consequence they exert market forces on the growers in Kenya to comply by measuring pesticide use (MPS scheme) and determining the pesticide residues on products. Therefore growers are forced to seek alternative methods of pest and disease control and this will include the greater use of biological control agents.

#### Availability and cost.

Technology, such as biological control will only be adopted if it is available, at a price that can be afforded and is shown to be effective. Kenya has been fortunate to have biological control agents that are produced in Kenya that are certainly available, fresh, and low cost. In addition to locally produced BCAs, the large Kenya flower market has attracted BCA suppliers from Europe, South Africa, India and China hoping to supply this large market. Therefore the Kenyan grower clearly will have a good choice of product available in the future. Cost is an important factor because if the price is too high, growers will not be able to use enough of the BCA and therefore they will not always work quickly enough. Where cost is high then some growers can justify the extra cost through extra yield and quality.

#### Flower quality.

Stressed plants do not yield as much as un-stressed plants. Therefore growers spend much of their time optimising plant growth and relieving plant stress. Pests cause plants stress, pesticides reduce the pest but at the same

time can stress the plant. Wetters and adjuvants can cause stress by removing the waxy layer of leaves and in turn plants can be stressed. A feature of using biological control agents is that they do not stress the plant and in turn the stress free plants responds but producing more yield, increasing bud and stem length. However the grower has to capitalise and earn more money from this benefit.

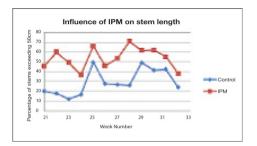


Figure 1. The influence of using IPM with a wide range of biological control agents when compared to a crop using a conventional pesticide programme on the number of stems greater than 50 cm in length. (Variety: Tropical Amazon).

The Changing "mindset" of Kenya growers. Farmers are not famous for their adoption of new ideas and as a group they can be considered conservative. My parents did it this way and it worked so why change! However a feature of the Kenya floriculture sector is that it has been a rapid adopter of change. New ideas and technologies are welcome and growers are always willing to try something new and this is all about mindset. Within any group there are the early adopters and the laggards, but in general adoption is not a major barrier. This is not the case with groups of growers in other sectors and parts of the world. There are many reasons for this but the consequence is that this leads to technologies that are shown to be successful quickly being adopted. As a result biological control in some form or another has been adopted by the floriculture sector. This flexible mindset of the Kenyan grower is likely to be a key factor in the future success of the Kenyan industry and biological control.

#### The future of biological control.

The pointers suggest that the biological control might be a greater force in the crop protection industry in future. Pesticide makers such as Switzerland's Syngenta as well as Bayer AG and BASF SE of Germany are seeking environmentally friendly technology as the European Union phases out hundreds of agrochemical products and supermarkets require fewer chemical residues on foods. Syngenta has said it could lose \$75 million in sales from a two-year EU ban on its Thiamethoxam chemical amid concerns to bee health. The EU ban will take effect Dec. 1. Therefore you would expect the multinationals to be getting more involved in biological control. This is exactly what has happened in the last year with Bayer buying Agraquest, a global supplier of innovative biological pest management solutions based on natural microorganisms. BASF purchased Becker Underwood, a major biological seed treatments producer, whilst Syngenta purchased Pasteuria Bioscience which produces a range of soil

bacteria for nematode control. However this is a relatively late move and one reason is that BCAs are expensive to produce and so less profitable. In a recent study Endure demonstrated that conventional pesticides are still much more profitable than Biopesticides (Table 1).

Table 1: Compared margin structure estimates for the production and sales of a Biopesticides (BIOP) and a chemical pesticide (source: Endure)

%*	Chemical pesticide	ВІОР
Sales value at plateau level	100	100
Cost of production	13	56
Gross margin	87	44
Cost of sales	21	15
Cost of research	8	12
Cost of administration	4	3
Earnings before investments,		
taxes and amortisation (EBITA)	54	14
Profit after taxes, provisions and		
amortisation	18	2

<sup>\*</sup> Costs and margins are expressed as a percentage of the sales value of the commercial product.

Though there are many positives for the future of biological control there are some challenges to using the technology. Particularly with the use of predatory mites their successful use requires greater management and better scouting. With the precision scouting systems offered by Scarab-Consulting, again using some of the latest technology this challenge is being solved. BCAs are slow to act therefore planning and anticipation are critical. There is no knock down with biological control and fire fighting with BCAs is not an option! To make biopesticides work they need a prophylactic programme which involves regularly application and results can take as long as 6 months to full be appreciated. Fortunately most floriculture crops are longer term perennial crops which are highly suited to prophylactic programmes. The introduction of biological control brings with it new challenges, such as pests that were of minor importance ten years ago e.g. mealy bug. However these are often temporary challenges and solutions are soon found such as either compatible chemicals or another biological control.

There are many factors that cause a grower to follow a particular growing practice. With increasing price costs and unpredictable prices for roses, returns and profit are a major factor. The adoption of new technology must always be examined from a financial basis and need for efficient, accurate financial monitoring at the greenhouse and variety level is critical. Many flowers growers have been adopting BCAs and seem to think they are cost effective method of crop protection. In future the speed of change is unlikely to slow, the biological control industry has to keep up the pace of innovation to address the next new crop protection challenge!

MR. Henry Wainwright is a senior BCAs consultant and Managing
Director of Real IPM K Ltd specialising in Consultancy and development
of Bio-controls in Kenya

#### **Biocontrol in Floriculture to Date**



The Kenyan floriculture sub-sector has seen an unprecedented growth over the last decade resulting in Kenya being the third largest flower exporter in the world and the sub-sector contributing in excess of Ksh 41 billion to the economy. This success has been attributed to many factors, key among them being the favourable climatic conditions around the equator, availability of educated and resourceful workforce, an economic climate that encourages internal and external investment, willingness to obtain knowledge and technical know-how from internal and external consultants, the ability to innovate rapidly and adopt new technology, and the market awareness and information to develop new products and add value.

By John Ogechah

#### **New realities**

One of the many challenges faced by Kenyan floriculture growers is the management of disease and insect/mite pests. The prevailing equatorial climate is the boon and bane of floriculture. The warm and sunny year round climate that favours flower production also favours pest growth and multiplication. Chemical pesticides have traditionally been employed to mitigate this threat. However the stark reality of pesticide resistance, environmental pollution, loss of biodiversity and risks for human health has led to the recent rise of strong industrial lobby groups advocating for more environmentally friendly and socially acceptable pest management tactics. Individual customers, numerous certification schemes e.g. Fair Trade, Milieu Programma Sierteelt (MPS), GLOBALGAP (previously EUREPGAP), and the Kenya Flower Council's silver and gold standards are placing restrictions on permitted pesticides. Furthermore, the flower industry has been the focus of several damaging media exposés and academic research documenting extensive human rights and environmental abuses.

#### Change of tack

These new realities are gradually forcing a change of tack, pressuring a transition to more ethical business practices and credible accreditation. A recent development has been the adoption of biological control (biocontrol), the deliberate release of an organism in an environment with the intention of keeping pest populations below economically injurious levels. Kenya is leading the world in the successful implementation of biocontrol in floriculture, hitherto un-heard of and un-thought of.

#### How did it happen?

The Kenyan government through its crop protection authorities, research institutions and the industry identified inappropriate regulation to be a major impediment to adoption of biocontrol as biological control agents (BCAs) were initially registered under the same legislation as conventional pesticides. Landmark legislative framework for the use of natural pest control products

including natural enemies, biopesticides, botanical pesticides and semiochemicals was developed in 2003. This enabled Kenyan companies to start mass production of biocontrol agents for major horticultural pests, sorting out the challenges of affordability and accessibility. The Kenyan premier biocontrol company, Dudutech, pioneered the Kenyan mass BCA production and remains a market leader in the production and distribution of BCAs used in management of various pests and diseases in Kenya and beyond.

The huge successes in the biological control of spider mites in roses and leaf miners in peas realized from this pioneering work catapulted biocontrol to the limelight as a viable alternative pest management tactic leading to rapid increase in adoption. These two success stories were mainly driven by pesticide resistance and the scarcity of conventional pesticide products available to growers. Successful biological control in flowers provided the sector with adaptive tools to weather pesticide resistance as most pests are unable (or very slow) to develop resistance to biocontrols.

#### Training and technical expertise

As adoption of biocontrol rapidly increased, many growers were struggling with the dramatic transition required to shift a reactive pesticide-based control approach, often used for many decades, to one that requires a more proactive and patient approach even when pests are not yet visible in a crop. Adopting biological control on a greenhouse flower farm requires many years of trials, a dedicated and committed management and staff to stick with it for the long term, a strong network of technical experts and a strong biocontrol sector that can provide the right tools needed by growers. Training, therefore, is an integral component as it engenders an increased capacity, confidence and willingness to change, to seek and adopt innovative technologies and best-practice management techniques. Dudutech's robust training department has over the years offered diverse courses on various aspects of environmentally intelligent farming methodologies to varied groups ranging from growers, consultants, and small-holder farmers, custodians of

GAP standards in the industry like Kenya Flower Council (KFC) and consumers.

#### No silver bullets

History has taught us that there are no silver bullets in the fight against pests and biological control is no exception. While there is an acceptance that biocontrols can form the basis of most floricultural pest management programmes, they cannot be relied on completely for adequate pest management all the time and for

all pests. Biocontrols need to be integrated with cultural, physical and chemical controls that will minimally disrupt established populations of biocontrols especially if pest populations become too high.

#### The bigger picture

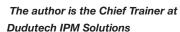
For the floriculture industry to surpass/sustain the success so far realized, one of the overarching goals must be adaptability and sustainability. This would ensure that the industry can anticipate and adjust to the dynamic external environments

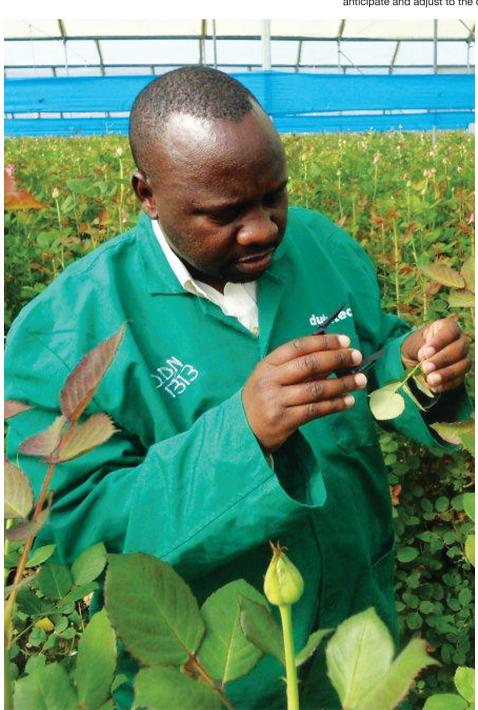
through innovation and institutional and physical infrastructure.

Since biocontrol agents are living organisms, the interactions they have with the environment, the host plant and the target pest is very complicated.

This added to the complication of numerous flower varieties grown under numerous growing conditions make the permutations of biocontrol recommendations and technical advice become massive and very complex. Kenyan flower growers have proven to be great innovators, but they need a strong biocontrol research network to provide growers with unbiased technical advice.

Biological control has been shown to contribute to increased consumer demand for sustainably grown crops and has the potential of increasing Kenyan growers' share of the market. Today's sophisticated consumers are educated to recognize and request for flowers grown with minimal effects to the planet and its people. But the customers' requirement for aesthetically perfect flowers continues to be a major hurdle to adoption of biological control. A marketing strategy that educates the supply chain, especially the retailers and consumers that a few blemishes on their flowers is a small price to pay for responsible growing needs to be developed.





**Scouting for pests** 

# **Are Kenyan Regulations Holding Back Biological Control?**

Pesticide residues have become a major issue recently on a whole range of crops. There has been an increase in surveillance of residues on export vegetables by the EU, whilst European supermarkets have been pressurising cut flower growers to reduce their residue levels. One approach to reduce the level of pesticide residues is to adopt the use of non-pesticide crop protection methods which includes the use of biological control agents. However are the Kenyan regulators a barrier to their rapid adoption?

