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ISSUE NO. 52 KSH 300



## Cargolite Flower Packaging Technology

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## Ethylene Damage of Flowers Attributes to Upwards of 30% Flower Loss

Flower industry experts estimate as much as 30% of all flower loss is a direct result of ethylene damage, due to either internal or external sources of exposure. Ethylene, an internal gaseous plant hormone, profoundly influences the growth and development of plants. It acts at trace levels throughout the life of the plant by accelerating wilting, regulating the opening of flowers, and the abscission (or shedding) of leaves and flower petals. Ethylene is produced from essentially all parts of higher plants, including leaves, stems, roots, flowers, fruits, tubers, and seedlings. Its production can also be induced by a variety of external aspects such as mechanical bruising or environmental stresses. Flooding, drought, chilling, wounding, and pathogen attack can induce ethylene formation in the plant. Ethylene produced from external sources such as other flowers, banana-ripening rooms in supermarket distribution warehouses, propane heaters, forklift fumes, bacteria, and even cigarette smoke also can have devastating effects on flowers when exposed.

### Cut flower plant responses to ethylene:

- Stimulates leaf and flower biological aging, called "senescence"
- Inhibits stem and shoot growth
- Induces leaf, bud and flower shedding, commonly known as "abscission"
- Stimulates epinasty where the leaf petiole grows out, leaf hangs down and curls into itself
- Induces a rise in respiration in some flowers which causes a release of additional ethylene. This can be the one bad flower in a flower box spoiling the rest phenomenon, affecting the neighboring flowers
- Affects geotropism, the turning or growth movement of the flower stem in response to gravity
- Inhibits stomatal, or pore, closing found in the leaf and stem epidermis that is used for gas exchange, stimulating flower aging



Rose - Flower Aging  
Untreated for Ethylene



Rose - Treated for Ethylene



Orchid - Flower Drop  
Untreated for Ethylene



Orchid - Treated for Ethylene



Carnation - Inward Rolling of Petals  
Untreated for Ethylene



Carnation - Treated for Ethylene

Ethylene will shorten the shelf life of cut flowers and potted plants by accelerating floral senescence and abscission. Flowers and plants that are subjected to stress during shipping, handling, or storage produce ethylene causing a

significant reduction in floral display. Some examples of flower types which are more affected by ethylene damage include rose, orchid, carnation, alstroemeria, stock, delphinium, phlox, and freesia.

Ethylene can cause significant economic losses for florists, markets, suppliers, and growers. Floralive has long been involved in developing ways to inhibit ethylene production in flowers to keep flowers fresher longer, through the commercialized innovation of EthylBloc™ Technology. By inhibiting ethylene sensitivity, flowers don't respond to ethylene produced internally or from external sources, far increasing the quality, freshness, and profits of flowers overall.



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A Two Lakes Packing Services staff demonstrating how Cargolite flower boxes work

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## || GUEST EDITORIAL ||

The heavy rains will sadly go with little if not nothing to show for collecting and storing water. Plant as many trees as you can and encourage every one to plant trees. And collect as much water as you can. Dig dams and water reservoir



## We need to rethink water matters

Kenya is awash with heavy rainfall, flooding and damages related to abnormally high downpour. Before the onset of the long-awaited season, when intermittent rainfall as clouds started building and a cooler environment set in giving a sigh of relief to citizens who for months had looked into the blue sky amid the scorching sun and uncomfortably high temperatures not to mention the heavy dust all over, was witnessed, social media burst with excitement as close to everybody "broke the news" rain! rain! rain!

The reason for the excitement was obvious. In decades gone by, the older generation knew when it would rain, when it would be hot, mostly in February and September; and when it would be extremely cold (July). Farmers planted two weeks before expected rains. Today, even the meteorological department is unable to predict with certainty when it will rain, for how long and the amount. The farming calendar has been disrupted as farmers these days wait until it has sufficiently rained to avoid the risk of wasting their seed if the skies don't open generously.

While most people remember 2017 for the prolonged electioneering period that affected businesses, this was not the only challenge of the past year. Most parts of the country last received rains in October, and this followed an erratic rainy season between March and May according to the Meteorological Department.

In February, the country got into a national mood never witnessed before when the extent of destruction of water towers through cutting down of trees was amplified by the press leading to a water scarcity scare.

Reports abound of how areas that have never suffered shortage of water felt the full impact of dry riverbeds. Kakamega one of the regions where residents never had water shortage saw residents going for weeks without the crucial commodity with residents reporting experiencing water shortage for the first time in 20 years. The crisis was compounded by the fact that several rivers where the majority accessed water had dried.

Everywhere in the country disturbing reports of rivers and other water sources drying as recently as January this year sent panic waves across. In Nakuru, Kericho and Mombasa the dry story was the same. In Murang'a, the main source of water for Nairobi, rivers too dried up for the first time in many adults lives.

Analysts have blamed the water crisis on climate