There are broadly two types of biological control agent (BCA), those classed as macro BCAs (e.g. predators, parasitoids and insect killing nematodes) and the micro BCAs (Biopesticides) (e.g. fungi, bacteria, and viruses). The Kenyan regulator, PCPB requires that both of these groups require extensive safety and efficacy testing which is comparable with the requirements needed to register a conventional pesticide. However in virtually everywhere else in the world the registration of BCAs is easier and faster

than Kenya, therefore why are the Kenyan regulators being so cautious.

In the USA, the EPA (Environmental Protection Agency) has actively encouraged the development and use of biopesticides. They say that since biopesticides tend to pose fewer risks than conventional pesticides, EPA generally requires much less data to register a biopesticide than to register a conventional pesticide. In fact, new biopesticides are often registered in less than a year, compared with an average of more than 3 years for conventional pesticides. Whilst in the European Union and also the USA, macro-organisms like Phytoseiulus and N. californicus are not subject to registration as plant protection products. Therefore what justification do the Kenyan authorities have in asking for registration which includes efficacy trials for macro-biologicals like Phytoseiulus when others like EPA and the EU do not.

The EPA recognises that biopesticides have considerable advantages over conventional pesticides and therefore they actively encourage their adoption and use. They have identified advantages which include:



- Biopesticides are usually inherently less toxic than conventional pesticides.
- Biopesticides generally affect only the target pest and closely related organisms, in contrast to broad spectrum, conventional pesticides that may affect organisms as different as birds, insects, and mammals.
- Biopesticides often are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides.
- When used as a component of Integrated Pest Management (IPM) programs, biopesticides can greatly decrease the use of conventional pesticides, while crop yields remain high.

However there is a need for safety considerations and these include assessing the risks to human health, and assessing risks to non-target organisms and the environment. Additionally if the organism is a non-native biocontrol agent, then the risks need to be evaluated and their importation approved. In Kenya this is the important function of KEPHIS. Therefore we encourage PCPB and all regulators to make it happen and make it easier and faster.

# NO STRESS, STAND TALL

Every grower aspires to produce quality cut flowers. However, this can be a challenge during cool and wet weather conditions when Downy Mildew is most devastating. Ridomil Gold® has stood the test of time and is the trusted and proven standard in Downy Mildew management. To improve production efficiency during these difficult weather conditions, an application of Ridomil Gold will safeguard your crops against Downy Mildew giving you peace of mind.

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#### The impetus of `hot spot treatment' approach to bio-control in ornamentals

The primary goal of bio-control is to optimize pest management in an economically sound, socially acceptable and environmentally friendly manner. Contrary to the initial perception that biocontrol was optional and only applied to suppliers accessing certain direct markets in Europe, the past decade has seen a steady growth of bio-control across the Kenyan horticultural industry resulting in massive reduction in pesticide inputs. While stricter local and international regulation of pesticides have certainly played a part in this current state of affairs, greater flexibility and practicability of bio-control on the day to day farm operations are equally important.

#### **Hot spot**

IPM practitioners must continuously innovate and adopt specific techniques to judiciously manage pests in a sustainable way. One of the techniques gaining immense popularity is hot spot treatment. A hot spot is an unusual pressure point with relatively higher pest population in relation to homogeneity of its distribution on a crop. Hot spot treatment has been singled out as one of the viable methods of pesticide managing costs, reducing residues levels, countering secondary pests (e.g. mealybugs) outbreaks, resistance managing and ultimately producing quality flowers free of pests and diseases.

Dudutech pioneered this technique in partnership with DANIDA scientists in a study done in one of the Kenyan major horticultural farms. In the greenhouses application where hot spot (Phytosieulus persimilis) **PHYTOTECH®** were done to target red spider mites, quicker control was achieved with fewer numbers of the bio-control agents (Phytosieulus spp) introduced compared to where blanket applications of the same were done. It was also noted that mortality due to sprays targeting other pests was minimal as the treated spots can be avoided. Another benefit observed was in the management of other pests especially mealybugs. Mealybugs share the same host niche as red spider mites in relation to crop canopy and have recently emerged as one of the most difficult pests to manage due to their complex physical characteristics. Growers have the option of spot spraying mealybug spots with their products of choice continuously without fear of suspending or affecting their biological control programme unlike the blanket sprays.

#### Opportunity

On a number of field trials done in different flower growing regions in Kenya, the hot spot concept has successfully wiped out the issue of intermittent use οf Phytoseiulus spp due to what is perceived as secondary pest infestation. Growers on massive hacterage have also gotten a reprieve due to the quantities applied per area treated against the actual projected blanket treatment. This has resulted into unusual demand for Biological control agents and eroded the element of cost. Another hidden benefit related to this concept is the opportunity to integrate other biological control agents with minimal cost and greater benefits. In conclusion, I can assure growers that with the adoption of the hot spot approach, one can effectively achieve satisfactory pest control saving up to 40-60% of their IPM budget. Patience, commitment, trust, precise scouting and the will to invest remain the key pillars of a successful IPM programme.



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Trade Name	Bio-Control Agent	Category/Group	Target Pests/Diseases	Shelf life and Storage Conditions
AMBLYTECH®	Amblyseius californicus	Predatory Mite	Two spotted mite/Thrips larvae.	7days in 6-10°C
AMBLYTECH C®	Amblyseius cucumeris	Predatory Mite	Thrips larvae, Cyclamen	6days in 12-15°C
BEAUVITECH®	Beauveria bassiana	Entomopathogenic Fungi	Thrips, Whiteflies	9 month in 6-12°C
DIGLYTECH®	Diglyphus isaea	Parasitic wasp	Leaf miner	6 days in 6-10°C
LECATECH®	Lecanicillium lecanii	Entomopathogenic Fungi	Whiteflies, Mealy bugs, Thrips, Aphids	9 month in 6-12°C
MYTECH®	Paecilomyces lilacinus	Nematophagous Fungi	Plant Parasitic Nematodes	9 month in 6-12°C
NEMATECH S®	Steinernema feltiae	Entomopathogenic Nematode	Thrips, Sciarid flies, Leaf miner	3 month in 6-12°C
PHYTOTECH®	Phytoseiulus persimilis	Predatory Mite	Two spotted mite	6days in 6-10°C
RHIZATECH	Arbuscular Mycorrhizal Fungi	Beneficial fungi	Enhanced crop development	9 months in cool/dry
TRICHOTECH®	Trichoderma asperellum	Antagonistic Fungi	Fusarium, Pythium, Sclerotinia, Rhizoctonia	6 months in 6-10°C
VERMITECH	Vermicompost	Soil amendment/fertilizer	-	12 months in cool/dry
VERMITECH	Vermicompost	Propagation media	-	12 months in cool/dry

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#### Meet Mr. Damien Viollet: The New MD Bayer East Africa Ltd.

amien Viollet, a Frenchman working for a German company doing business in East Africa, is at the coalface of juggling multiple, fundamentally different cultures.

While Damien grew up in France, he has also lived in Germany in his adulthood and had to quickly learn that, for better or for worse, many stereotypes of the two nations contain an element of truth. And knowing how to handle them can open many doors. "The business environments in Germany and African countries are also completely different", explains Mr. Damien.



Biology. His technical expertise focuses largely on crop protection and seeds.

Mr. Damien joined BCS East Africa in May 2012 following a five year assignment at Bayer's global HQ in Germany where he successfully led the team that launched globally Bayer's latest cereal fungicide blockbuster. In East Africa, Mr. Damien confronts the unique challenges of six key countries namely; Kenya, Tanzania, Uganda, Ethiopia, Rwanda and Burundi. "It is a good mix of cultures and experiences," said Mr. Damien who has travelled extensively in his first year in the region.

With a wealth of experience backed with technical knowhow, he had some tough lessons to learn right from the start. He invested himself heavily in getting to know his customers and their needs, in understanding the Bayer team in East Africa and appreciating local cultural dynamics. The 46 year old Genetics and Molecular scientist is a 'people person' and has thrived on establishing relationships and building trust across the agricultural sector in his early days. He has also created positive relations with colleagues at Bayer CropScience.

"Slowly and steadily he has made his way up for the last 20 years at Bayer Cropscience, bringing together scientific understanding with business strengths and marketing expertise. Over the years he has held a variety of positions in different parts of the organisation and has worked with a broad range of people with different cultural backgrounds and varying levels of seniority. In doing so he has acquired a deep understanding of the strengths of Bayer CropScience.

This is what he brings to East Africa, Mr. Damien's roots are scientific. He holds diploma in crop protection from the most prestigious higher education establishment for agriculture in France, the Ecole Nationale Superieur d'Horticulture, and a Masters in Genetics and Molecular

Bayer's mission in any market in the world is to provide 'Science for a Better Life' and this is his vision. Specifically in Kenya, sustainability is at the top of his agenda to counter the challenges of securing food supply. 80% of the population in Kenya lives in rural areas and draws its income from agriculture but there is limited arable land at their disposal. His priorities are therefore to provide innovative solutions and new ideas that will extend Kenya's agricultural potential in a sustainable way.

After many years working with Bayer CropScience and in the field of agriculture, he can get to the heart of farmers issues and offer sound advice on specific problems. Through business partnerships, together with his team bring very specific Bayer CropScience values and these can be summed at as competence (we have some of the best products available with good after sales), preparedness (to find ways to deliver solutions to even the most difficult of customer needs) and delivery on time (perhaps this comes from our Germanic origins, but we also recognise today this is an important quality that farmers need to know that they can trust in their business partner of choice).

Excerpts from his earlier interview with Floriculture Magazine

#### **Growers Donate Flowers to Westgate Victims**

enya Flower Council members donated beautiful flowers to the victims of the Westgate tragedy. The flowers were distributed to the victims who were admitted at MP Shah, Agha Khan and Guru Nanak hospitals within Nairobi.

Kenya Flower Council also extended many thanks to the hospital administrators and staff who helped in the distribution of the bouquets to the victims. It was a time to show solidarity with other Kenyans as they mourned what befell the country. Maggie Hobbs of Tambuzi initiated this noble activity. initiating this noble activity.





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#### With Love From Mount

Kenya

The floricultural arm of the illustrious Sunland Roses, sits like a jewel in the crown of the multi-faceted conglomerate. One of the leading farms for rose cultivation, Sunland Roses is a success story built upon years of dedication, and focused expansion.

Sunland Roses' over decade-long stint as premium rose cultivators has constantly seen up gradation and expansion. With an employee base of over 700 professionals and an export base of global reach, Sunland Roses continues to further its expansion plans in the floriculture business.

A growing demand and increase in popularity has helped Sunland Roses constantly propel itself to capture newer horizons. Mr. Harry Kruger said, "We are keenly looking at acquiring many more new varieties and technologies to add to its cultivation base and



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Mr. Harry Kruger showing some of the displayed flowers

produce as well as invest in land conducive to the cultivation of high quality roses."

#### **Background**

What began as an idea in 1996, on the northern slopes of Mount Kenya, at 2,350 meters above sea level, has grown into a state of the art flower farm. Then known as Lobelia farm, today it has developed into an expansive business enterprise selling roses under the brand name Sunland Roses. Though a twin family business of Mwiti and Viljoen families, it is spearheaded by Peter Viljoen. He has seen it shoot into the limelight, attracting the attention of its vast clientele and showcasing a distinct growth rate within a short time.

A much sought-after brand, The Sunland Roses has sped towards instant popularity through its production excellence and mutually beneficial business partnerships that have borne fruition under the guidance of Mr. Peter Viljoen. A businessman of sharp acumen and vast experience, his perseverance has ensured a steep growth rate for Sunland Roses and a global demand that exceeds that of the well-established Lobelia brand.

Immense attention is paid to the cultivation, production and presentation processes of Sunland Roses. The flowers today commands a premium price due to its excellent crop production quality and visionary customer service, a milestone whose credit goes to the diligence of Mr. Kruger.

#### The Tripod Values of Success.

The company is built on the core of key values namely; enthusiasm, being involved and being connected.



#### Post-harvest handling of flowers

- Enthusiasm: the Company has real passion for everything they do. More than growing roses, it has the love for Africa, its people, its nature. They truly live by their believe: We make the best roses under the best conditions.
- Being Involved: Sunland Roses does not sell products; they create opportunities to brighten every body's life and make people happy. They cherish and deeply respect what is created by nature. This starts with the ecosystem like the earthworms in our soil, goes through the roots to the flower. You see it in the workers, real involvement is connected, creates pride and a good product quality, that's real beauty.
- **Connected:** Embracing several product groups: flowers, fruit and wine, they connect consumers with a product that make them happy. They produce local with local people from several tribes, but act global in a worldwide market.

Mr. Peter Viljoen says, "Floriculture is a capital intensive business that requires a strong vision to bear fruit. It is imperative that innovation and cutting-edge technology go hand-in-hand to ensure returns, limit spoilage, maximise time and minimize effort. Know-how isn't limited to technological advances either.

We, at Sunland Flowers place a premium on manpower training and sophisticated processes along with nurturing a work culture that propels mutual growth; that of the worker and the business as well as the industry as a whole." with this vision in mind Mr. Viljoen now looks for a bright future in the sector.

#### **Operations**

Internal set standards at Sunland Roses have set out overall responsibility including management, guidelines on GAPS,

minimal use of pesticides and fertilizers, environment policy, social responsibility and staff welfare.

To comply with this, the farm undertakes frequent internal audits in order to identify and document any risk assessment on regular basis and prepare a time bound action plan.

The company also monitors the whole process to ensure targets are met while reversing the action plan in the light of changing circumstances in the dynamic industry.

The overall objective is to reduce the pesticide usage while at the same time ensuring responsible and safe use. This takes place within the guidelines set out in the company policy and statutory regulations. Application of pesticides is determined by scouting and identification. Spot spraying with pesticides that are friendly to the environment as opposed to blanket spraying is practiced. Accurate and timely uses of remedial

measures in crop protection reduce the impact to the environment. All scouts undergo an in house training to enable them identify all the disease and pests found in cut flowers.

Sunland Roses aims at fertilizer reduction and better plant quality through the practice of better techniques among them, the fully



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computerized irrigation system that ensures only the needed water is used. Recycling of water also ensures minimal soil erosion and contamination hence preservation of water catchments areas and environment conservation.

#### **Certifications**

A winner of several awards and certifications, the Kenya-based, Sunland Roses brings to the global horticultural business a winning edge of advanced technology, crop management systems, high quality control systems, excellent quality and sensitized professional ethics.

With two rose farms - Sunland Roses-Lobelia and Sunland Roses-Timaflair, today exports millions of stems to Russia, Australia in addition to the traditional auction and European markets Over the decade, Sunland Roses has won several accolades and awards of global recognition.

It is also boasts of several labels for ecologically conscious cultivation and business practices. It has been recognized by a number of international audit firms for high quality rose production and received compliance certifications from them.

#### **Corporate Social Responsibility**

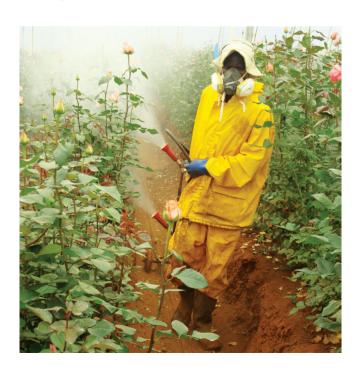
Sunland Roses has dedicated itself to better the lives of the people living in and around Timau and the Mount Kenya region - by providing much needed support and actively seeking new opportunities for them.

#### The farm is mainly involved in:

• Child Care: Sunlands Roses is actively involved with St Stevens Children's Home. This orphanage was established by Lobelia

Farms in 2004 for disadvantaged and orphaned children from the Timau area. It is currently home to 34 children.

- Nature & Protection: Sunlands is a member of the Laikipia Wildlife Forum (LWF). This organisation supports, coordinates and facilitates conservation and natural resource management within Kenya's Laikipia region.
- Sport & Pride: The North Kenya Mountain Bike Club. This club brings young people together from all walks of life. It introduces youths to the sport. Engages them in training, and sponsors entries into competition.



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### Pomp and Dance a

Viva... Viva... Vivando, Viva... Vivando, filled the air as one of the biggest chemical companies in the world, BASF, launched a creative mode of action with cutting edge technology for the control of powdery mildew in ornamentals. Time almost audio recorded voice of Mr. Patrick Ngugi, Country Manager-Kenya, Crop Protection and public health asked, "Are you afraid of powdery mildew? Are you concerned by the ever increasing threat of resistance build up by fungicides? Are you concerned of scotching flowers and leaving residue? Are you concerned of WHO class of your choice product, Can you achieve your goals in farming without IPM? Do you use wetter from time to time?" Each of the questionreceived a resourcing 'Yes' from the over 150 growers in attendance. Today I stand in front you to offer your solution, Vivando.

Launching the new product at a Naivasha Hotel, Mr. Ngugi said Vivando should mostly be used for preventive measures against powdery mildew though it has curative action. He assured farmers of the safety of the fungicide on beneficial predatory insects like bees, birds and earthworms. Adding that the fungicide has excellent components in the control of powdery mildew.

As a reliable partner BASF creates chemistry to help its customers in virtually all industries to be more successful. With its high-value products and intelligent solutions, BASF plays an important role in finding answers to global challenges such as climate protection, energy efficiency, nutrition and mobility.



### is Vivando is Launched.

In East Africa, BASF focuses on key vegetable crops such as green beans, tomatoes and green peas as well as ornamentals and cereals. As part of its growth strategy for Africa, the company plans to extend and enhance its services to additional countries and farmers across important crops.

He further revealed that plans to introduce more innovative products into the Kenya markets are underway.

#### A summary of the product benefits:

- Creative mode of action: Multi-Level-Activity.
- Excellent preventative control of powdery mildew.
- Soft treatment for your roses: no phytotoxicity, no visible residues.
- Perfect fit for spray rotations and resistance management, no cross resistance with other powdery mildew fungicides.
- WHO classification (Green), safe to the user.
- Safe for predatory mites and other beneficial organisms, IPM compatible.

#### **Mode of Action**

Vivando® is a fungicide with a unique mode of action, which inhibits the fungus at different stages of growth and infection. Thus, Vivando® exhibits Multi-Level-Activity and effectively protects the plant from powdery mildew attack.

#### Vivando® Multi-level-activity Mode of action.

• Disturbed actin function leads to undirected growth and

destabilization of hyphal cells

#### Infection

- Abnormal appressorium
- Infection of plant tissue stopped

#### Growth

- Bifurcated hyphal tips
- Bursting of hyphal tip with leakage of cytoplasm
- Collapsed mycelium

#### **Sporulation**

- Abnormal conidiophores with irregular septation
- No spore formation, no new infections

#### **Application**

Vivando® provides optimal powdery mildew control when applied in a preventative way, and is the ideal fungicide to be part of your spray program. It is recommended for use in a spray program that rotates fungicides with different modes of action such as Meltatox® and Collis®. However, Local conditions must be taken into account when determining powdery mildew control programs.

#### Conclusion

Growers preparing their spray programs for powdery mildew will have many options to choose including Vivando. Distributed by Elgon chemicals, the product will offer the ever elusive solution.

#### **Business and Pleasure**



Mt. Kenya region is extremely scenic with the escarpment giving way to dramatic wooded gorges and tangled riverine thickets. It has been made famous by Kuki Gallman who wrote 'I Dreamed of Africa' about her life in this secluded part of Africa. It is an area unknown to package tourists because all the accommodation is on private land where you are treated more like a houseguest than a tourist Mourice

Koome Writes.

Due to the diverse range of habitats, Laikipia hosts an abundance of wildlife, second only to the Masai Mara in Kenya. It has significant populations of predators and also the "big five", with over 50% of Kenya's Black and White Rhinos, thousands of elephants, about 25% of the world's Grevy Zebras, and an increasing population of Wild Dogs. The focus of wildlife viewing here is in Lewa Wildlife Conservancy.

#### More than great Scenery

When I first met Mr. Kanyingi, Editor
Floriculture Magazine in one of our product
launches at a Nanyuki Hotel, he was full
of lamentations. "Mt. Kenya is more than
Snowy Mountain", I answered. "Yes I know,
it is the most accessible, and popular with
Johnnies. The Timau and Nanyuki triangle is
characterised by diverse landscapes, rolling
hills interrupted by rocky outcrops intricately
merged into beautiful scenery reminiscent of a
canvas painting.

The rocky outcrops culminate into Mt Kenya, an extinct volcano, home to point Batian, the second highest peak in Africa. Mt Kenya is undisputedly the most dominant and the most beautiful feature in the region. It draws lots of visitors from all over the world, adventurous travellers with intentions of scaling its heights or hiking in the moor lands and religious zealots who come to pray within its serene grounds.

Much of Timau all the way to the Nanyuki is intensively cultivated undulating plains. Wheat farms cover as much as the eyes can see. Equally fascinating are what appear to be lakes or ponds from afar. These are green houses for flower and horticulture farming. Flowers and horticulture produce from these farms are for export market. Also noticeable are huge flocks of sheep and herds daily cows," he concluded. "It is more than what you are calling lakes or ponds a far, flower



Photo: Ruth Mwiti

farming is a big business," I told him.

#### One by One

In conclusion of our discussion Kanyingi challenged me for a ride round the farm to file a good article on flower farming in Mt. Kenya.

The capital city of Kenya is Nairobi, meaning a place of sweet waters; therefore it would be appropriate that we begin the journey to visit all flower farms in Mt. Kenya at the fresh water spring of KISIMA, it was very sweet. This was the start of the long journey down the mountain.

We went down the road to UHURU, where We found total freedom which reminded him of 1963, the year Kenya attained its independence. A stone throw something was blooming, I told him it was BLOOMING OASIS the new kid on the block. We discovered PJ DAVE and TAMALU on our way for a cup of tea at SUNLAND TIMAFLAIR who introduced us to their sibling, SUNLAND PROTEA. In between was FINLAY-SIRAJ whose beauty

was amazing.

After a short break with no problem of course, we headed for BATIAN that was on the slopes of the mountain where we also spotted TIMAFLOR and LOLOMARIK. A quick drive took us to FINLAYS-IBIS, GREENLANDS and EVEREST.

First on our way down was KONGONI, which were close to LIKI RIVER and if one went close by TURACO farm you could see EQUINOX.

Long way ahead of us was COUNTRYWIDE CONNECTIONS. I thought we saw something that looked like half goat until we realized it was TAMBUZI. In the far distance was MWEIGA BLOOMS with a long meandering road all the way to T. Falls.

#### **Fastest Growing**

By the count, we had no less than 484 hactares and this prompted him to ask a few growers for an evening drink at Kongoni. Believe it or not, he agreed Mt. Kenya region is the fastest floricultural growing region in the

country. The nature of the ornamental projects varies from new projects to expansions of the old farms. Some of the new farms have already been established in other regions of Kenya.

#### Why Mt. Kenya?

The crown jewel of Kenya's flower growing was Naivasha, then came Athi River, Nakuru and Eldoret. Suddenly all eyes turned on Mt. Kenya which despite been older than the last, it was the pigmy of Kenya's floriculture sector. Little did speculators know, Mt. Kenya was a sleeping lion and sooner or later, the claws will be out. For long, any discussion on flower growing in Mt. Kenya centred on Mweiga, Batian and Timaflor. The rest as they say is history.

Today, Mt. Kenya is the third largest growing area after Naivasha and Nakuru. Most of the indigenous farms are expanding wholesomely.

#### **Big Head Long Stems**

While intermediate roses are the majority in Kenyan production, T-hybrids roses are on the rise especially on altitudes of 2,200 metres or higher where the climate is suitable for these varieties. Most extensions of greenhouses is taking place on the higher altitude, Mt. Kenya became a definite choice. Growers are now moving to quality big headed and long stemmed flowers. It does not need a rocket scientist to know that, you can only achieve these in Mt. Kenya, which is 2200 metres compared to Naivasha's 1800 metres.

#### Availability of Land, Water and Labour

The limits regarding the extension of the production are vast. Unlike Naivasha, Mt. Kenya is not crowded and investors can easily acquire hectares of land. Additionally, the labour force is easily available. In theory, it is easier to get more workers from the rural expansions and avoid unnecessary housing of workers.

This ensures growers will not perturb the existing ecosystems. There is no need of transporting workforce as the area has a stronger workforce. One should employ from the community where the farm is situated. Water is also readily available with some getting it from rivers around, sinking bores which provide a lot of water. Collecting/

tapping rain water and storing in dams is also a major source.

#### Cordial relationship with the surrounding communities

Regarding the people who live around the farm, John of Equinox says, "Our aim is to be beneficial to them, we don't want to be predominant or disturb their social lives."

Unlike other areas, they do not need to fight for the minimal resources available. "We have plenty of water," he adds. In addition, most farms repair the feeder roads in the area; provide learning materials, health care facilities, clean drinking water, tree seedlings etc. This has ensured their cordial relationship with the community.

#### Taking care of environment

Besides the communities, most farms don't want their farms to be a concern factor for the environment. Keeping the high trees around the fields and greenhouses is one visible way of putting this into practice. "Eventually we want to become carbon dioxide neutral, in which we also include the emission from the airfreight, says Mr. Ken Mwiti of Kisima Farm. For this reason, we have not disturbed the high natural trees surrounding the farm, "We are also looking at planting more trees", he adds.

#### No Spilling of waste

Also for the sake of environment most companies have series of ponds dug in the middle of the farms. "These wetlands are for cleaning waste water from the pack house and the canteen in a natural way," Mr. Benard Maundu of Timaflor explains. "The process takes about 30 days after which the water flows into the reservoir, and later used for irrigation in the greenhouses," he adds.

To communicate all these measures regarding social and environmental standards and also remain self critical, Mr. Maundu points at a number of standard certification most companies have achieved both locally and internationally.

#### **Co-odination Between Investors**

Flower growers in this region are well coordinated to an extent of forming a group called Mt.kenya flower growers. This helps them face/ solve problems together through knowledge sharing. They also handle issues of CSR and security together. In addition, they have a strong bargaining power which has made most suppliers start seminars and trainings in the area.

#### **CHALLENGES**

#### Consistency of trained labour

As discussed earlier labour is readily available, however because people are doing other types of farming maintaining/retaining them is difficult, So one will keep on training the workers who keep on moving when its season for those other subsistence crops.

#### Flower transportation

This is a problem right from the green houses to the grading sections when it's raining, also poor infrastructure can cause transportation from the farm difficult in some weathers.

Proximity to the airport is also a major problem from the area.

#### Diseases

This area due to its climatic conditions experience a lot of diseases compared to area in low altitude. This raises the cost of production and to some who don't follow best protection measures loose production/crop.

#### Conclusion

With the special approach towards farming, where efficiency, reducing costs or increasing returns seem to be on the top of the target list for investors, there is one big question remaining. Will Mt. Kenya continue to be the choice of investment for most flower growers?

"Yes", says Mr. Kruger the General Manager, Sunland Roses. "Otherwise, the influx would have stopped already. We are providing the best business atmosphere for flower growers. The costs are very low, we have plenty of resources, there is labour availability and the infrastructure is improving. Moreover, the quality is the best. This obviously influences the profits. Getting the highest profit and enjoying what they do, is the goal of every investor, what will stop them from Mt. Kenya?" he asks.

Maurice Koome is the Bayer
Cropscience floriculture sales
representative Mt. Kenya region.



# Naivasha Women Hospital: A Beneficiary of Fairtrade.

aivasha flower farms that subscribe to Fairtrade (FLO) standards and are Fairtrade certified have completely changed the image of the District hospital maternity wing. Initially it was an image of 20 women in labour crowded in one central room quietly moaning and swaying until it is their time to go to one large delivery room to deliver in a cot-directly next to another mother giving birth. To date, it is one of the nicest African facilities handling over 500 deliveries monthly. Women and new borns can now enjoy privacy, respect and safety they deserve during their birth experiences.

Currently, it has an 80 patient bed capacity in operation which includes 18 delivery beds.



Wildfire staff present a cheque towards the construction

Over the past 10 years there has been major developments in floriculture and horticulture in Naivasha. This has seen migration of people and their families to the area. Over 70,000 people are employed by the flower sector, with 70% of them being female. The mushrooming employment opportunities did not match with the healthcare facilities. The Naivasha District Hospital had to cater for a population of more than 400,000 people from Naivasha and its environs whereas it was designed with half the number in mind. This resulted into an impossible situation and something had to be done

Driven by the desire to make a difference and passion for helping others, the Managing Director Panda Flowers Mr. Igal Elfezouaty embarked on a life changing experience. Coincidentally, Cindy Berkland, a women's health care nurse practitioner from Omaha in the United States had come visiting and had volunteered at the Naivasha District Hospital. Igal had hosted her and they shared the days' experiences. They both agreed the town needed a bigger and more equipped maternity.

After their discussion, Igal shared the information with his fellow investors in the flower sector who subscribe to the Fairtrade (FLO) standards and are Fairtrade Certified. The Fairtrade standards are designed to tackle poverty and empower producers in the poorest countries in the world. The standards apply to both producers and traders. It also provides an additional Fairtrade Premium which can be invested in projects that enhance social, economic and environmental development.

The Joint bodies of the flower farms namely: Panda Flowers, Oserian, Finlays Horticulture, Longonot Horticulture, Tulaga, Wildfire and Bigot Flowers agreed to step in and support the project. Slowly more partners joined, most of them suppliers to the flower farms.



#### Mr. Igal Elfezouaty, James and Cindy Berkland,

A threefold approach was born and a unique team of Private Industry (Flowers Farms in Naivasha), Friends of Naivasha USA (a group of 10 individuals committed to this project), and the Naivasha District Hospital which represents the Kenyan government and the local community.

An architect for the project was sourced and the District Hospital provided land. From there, the plan was to source for both monetary and equipment resources. The flower farms donated building materials mainly cement, plumbing supplies, windows, doors and other needed building supplies. More monetary donations from the farms, their suppliers and USA came in and the construction began. To date, Friends of Naivasha USA have raised around \$1.2 million dollars towards the construction.

Igal was not to rest until he achieved his goal. As a direct result of commercial relationship between DEG and Panda Flowers, He approached them with regard to the possible co-funding of the NWHCC, with specific reference to HIV education and Women's healthcare issues. It was after considerable discussions that DEG decided to partner with Panda flowers in the form of a PPP (Public Private Partnership) in which DEG has co-financed with € 200,000 from public funds of the Federal Ministry for Economic Cooperation and Development.

Panda Flowers in turn agreed to match these funds in materials, supervision, and personnel. The project would not have taken off without the assistance of DEG, and their continued support.

In addition, other donors came in amongst them REWE group which donated a total of 10,000 Euros towards the construction.

This is no small project, and will have costed approximately Ksh 150 million upon completion. The saying "Time is money" means one thing, but "Time is Lives" is something entirely different. It's

very simple – the more time that goes by means more women and children die unnecessarily. Having completed phase one and two, the project is yet to be completed and more appeals are been made to well wishers to support. "So little money can do so much in Kenya", says Cindy.

To date a total of fourteen, 40ft containers of medical equipments and supplies generously provided by health care providers in Omaha have been shipped. Some of the equipments already shipped in and installed include birthing beds, fetal monitors, infant warmers and isolettes, operating tables, anesthesia machines, ultrasound machine, surgical lights, commercial washer and dryers.

Properly thought out, professionally Designed, Well Executed, and Efficiently Managed, the Naivasha Women Hospital today boasts of a high-risk new born

unit with isolettes and infant warmers for 20 infants, an isolation nursery, two surgical suites, 4 semi-private birthing rooms with two beds each, 2 delivery rooms with five beds each, 5 examination rooms, a lab, antenatal care and well baby clinic.

The hospital has introduced the first ever mammography and colposcopy machines in Naivasha.

The donors were only doing the infrastructure with the government maintaining the facility and offering human resources and stocking.



Ultra- modern facilities in the Hospital



#### Chakravarthi: The Grower.

With profound gratitude and humility, Chakravarthi accepted the call to work in a flower farm. Little did he know that the call will take him far from his hometown. Through hard work and sacrifice he has risen from a project manager in India to one of the most successful flower farm managers in Kenya. He tells his story.

#### Briefly discuss Chakravarthi (background-personal and as a grower to current position country General Manager Panda Flowers Ltd)

I have done bachelor of science and masters of science in agriculture from Asia's number one renowned Institute, best for agriculture research and development, Tamil nadu Agricultural university (TNAU) Coimbatore. After my education, I joined Bio dynamic agriculture as a project manager which involves organic farming and mushroom cultivation and training the farmers in to EID parry group. Accidently I was approached by one of the flower farm managers, Mr. Srinivasan, MD for Floritech India Ltd, Bengalore.

I must thank him for this opened my doors to this position. My main job at Floritech was to convert their rose waste into manure and using organic system into their rose project. I was doing some manuring and vermicomposting, other than been involved in the actual rose production. After sometime the existing Farm Manger left the job and I took over the farm manager position of the 3.5 ha rose project in 2002. That is how I started my carrier in floriculture industry. In 2006 I got the opportunity to work in Kenya as a production manager at Black tulip flowers group through Mr. Ehiya, MD. Thereafter I moved to Uganda (Mehta group) for 4 years as a farm manager and rode to Snr farm manager. In 2011 I moved back to Kenya and joined Panda flowers Ltd as a general manager, the position I'm holding to date.

#### How do you see the future for African rose growers? What should they focus on to survive?

In the future growers should concentrate more on consistent quality with increased productivity per square meter, while using minimum input. They also need to put more attention on right variety selection process, grow the crop for at least 5 years and sustain it in the market.

### You have been growing and selling flowers for most of your professional life, if you would have to give your remarks about been a grower, what would they be?

Based on my knowledge growers are maximizing more returns per square meter on intermediate/ medium size roses than in case of big headed roses. Thereby growers face fewer challenges in the medium altitude region to produce and market the flowers.

#### Any challenges you have faced as a grower?

I have been into different ecological zones like India , Uganda and Kenya with different altitudes (1260 to 2300), Each region has its own merits and demerits on various ecological factors, I faced big challenges on plastic management in Uganda because of frequent storm that damaged the plastic and structure. Same time, I experienced high risk of mites management because of high humidity and warm weather condition. I used to have very rare occasion of botrytis incidents in Uganda. In Kenya we don't experience such a huge problem, here we have different challenges especially on Thrips and Downey mildew management which are more serious and persistent problems.

#### What would you point out as your strongest attribute that has made you succeed as a grower?

I strongly believe that as a grower I need to focus much attention on growing media management which provides optimum growing conditions for better crop growth in both soil and hydroponic system, and a proper follow up on Fertigation to the crops on day to day basis based on crop growth requirement and weather conditions. In addition teamwork, better human resource management approach on work force, crop protection and crop table management are the other vital factors to succeed in growing.

#### In your experiences, briefly discuss production, the vase life and transportability and marketing of flowers in Kenya?

Kenya, especially Naivasha is blessed with the best weather for rose production, however more needs to be done to ensure better vase life. Also in terms for packaging we need to learn from countries like Ecuador to improve.

In your experience discuss the minimum/maximum head size in cm and stem length in cm you expect from most rose varieties in different growing areas in Kenya? Does this mean anything when a grower is selecting a variety? Based on the altitude both stem length and bud size are significantly different. In my experience I have seen a minimum of 3.4 – 3.6 cms and maximum of 5.4 – 5.8 cms in our farm. Yes this is also a major factor for selecting a variety.

Concerning marketing, discuss both direct and auction markets. For the last one-year we have seen a more aggressive marketing by flower farms with increments of direct sales compared to the auctions, what can you attribute this to?

Yes, this is a growing trend for many growers mainly attributed to the reduced returns from the auction market and inconsistent prices in the auction which also involves more overhead costs like auction commission and handling costs. Variety selection is also a vital challenge for the auction, and most growers don't succeed always. Most times the auction prices of the selected varieties start declining after some time hence diminishing returns. The growers keep looking for new varieties which come with a high cost in terms of loyalties and planting costs. Auction seems more like a gambling casino nowadays.

#### What is your opinion: Sell farm made bouquets or sell to bouquet makers?

Farm made Bouquets are the new kind of emerging market trend due to increasing labour cost in western countries, most buyers prefer to have farm made bouquets instead of flowers. Our farm gets better returns for readymade bouquets so we concentrate more on those lines.

How would you describe your time as the General Manager, Panda Flowers? Are you passionate about what you do?

In the beginning when I joined this farm I had a very big challenge and tough

time especially on production. Now I have overcome all those problems and I am having a wonderful time at Panda Flowers, I feel like I am still learning and am very passionate about my work.

#### What is your vision for Panda Flowers? What are your top priorities?

As of now we are mainly growing in Soil, but in the future we are planning to convert the whole farm into hydroponics to overcome soil and water related problems and effective management of nematodes. Our top priority as of now is to harvest rainwater, and we are building a huge reservoir with a capacity of about 100,000 cubic meters. So I'm targeting to touch 100 million stems export yearly. This is very possible over here after this new project...and also focusing to find new markets in Russia and Dubai, which is emerging trend of our flower market line.

#### Briefly discuss the Panda Flowers team?

Panda flowers has a very good self motivated team along with me and supporting the Panda vision. We all work as panda family and support the company to maintain the quality and quantity of the production. This team comprises of various cadres involving top management, middle level management, senior supervisors, supervisors and the junior workers. A team whose vision is to ensure consistency in its operations, quality production of flowers that would maintain trust among our customers and utmost care to the staff welfare.

#### What's the biggest challenge YOU feel your company faces, and how do you inspire your employees to meet it head on?

The company currently is faced with the pressure to supply quality flowers owing to the growing need to customer demands. The need to have a constituent supply of skilled labour to be able to tackle the challenges that comes with the need to be innovative. Another challenge is having to train workers every now and then due to the fact that those available to work in this industry are semi illiterate hence inability to grasp growing concepts. The company has made efforts to reduce staff turnover so as to reduce the number of those leaving the farm and hence retain the existing and experienced workforce.

The company through fair-trade premiums has made significant changes in the life of the workers resulting to reduced turnover and thus maintaining skills for a longer period. Some of the projects that the company has include:

- Bursary for the workers dependants in secondary schools
- Water purifying plant which provides them with constant supply of drinking water
- Dairy project providing milk to workers at a very low cost
- Poultry project that sells eggs to workers at a lower price compared to the market price
- Posho mill project that provides maize flower on credit to workers
- Wellness program that takes care of health programmes for workers such as vaccinations for various diseases – Hepatitis B, Cervical Cancer, Typhoid vaccines etc
- Housing project that helped in purchasing land for workers then subdivided hence more than 300 workers have their own homes.
- The company also contributed in setting up of a 80 bed capacity project

for women's hospital within Naivasha regions. This is a project which has been funded by other fair-trade flower farms and the German DEG bank. The hospital is already operational. This is a brain child of Panda flowers.

#### What advice do you have for growers to prepare for the changing trends?

Kenya is the world leader of cut flower production and export and also on plantation and sharing a big percentage of fresh vegetables export in to the Europe, As growers we are suffering from the continuous increasing trends of 10-15 % input cost on all imported fertilizers and chemicals which is really making business sustainance tough.

I feel that the Government should to come forward and save the world's largest horticulture industry and sustain the business. They need to encourage potential investors to set up a fertilizer manufacturing factory in the country. This will have a wide scope and will uplift all Kenyan commercial growers and farmers and also benefit other East African and Central African growers by reducing 30-40 % of their direct fertilizer cost. This should happen in the near future. Otherwise the sector is following modernized technology to maximize returns while also maintaining some corporate social responsibility.

#### What is your personal work ethic, and how does this affect the company culture?

Seeing is believing so I don't rely on reports, I need to verify physically by going to the field. I always ensure that my ideas and thoughts are implemented well. I feel that this system of operation is working better since team members can understand the importance of supervision and follow up. Because floriculture is more labour oriented in nature and we mostly deal with unskilled work force mistakes are very common because some don't understand the technical importance of the agronomic practices. Continuous guiding and counseling is the prime factor to manage the job well.

#### What decisions have you made in your career that you look back on feel where mistakes?

Am not an expert on all aspects, so I may not say it is a mistake, it is a way for trying new ideas, therefore am still learning by experimenting.

#### Describe your ordinary day? Do you still have enough personal time?

My day beings with a brief review of previous day's production report, rejection report and sales report followed by brief meeting with the pack house and the production team to plan the day's work, and target. Then at least 10 hectares crop walk along with my supervisors daily. There after I meet the scouts and spray teams in the afternoon to understand the ground realities and new developments of pests and diseases in the green house. We thereafter plan spray programs for the following days. Obviously it is stressful life in floriculture since we are fighting more time with unknown enemies (nature) throughout the period. Definitely I need to find time to relax and I do have enough time to spend with my family after the work.

#### Give your final comments.

Thank you for giving me this opportunity to share my views.

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# Why Every Drop of Water Counts in Feeding A Growing Population

Water is life. So we hear. But nowhere has this been aptly captured than in feeding a burgeoning world population. Globally there is an estimated 842 million hungry people meaning one in eight people in the world suffer from chronic hunger.

And as the world marked the World Food Day serious concerns about how prepared the country was in feeding the growing population with the same, or even shrinking land space would be addressed. The idea is to ensure a smooth food system that allows uninterrupted processes from farm to fork.

With Kenya having two thirds of its land under arid and semi-arid zones, concerns on how to exploit these lands to keep the nation food secure in the wake of changing weather patterns and dwindling agricultural land has been rife

Yet for hundreds of thousands of smallholder farmers in the country struggling to place food on their table and earn some form of livelihood, there is no second option even as that one drop of water to nourish those tender crops seems out of reach.

But any agribusiness behemoth world over knows better than just relying on the heavens especially for year round supply of food. And even as we toy with the idea of making Kenya the breadbasket of the continent and ultimately the world, our modus operandi must go through a complete 360 turn around. Nowhere did farming that relies on the heavens even save a country from the yokes of hunger.

And it starts with our very own small farmers. Getting smart by utilizing small spaces of land to grow more, taking advantage of water sources and water harvesting techniques to save this all precious commodity for future use. It is possible and can be done. Just recently two farmers were awarded for emerging top in the National

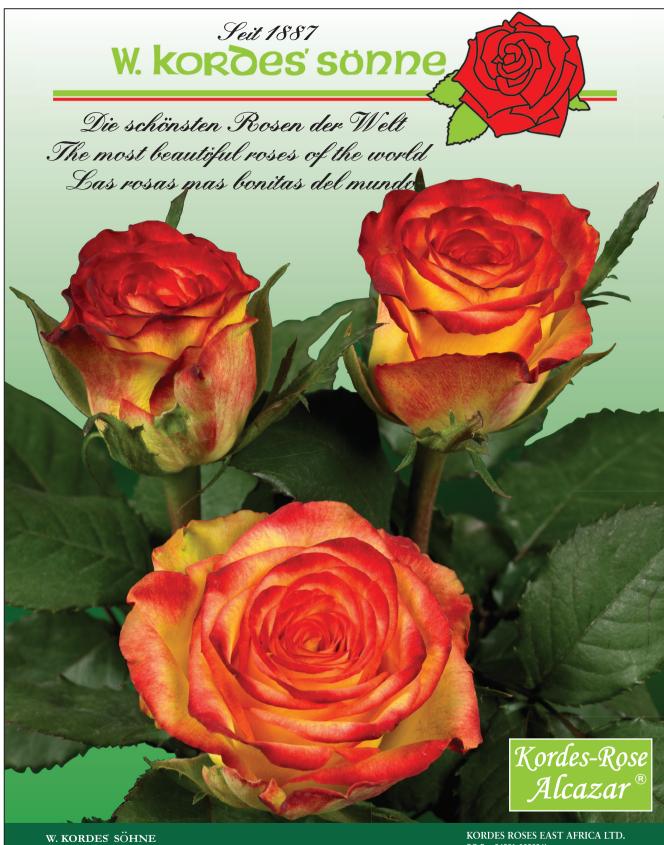
Farmers Award Scheme organized by Elgon Kenya Ltd and the Ministry of Agriculture. But what was striking is that they both came from areas considered infertile, with its people cast to endless hunger. But behind the heartbreaking media images of barren swathes of land and empty bowls, is the story of oases of hopes that has seen these two farmers feed not just their families but their entire region. And they did it with so little; their resolve was to farm smart. And such efforts are the baby step to the country's resolve to be hunger free.

That is why government's renewed passion to open up millions of agricultural land for irrigation is a step in the right direction. Irrigation makes agriculture possible in areas previously unsuitable for intensive crop production. Irrigation transports water to crops to increase yield, keep crops cool under excessive heat conditions and prevent freezing. Yet even with this amazing concept less than 10 percent of Kenyan cropland is irrigated.

But talk of irrigation alone doesn't help. What exactly are we doing to empower especially the small holder farmers across the country understand the essence of economical water use? We must account for every water drop we use, to allow it translate to high yields and feed the nation.

Drip irrigation one of the most promising irrigation ventures has been hailed world over for delivering maximum yields with minimum water. Such venture should be second gospel to our farmers. Then there is the affordability. With most small scale farmers owning small tracts of land, it makes sense to give them something equally small, manageable and pocket friendly. Drip irrigation kits like Elgon Kadogo drip kits have been testament to the fact that if we warm up farmers to affordable irrigation methods, we will break the myth of farming through irrigation among our farmers and eventually create a green nation.

The writer is a Director Elgon Kenya Ltd.



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Join us in 2014 as we Celebrate 30 Years of The Most Beautiful Roses of the World in Kenya.

# Marks & Spencer plans to buy more from Kenya

ritish retail chain Marks & Spencer plans to increase the import of fresh produce from Kenya. "Our business in Kenya has gone up 15 per cent in the last two to three years and it will continue to grow", said M&S chairman Robert Swannell during his recent visit to Nairobi.

Last year the company bought Kenyan goods like cut flowers, vegetables, tea and coffee worth 160 million dollars. For Kenya the UK is the second biggest export market, after Uganda. "The reason we have such a big business in Kenya is because of the great quality of products we get from here. We always want the best", said Swannell.

Kenya is the fourth largest sourcing country for the food division of M&S, that sells more than 100 different products. The key suppliers in Kenya are Finlays, VegPro Group, the Kenya Tea Development Agency (KTDA) and Dormans.

# Kenyan Growers Monitor Carbon Emissions

he flower industry in Kenya launched a computer-based toolkit for growers to record how much energy and water they use per unit area of production. The aim is to reduce carbon emissions.

The system is named Carbon Reduction and Opportunities Toolkit (Carrot) and is developed by Camco Advisory Services, in conjunction with the Kenya Flower Council (KFC) and the Horticultural Crops Development Authority of Kenya.

"The data generated by the Carrot will show the world that despite airlifting our flowers, the carbon from airfreight is much less compared with production processes in Europe, where they use more energy to light and heat greenhouses, while most of their operations are mechanized", says KFC-CEO, Jane Ngige.

The toolkit will capture data on usage of water, fuel, gas, kerosene and power, pesticides, fertilizers and storage operations, and indicate their sources, over 13 months as the minimum measurable period. When the information is put into the system, it will automatically calculate the percentage of carbon emissions. The grower can immediately see the highs and lows from each application.

The toolkit is the latest effort by the industry to fight perceptions that Kenya's horticultural sector was not environmentally sustainable. Recently the first container of fresh produce was shipped from Kenya to Rotterdam. In the final analysis, the sector expects to consolidate data and present an industry carbon emission position, in about five years when data can be compared.

Kenya becomes the first country in the world to develop a toolkit specifically for the flower industry. Countries like Australia and South Africa have a kit for the whole horticultural sector. One of the speakers at the launch of the kit was Dutch ambassador to Kenya Joost Reintjes, who hailed the new initiatives by the flower sector. The auctions in Holland handle most cut flowers from Kenya.

# **Congratulations!**



The Board of Directors, Management

and Staff of Scoop Communications Wish you

a Merry Christmas and

a Prosperous 2014.

# **Cheaper Air Freight Rates From Uganda**

ue to increased competition in cargo flights, airline companies have been forced to reduce their rates for the export of flowers and horticultural products from Uganda to Europe and the United States of America.

Flower exporters now pay for each Kg between US\$ 1.6 and 1.9, down from US\$ 2.2.

A kilogramme of fruits & vegetables to the European market now costs US\$ 1.8, down from US\$. 2.5 For the same amount exported to the United States, the exporter now pays US\$ 2.8, down from US\$ 3.5. "Lately, we have seen more cargo planes in Uganda. Due to competition, the flight companies have been forced to reduce their rates. This is an advantage for the exporters, because they will be able to increase the exported tonnes and make more money", says Mr. Charity Deo Namuwoza, international marketing officer of the National Organic Movement of Uganda (Nogamu).

He said there are a number of airlines offering cargo services to horticultural exporters with multiple markets in Europe and United States, including: Qatar Airways, Brussels Airlines, British Airways

and KLM, among others.

The cheapest option however is transport by sea, stresses Namuwoza. "Shipping is much lower, only 40 dollar cents per kilogramme to Europe and 70 dollar cents to the United States. This is almost a fifth of the flight charge."

The first sea container with flowers recently arrived in Rotterdam, from Mombasa, Kenya. This pilot project, called GreenChainge, supported by the Dutch government, shows that a carbon reduction of 87 percent is possible.

# Stricter Inspection of Roses From Uganda

The European Commission has decided to inspect all parties of roses that are imported from Uganda. The stricter import control in the European Union (EU) is implemented from 1 September. Before, the EU has an inspection rate of 25%. This was reported by the Quality Control Bureau (KCB) in Holland.

The reason for increasing the inspection rate is the increased number of rejections of the import into the EU of roses from Uganda. The larva Spodoptera littoralis (Prodenia) has often been found. This caterpillar can cause a lot of damage in crops in Europe, according to the European Commission.

The inspection costs of the import controls are passed on to the companies concerned. The inspection rate of roses from Uganda was already very high compared with, for example, roses from Kenya and Tanzania. Kenyan roses have an inspection rate of 5%, and roses from Tanzania 10%.

# Stricter Inspection on Ethiopian Flower Exports Fuel Strong

### **Economic Growth**

he Ethiopian flower industry has grown very rapidly in the last decade, primarily due to substantial international investment by Indian firms. Despite fluctuations, this has helped fuel a decade of robust economic growth. The country has become the fourth largest flower exporter in the world and second largest on the African continent, rivaled only by Kenya.

The amount of land dedicated to floriculture around the capital Addis Ababa has risen sharply over the last years, as investors are wooed with tax exemptions and other favors. Some 90+ percent of the region's flourishing flower export currently goes to Europe (primarily the Netherlands, but also Germany, Norway & Belgium), with the rest being imported by the Middle East, Japan and America.

Revenues from flower exports have grown from an estimated \$28 million in 2003 to \$178 million in 2010, and \$212 million by the end of 2012, according to the Ethiopian

Horticulture Development Agency. The expectation for 2013 is close to 250 million US dollars but reliable figures, particularly for the ongoing year, are hard to come by and circulating estimates often contradict each other.

Ethiopia did register 3.08 billion dollars in total export revenue in the 2012/13 fiscal year. Though vast, that figure nonetheless drastically failed to meet the 4 billion dollar target set by the government's ambitious five-year Growth & Transformation Plan.

A 10% decline in coffee export revenue
- Ethiopia's flagship export item – due to falling prices is mainly to blame.

"Economic growth in Sub-Saharan Africa (SSA) remains strong with growth forecasted to be 4.9% in 2013. Almost a third of countries in the region [Ethiopia included] are growing at 6% and more, and African countries are now routinely among the fastest-growing countries in the world", a just-released World Bank report nonetheless revealingly concludes.

# Governor's Day With Growers.













Properly thought out, professionally Designed, Well Executed, and Efficiently Managed, the Naivasha Horticultural Fair had a rare Visitor, Mr. Kinuthia Mwangi, the governor Nakuru County. Known to him, the county houses the highest number of flower farms in the country not to mention the highest hactare. He listened to both suppliers and growers concerns and assured them of his governments support.

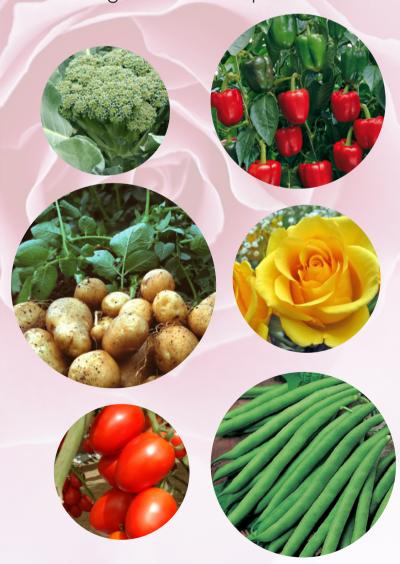
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# Kenya is Actively Streamlining its Flower Sector

A national compliance mechanism for all the participants in the Kenyan flower industry is set to be implemented by the end of 2015. Other measures aimed at increasing the efficiency and improving the image of the sector are also in the works.

#### National code of conduct

"All exporters of flowers should demonstrate compliance to international standards", so as to meet the requirements of the flower importing nations, Kenya Flower Council CEO Jane Ngige states succinctly. The code of conduct is an industry initiative that aims to help improve labor practices and conservation efforts.

All Kenyan growers will have to engage in internal quality control audits under the new code (regardless of whether they are members of the KFC or not). The government of The Netherlands has

contributed 400.000 U.S. dollars to the development of the program.

A move from electricity to solar power has been noted among Kenyan floriculturists as well. The flower industry is also shifting to the use of bio-controls to eliminate pests, according to Ngige, ensuring that "flower products comply with the maximum residue levels".

#### Sustainability toolkit

A toolkit to help Kenyan growers transition to low-carbon and other sustainable business practices has also been developed by the Kenya Flower Council (KFC), in collaboration with Camco Advisory Services and the country's Horticultural Crops Development Authority. This CaRROT (Carbon Reduction, Resources and Opportunities Toolkit) project. It is focused on developing a sector-wide

response to climate change, through practical management solutions for greenhouse gas emissions reductions, energy efficiency and improved water usage.

#### National single window system

Additionally, the 'Kenya National Single Window System' is set for implementation. This electronic platform will serve as the single entry point for parties involved in international trade, helping to reduce the transit time of cargo at the Kenyan ports as well as improve the ease of doing business in the country.

Fulfilling cargo clearance requirements will be made easier through the standardized electronic system. Paying the appropriate fees and duties will also be simplified, further contributing to a decrease in delays, bureaucratic inefficiency and corruption.





For Powdery Mildew in Roses







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## IPM ESSEN: At Messe Essen on January 28 - 31, 2014

# The World's Premier Horticultural Fair will be the Most Important Marketplace in the International Green Sector

The international green sector will be guests in Essen: Over 1,500 exhibitors from 45 nations will come to Messe Essen on January 28 - 31, 2014 in order to present their innovative products and services from the Plants, Technology, Floristry and Equipment sections at IPM ESSEN. All the renowned market leaders have promised to take part in the world's premier horticultural fair.

Not only the complete diversity of plants and flowers, the floristry highlights and the newest trends from technology, equipment and services but also a comprehensive and high-quality supporting programme will await the trade visitors. In this respect, IPM ESSEN will be an international ordering fair as well as an ideal network platform for maintaining and extending business contacts and a pioneering sectoral event for innovations and market opportunities.

## Internationality will be the Advertising Sign of IPM ESSEN 2014

What significance IPM ESSEN has for the worldwide green sector will be highlighted by the strong and constantly growing international participation: In the Technology section alone, 24 nations will introduce their products; for the first time, India will be represented in this sector.

Guatemala will be represented at IPM ESSEN again. Turkey will be involved with cooperative participation once more after a break; Taiwan, Hungary, Poland, Belgium and the Netherlands are planning to enlarge their cooperative booths.

## **Green City: Meeting Place for Associations and Experts**

The trade visitors will find topical and relevant sectoral subjects in a concentrated form in Hall 1A in the Green City. In the Info Centre, associations and organisations such as Zentralverband Gartenbau e. V. (ZVG - "Central Horticultural Association"), Landesverband Gartenbau Rheinland e. V. ("Rhineland Federal State Horticultural Association") and Landesverband Gartenbau Westfalen-Lippe e. V. ("Westphalia-Lippe Federal State Horticultural Association") will provide information about services and available ranges. The ZVG Teaching Show will offer massed expert knowledge about "Zukunftsinitiative Niedrigenergie-Gewächshaus (ZINEG - "Future Initiative on

Low-Energy Greenhouses"). The objective of the joint project is to keep the consumption of fossil energy and the CO2 output as low as possible by utilising innovative technologies.

The Innovation Showcase in Hall 1A will focus on new and unknown breeds - since 2008, a permanent constituent of IPM ESSEN.

On the day before the opening of the fair, a knowledgeable jury will choose the best innovations from international plant breeders in the following categories, "Flowering and Green House Plants", "Spring-Flowering Plants", "Bedding and Balcony Plants", "Cut Flowers", "Perennial Plants", "Woody Plants" as well as "Tub Plants". All the innovations will be exhibited throughout the period of the fair.

The special show in the G&V Creative Centre will provide new creative stimuli. And BLOOM's appearance will offer not only the accustomed diversity of subjects but also, this time on the occasion of the 20th anniversary of "profil floral d e s i g n", particular highlights. Another anniversary: For the tenth time already, international teacher personalities will present themselves under the auspices of the International Teachers of Floristry.

#### International Floristry on the Highest Level

It will be the meeting place of the topclass florists from all over the world: The FDF Event Centre will stand for thrilling live demonstrations and floristic design to get to grips with. Fachverband Deutscher Floristen -Bundesverband e. V. (FDF - "Trade Association of German Florists - Federal Association") will present itself here with its federal state associations and partners.

Attention will centre not only on information and advice about training and ongoing and further education but also on various exhibition specials and marketing presentations. The "House Plants Calendar" will demonstrate how floral refinement can turn the potted plant into a genuine sales hit. The new collection called "just chrys 2013/2014" will offer creative ideas for a customer-oriented display of the top seller chrysanthemum in the specialised flower business.

The unique stage shows in the FDF Arena will be veritable crowd-pullers. For the first time, the stars in the sector (Jürgen Herold, the reigning German Florist Champion, Thomas Gröhbühl, Germany's Florist Champion in 2010, and Nicolaus Peters, the winner of the German Florist Championship in Berlin in 2008) will be in the limelight together. They will present trendy spring floristry and flowery

ideas for an urban public from the hands of masters.

#### **Extra Value Due to Networks**

IPM ESSEN is far from being just the most important ordering platform in the sector. The wide diversity of the presented plant world, the high internationality of the exhibitors and the visitors, the meeting-up of all the participants in the value added chain in horticulture as well as the high proportion of decision takers coming together in Essen make IPM ESSEN the global network platform.

Amongst others, umbrella associations and international organisations such as EDRA (European DIY-Retail Association), ENA (European Nurserystock Association), AIPH (International Association of Horticultural Producers) and Union Fleurs (International Flower Trade Association) are therefore using the trade fair as their meeting place to an increasing extent.

#### First-Class Accompanying Programme

IPM ESSEN is well-known not only for its widespread exhibition range on offer but also for its informative supporting programme: In 2014, the international Horticultural Forum will be dedicated to the horticultural and plant industries in Turkey. Experts will portray the current economic situation and will provide information about new market opportunities.

As is tradition, the "green associations" will, together with Messe Essen. once more invite people to the Training Day in 2014 as well. With the motto of "I LOVE GREEN - Experience Green Occupations Live", pupils from Classes 9 and 10 at general schools will be provided with comprehensive information about the occupations of gardeners and florists.

The competition highlights at IPM ESSEN 2014 will include the international "Color Your Life Award" which will be conferred by Messe Essen and Blumenbüro Holland ("Holland Flower Office"). Woody plants and perennial plants with significant extra value will be sought. During the fair, all the nominated plants will be presented in a common exhibition area. The trade visitors will be able to cast their votes on three days before the expert jury makes its judgement on Thursday, January 30, 2014.

#### **Opening Times**

IPM ESSEN 2014 will be open exclusively to trade visitors every day from 9.00 a.m. to 6.00 p.m. on January 28 - 31, 2014.

## **FLOWER FARMS IN KENYA**

FARM NAME	LOCATION	PRODUCT	CONTACT PERSON	TELEPHONE	E-MAIL
AAA Growers AAA Growers-Chestnut AAA Growers Ltd.	Rimuruti Naromoru Thika	Roses Vegetables	Mr. George Hopf Mr. Mark Kirimi Mr. Steve	0733-746737	george@aaagrowers.co.ke nanyuki@aaagrowers.com
AAA Growers Ltd. AAA Growers-Turi	Nanyuki	Vegetables Vegetables	Mr. Japheth		japheth@aaagrowers.co.ke
Africallas	Limuru	Zantedeschia	Mr. Robert Holtrop	066-76084	rob@sande.co.ke
Afri-organics (K) Ltd	Timau	Herbs	MR. John Harris	000 70001	ohn@afriorganic.co.ke
Agripro Horticulture	Nakuru	112121			
Aquila Flowers	Naivasha	Roses	Mr. Yogesh	0715 -817369	gm@aquilaflowers.com
Baraka Flowers	Ngorika	Roses	Mr. Wanjiru Mahihu	0722-517701	info@barakaroses.com
Batian Flowers Ltd	Timau	Roses	Mr. Rene Mulder	0721-630890	rene@batianflowers.com
Beauty Line Ltd	Naivasha	Cut Flowers	Mrs. Catherine Wanjohi	0727-589862	catherine@beautyli.com
Bigot Flowers	Naivasha	Roses	Mr. Jagtap Kakaseheb	0722-205271	jagtap.kt@bigotflowes.co.ke
Bila Shaka	Naivasha	Roses	Mr. Joost Zuurbier	0711-898689	bilashaka.flowers@zuurbier.com
Black Petals	Limuru	Roses	Mr. Nirzar Jundre	0722-848560	nj@blackpetals.co.ke
Bliss Flora Ltd	Njoro Naivasha	Cut flowers	Mr. Shivaji Wagh Mr. Mike	0789-101060 0720-005294	shivaniket@yahoo.com blue-sky@africaonline.co.ke
Bluesky Buds \$ Blooms -Blis flora	Nakuru	Gypsophila,Roses Roses	Mr. Sarchil Appachu	0720-804784	blue-sky@airicaoiiiiiie.co.ke
Buds \$ Blooms -Town	Nakuru	Roses	Mr. Shivaji wagh	0720-895911	shivaniket@yahoo.com
Carnations Plants	Athi River	Carnations	Mr. Amir	045-22242	cpl@exoticfields.com
Carzan Flowers (K) Ltd	Kipipiri	Carnations & sammer	Mr. Zabeen Khan	0722-764697	zabeen@carzankenya.com
		flowers			info@carzankenya.com
Celinico Flowers	Limuru	Roses,Summer flowers	Mr. Chris Shaw	066-72170	celinico@nbinet.co.ke
Charm Flowers	Kitengela	Roses	Mr. Ashok Patel	020 2222433	info@charmflowers.co.ke
Colour Crops	Bahati	Hypericum, Ammi	Mr. K. Marigoma	020 2313859	
Colour Crops	Timau	Summer flowers	Mr. Simon Baker		simon@siluba.co.ke
Colour Crops.	Naivasha	Veronica, fillers	Mr. Geofrey Mwaura	0724-083111	nva@coulourcrops.com
Colour Vision Roses Ltd	Naivasha	Roses breeders	Mr. Peter van der Meer	(0)50 50 310	petervandermeer@terranigra.com
Countrywide Connections	Nanyuki	Eryngiums	Mr. Richard	062-31023/6	production@countrywide.co.ke
Credible blooms De Ruiters	Nairobi Naivasha	Roses Roses	Mr. Eliud Njenga Mr. Sebasten Alix	0722-382859 0720-601600	info@pegionblooms.com info@drea.co.ke
Delmare pivot (Vegpro)	Naivasha	Vegs, Roses	IVII. SEDASLEII AIIX	0720-001000	ililo@diea.co.ke
Desire flora (K) Ltd	Isinya	Roses	Mr. Rajat Chaohan	0724-264653	rajatchaohan@hotmail.com
E.A. Growers - Jessy	Mweiga	Vegetables	Mr. Antony M.	0724 204033	antonym@eaga.co.ke
Elbur Flora / Kimman Exports Ltd	Elburgon	Roses	Mr. Daniel Moge Maina	0721-734104	kimmanexp@gmail.com
Enkasiti Rose	Thika	Roses	Mr. Tambe	067-44222/3	enkasiti@form-net.com
Equinox Horticulture Ltd	Timau	Roses	Mr. John Mwangi		john@equinoxflowers.co.ke
Everest Enterprises -Chulu	Timau	Vegetables	Mr. Anthony Muiruri		
Everest Enterprises - Lusoi	Naromoru	Vegetables	Mr. Robert Mbuthia		robert.mbuthia@everest.co.ke
Everes Enterprises - Njumbi	Naromoru	Vegetables	Mr. Robert Mbuthia		robert.mbuthia@everest.co.ke
Everest Enterprises - Woodland	Mweiga	Vegetables	Mr. George Machariah	0717 077205	george.macharia@everest.co.ke
Everflora Ltd	Juja Frankii	Roses	Mr. Bipin Patel	0716-066305 068-30776	everflora@dmblgroup.com
Fides( K) Ltd Flamingo Flora	Embu	Roses, Cuttings	Mr. Francis Mwangi	008-30770	info@fideskenya.com
Finlays-Chemirel	Kericho	Roses	Mr. Aggrey Simiyu	0722-601639	
Finlays Tarakwet	Kericho	Roses	Mr. John Magara	0722-873539	john.magara@finlays.net
Finlays Flamingo	Naivasha	Roses/Fillers	Mr. Peter mwangi	0722-204505	peter.mwangi@finlays.net
Finlays-Kingfisher	Naivasha	Roses	Mr. Charles Njuki	0724 -391288	charles.njuki@finlays.net
Finlays-Kingfisher	Naivasha	Carnations/ Fillers	Mr. Jacob Wanyonyi	0722-773560	jacob.wanyonyi@finlays.net
Finlays - Vegetables	Naivasha	Vegetables	Mr. Daniel Kiboi	0722-206627	
Finlays-Siraji	Timau	Carnations/Roses	Mr. Paul Salim		paul.salim@finlays.net
Finlays-Sirimon	Timau	Lilies	Ms. Purity Thigira		purity.thigira@finlays.net
Finlays Lemotit	Londiani	Carnations	Mr. Richard Siele	0721-486313	richard.siele@finlays.net
Flora ola	Limanum	C.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Mr. Hasaa	0724 272522	haandai Quahaa sam
Flora delight	Limuru Naivasha	Summer	Mr. Hosea Mr. Peter Maina	0724-373532	hosndai@yahoo.com
Florema (K) Limited. Florensis	Naivasna Naivasha	Begonia Cuttings	Mr. Eddy Verbeek	050-2021072 050-50010	info@floremakenya.co.ke florensis@florensis.co.ke
Flower Connection Ltd	Londiani	Roses	Mr. Arun Mishra	0710-625484	arun@eaga.co.ke
Fontana Ltd - Mau Narok Ayiapa	Nakuru	Roses	Mr. Gideon maina	0721-178974	gideon@fontana.co.ke
Fontana Ltd - Njoro farm Akina	Nakuru	Roses	Mr. Arfhan	0722-728441	Arfhan@fontana.co.ke
Fontana Ltd - Salgaa	Nakuru	Roses	Mr. Kimani	0733-605219	production@fontana.co.ke
Foxton Agriculture	Naivasha	Vegetables	Mr. Foxton Asanya.		

## **FLOWER FARMS IN KENYA**

FARM NAME	LOCATION	PRODUCT	CONTACT PERSON	TELEPHONE	E-MAIL
Gatoka Roses	Thika	Roses	Mr. Chriss	0715-215840	gatoka@swiftkenya.com
Goldsmith Seeds	Naivasha	Lisianthus	Mrs. Lynette S.		
Goodwood	Nyaururu	Hypericum	Mr. Bernard	0701-166466	
Goodwood Properties	Nyeri	Vegetebles	Mr. Kahiga		dwagacha@qfp.co.ke
Greystones Farm			Mr. Silas Mbaabu	0722-312316	silas.mbaabu@greystones.co.ke
Groove	Naivasha	Roses	M., D. t //		groovekenya@gmail.com
Hamwe Ltd Harvest Ltd	Naivasha Athi River	Hypericum Roses	Mr. Peter Kamwaro Mr. Farai Madziva	0722-849329	hamwe.production@kariuki.biz harvest@harvestflowers.com
Highlands Plants	Olkalau	Outdoors	IVII. Farai IVIAUZIVA	0/22-049329	narvest@narvestnowers.com
Hummer	Naivasha	Carnation, cuttings	Mr. Annemaria		
Indu Farm	Naivasha	French beans	Mr. James		
Interplant roses	Naivasha	Breeders	Mr. Geofrey Kanyari	0712-215419	geoffrey@interplant.co.ke
lsinya roses	Isinya	Roses	Mr. Yash Dave	0700-797849	info@isinyaroses.com
James Finlays	Kericho/Londiani	Roses	Mr. Richard Siele		flowers@finlay.co.ke
K.H.E.	Nanyuki	Vegetables	Mr. Elijah Mutiso		mutiso@khekenya.com
K.P.P. Plant Production (K) Ltd	Juja	Cuttings	Mr. Wilson Kipketer	020-352557	w.keter@selectakpp.com
Kabuku Farm	Thika	Roses	Mr. Anand Kumar	0745 254540	kabuku@eaga.com
Kalka	Isinya	Roses	Mr. Shivah	0715-356540	production@kalkaflowers.com
Karen Roses. Kariki Ltd.	Nairobi	Roses	Mr. Rober Kotut Mr. Samwel K.	020-884429 0722-337579	bob@karenroses.com kariki.fm@kariki.biz
Karuturi flowers	Juja Naivasha	Hypericums Roses	Mr. Sylvester Saruni	0722-873560	saruni@karuturi.co.ke
Kenfloraa Ltd	Kiambu	Roses	Mr. Aleem Abdul	0722-073300	info@kenfloraa.com
Kenya Cuttings Ltd.	Thika	Cuttings	Mr. Careml Ekardt	060 2030280/1	info.kenyacuttings@syngenta.com
Kisima Farm	Timau	Roses	Mr. Kenneth	0722-475758	flowers@kisima.co.ke
Kongoni Gorge farm (Vegpro)	Naivasha	Roses, vegs	Anand		
Kongoni Star Flowers(Vegpro)	Naivasha	Roses	Mr. Shailesh	0722-203750	sailesh@vegpro-group.com
Kreative Roses	Naivasha	Roses	Mr. Julias Kinyanjui	0734-505431	info@kreative-roses.com
Kudenga Flowers	Molo	Hypericum, Eringium	Mr. Juma/Rotich	0725-643942	kudenga.production@kariki.biz
Larmona/Hamcop	Naivasha	Roses	Mr. Peter Mureithi	0722-238474	lamonaacounts@africaonline.co.ke
Lathyflora	Limuru	Beddings	Mr. Silvester	0721-336887	lauran da como con como con los
Lauren international	Thika Naivasha	Roses	Mr. Chris Ogutu	0722-783598 050-20-20612/21260	laurenflowers@access.co.ke lex@lex-ea.com
Lex + Blomming oasis Live Wire Limited	Naivasha	Roses Hypericcum,Lilies	Mr. Thomas Nyaribo Mr. John Gitonga.	050-50371	lex@lex-ea.com
Lobelia Farm /Sunland Roses Ltd	Timau	Roses	Mr. Peter Viljoen	0721-632877	info@sunlandroses.com
Londia Farm	Naivasha	vegetables	Mr. John	0721 032077	inio@sumanuroses.com
Longonot Horticulture	Naivasha	Roses, vegetables	Mr. Shando Rai	050-50173/4	longonot@vegpro-group.com
Maasai flowers	Kitengela	Roses	Mr. Wilfred Munyao	0725-848912	wmunyao@sianroses.co.ke
Magana Flowers (K) Ltd.	Kiambu	Roses	Mr. Peter Mwangi	0726- 212520	Pmwangi@maganaflowers.com
Mahee flowers	Olkalau	Roses & Carnations	Mr. Vijay Kumar	020-822025	info@eaga.co.ke
Marera Farm	Naivasha	Vegetables	Pierluigi		
Maridadi	Naivasha	Roses	Mr. Jack	0733-333289	jack@maridadiflowers.com
Maua Agritec	Isinya	Roses	Mr. Madayi		gm@mauaagritech.com
Mboga Tuu Migotiyo	Isinya Nakuru	Vegetables	Mr. Dan Agao		
Molo River Roses Ltd	Nakuru	Roses	Mr. Andrew Wambua		
Molly flowers	Limuru	Summer flowers	Elizabeth		
Morop Flowers	Bahati		Mr. Wesley Tanui	0720-983945	
Mosi Ltd.	Thika	Roses	Mr. Anthony Wahome	0722-204911	mwaiwahome@mosiflowers.co.ke
Mt. Elgon Orchards	Kitale	Roses	Mr. Bob Andersen	0734-333095	info@mtelgon.com
Mweiga blooms	Mweiga	Roses	Mr. Daniel Vilnersson	0733-741203	sales@mweigablooms.com
New Hollands Flowers	Olkalau	Roses	Mr. Mr. Francis	0700-718570	guna@bth.co.ke
Nini farm	Naivasha	Roses	Mr. Fred Okinda	0720-611623	growing@niniltd.com
Nirp E.A	Naivasha	Rose Breeder	Mr. Chege	0720-477717	ethanc@nirpinternational.com
OI Njorowa Oserian Dev Company	Naivasha Naivasha	Roses Roses,Fillers,statice	Mr. David, charles Mr. Ruri Tsakiris	020-574011	mbegafarm@icconnect.co.ke
Panocal International	Kitale	Roses	Mr. Ruff Isakifis Mr. Paul Wekesa	054-2030916/7	paul.wekesa@panacol.co.ke
Panda Flowers Ltd	Naivasha	Roses	Mr. Paul W. Kariuki	050-50046	wanderi@pandaflowers.co.ke
Pangot	Naivasha	Roses Cutting	Mr. Mwangi	330 300 10	Transcent pandanowers.co.ke
Penta Flowers Ltd.	Thika	Roses	Mr. Tom Ochieng	0733 -625 297	tom@pentaflowers.co.ke
PJ Flora	Isinya	Roses	Mr. Kizito Mudogo		pjdaveflowers@wananchi.com
PJ Dave Flowers	Isinya	Roses	Mr. Hitesh Dave	045-21381/2	pjdaveflowers@wananchi.com

## **FLOWER FARMS IN KENYA**

FARM NAME	LOCATION	PRODUCT	CONTACT PERSON	TELEPHONE	E-MAIL
PJ Dave	Timau	Roses	Mr. Israel	0712-184433	pjdavetimau@pjdaveepz.com
Plantations Plants.	Naivasha	Geraniums	Mr. William M.	050-2021031	pplants@kenyaweb.com
Pollen	Ruiru	Cuttings/Seedlings	Mr. Patrick Chege		patrick.chege@syngenta.com
Porini	Keringet	Roses	Petinber	0738-374403	1 3 3 7 3
Porcupine	Naivasha	Vegetables	Eyal		
Pressman Kenya Ltd	Nakuru	Roses	Mr. Jelle Posthumus	297-382200	preesman@preesman.com
Primarosa	Nyahururu	Roses	Mr. Santosh Kurkani	0712-030610	santosh @primarosaflowers.com
Primarosa Flowers Ltd	Athi River	Roses	Mr. Dilip Barge	0733 -618 354	dilip@primarosaflowers.com
Protea Farm	Timau	Roses	Mr. Philip		info@lobelia.co.ke
Ravine Roses	Eldamaravine	Roses	Mr. Kamuren (GM)		
Receme	Naivasha	Gypsopilla/vegs	Mr. Boni	0721-938109	bonny@kenyaweb.com
Redlands II	Kiambu	Roses	Aldric Spindler	0733-609795	aidric@redlandsroses.co.ke
Redlands Roses	Ruiru	Roses	Aldric Spindler	0733-609795	aldric@redlandsroses.co.ke
Rift valley Roses	Naivasha	Roses	Mr. Peterson Muchiri	0721-216026	rvr@livewire.co.ke
Rift valley vegetables	Naivasha	Vegetables	Mr. Nicholas		
Riverdale Blooms Ltd	Yatta	Roses	Mr. Anthony Mutungi	0722-584874	rdale@swiftkenya.com
Rose plant	Kitengela	Roses	Mr. Atenus	074 040560	
Roseto Ltd -Salgaa	Nakuru	Roses	Mr. Annan	074-848560	gm.roseto@megaspingroup.com
Roseto Flowers	Nakuru Naivasha	Roses	Mr. Vijay Iukulu	0717-617969	gm.roseto@megaspingroup.com
Savanah plants Shade Horticulture		Geraniums Roses	Mr. Mishra Ashutosh	0722-792018	mishra@shadeshorticulture.com
Schreurs E.A. Ltd	lsinya Naivasha	Roses	Mr. Shadrack Musau	0726-981901	sales@schreurskenya.com
Shalimar Farm	Naivasha	Roses	Mr. Vijay Kumar	020 822025	info@eaga.co.ke
Selecta Flora	ivaivasiia	Roses	Mrs. Mary Mwangi	0725-075569	sales@floratrends.co.ke
Sian Flowers- Agriflora	Nakuru	Roses/ Lilies	Mr. Jos van der Venne	0722-203630	info@sianroses.co.ke
Sian Flowers -Equator	Eldoret	Roses	Mr. Nehemiah Kangogo	0722-848910	nehemiah@equator.sianroses.co.ke
Sian Flowers- Maji Mazuri	Mois Bridge	Roses	Mr. Clement Ng'etich	0725-848914	cng'etich@sianroses.co.ke
Sian Winchester	Nairobi	Roses	Mr. R. Mulinge	0725-848909	rmulinge@sianroses.co.ke
Sierra Roses		Roses	Mr. Shariff	0787-243952	3 -
Simbi Roses Ltd.	Thika	Roses	Ms. Pauline Nyachae	020-4448230	simbi@sansora.co.ke
Sirgoek Flowers	Eldoret	Roses	Mr. Andrew	0725-946429	sirgoek@africaonline.co.ke
Solo Plant (K) Ltd.	Kiambu	Roses	Mr. Haggai Horwitz	0732-439942	hagai@soloplant.co.ke
Stockman Rozen Kenya Ltd	Naivasha	propagator	Sarah Tham	0720-603994	sarah@srk.co.ke
Subati Ltd	Subukia	Roses	Mr. Naren/Ravi	0736-347777	production@subatiflowers.com
Subati (former Olij)	Naivasha	Roses	Mr. Patel	054-30917	production@subatiflowers.com
Suera Flowers	Nyahururu	Roses	Mr. Joseph Mureithi		suerafarm@suerafarm.sgc.co.ke
Sunland Roses	Timau	Roses	Mr. Peter Viljoen	0721-632877	info@sunlandroses.com
Tamalu Tamalu	Timau	zante	Mr. David N.	0722-764759	nzomahd@gmail.com
Tambuzi Flowers	Naromoru	Roses	Eva	062 3101917 0722-455996	info@tambuzi.co.ke info@terrasol.com
Terrasol Timafler Ltd	Limuru	Cuttings	Mr. Bryan Allen		brian.allen@timaflorltd.com
Timaflor Ltd Timau flair	Timau Timau	Roses Roses	Mr. Philip Ayiecha	062-41263 0723-383736	brian.anen@timanoritu.com
Transebel Ltd.	Thika	Roses	Mr. David Muchiri	0/25-303/30	admin@transbel.co.ke
Tropiflora (K) Ltd.	Limuru	Carnations, Astroemeria	Mr. N.Krasensky	0722-783280	tropiflora@tropiflora.net
Trodding Africa Flowers	Njambini	Summer Flowers	Margaret Muthoni	0720-267004	leekement@gmail.com
Tulaga	Naivasha	Roses	Mr. Denis Wedds	0724-465427	denis.weds@africaonline.co.ke
Uhuru Flowers	Timau	Roses	Mr. Ivan Freeman	0722-863252	ivan@uhuruflowers.co.ke
Valentine Kibubuti	Kiambu	Roses	Mr. Simon	020-3542466	info@valentineflora.com
Van den berg roses	Naivasha	Roses	Johan Remeus	050-5050439	johan@roseskenya.com
Van Kleef Kenya Ltd	Njoro	Roses	Mrs. Judith Zuurbier		roses@vankleef.nl
Vegpro (k) Ltd - Kitawi	Naromoru	Vegetables	Das		
Vegpro (k) Ltd - Likii River	Nanyuki	Roses	Mr. Madhav Patel		madhav@vegpro_group.com
Vegpro (k) Ltd- Kongoni	Timau	Roses	Vivek Sharma		vivek@vegpro_group.com
Waridi Ltd	Athi River	Roses	Mr. P.D. Kadlag	0724-407889	kadlag@waridifarm.com
Wildfire flower	Naivasha	Roses/Hypericum	Christine Karambu	0722-468031	christine.karambu@wildfire-flowers.com
Windsor Flowers Ltd	Thika	Rose	Mr. Vikash Singh	067- 24208	farm@windsor-flowers.com
Xpression Ltd -Africa Blooms	Salgaa	Roses	Mr. Samir	072-4518140	flowers@xflora.net
Xpression Ltd -Elburgon	Njoro	Roses	Mr. Inder Nain / Ketan	0719-748175	flowers@xflora.net
Zena roses - Asai Zena Roses	Eldoret Thika	Roses	Mr. Peter Ochami	0712 006222	nroductionthika@zonarosos so ko
Zena Roses Zena Roses - Sosiani	Eldoret	Roses Roses/Carnations	Mr. Peter Ochami Mr. Fanuel O.	0712-006323 0724-631299	productionthika@zenaroses.co.ke
Zena noses sosiani	LIUVICE	1103C3/ Calliations	mi. Tulluci O.	072T 031277	



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# PLASTIC MULCHING



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- Keeps the soil moist
- Reduces weeds that compete with your crop for water, which saves on labor
- Providing an excellent area for root development because crops need darkness and oxygen thus yields are better
- Decreasing nutrient leaching during the rainy season results in reduction of pollution



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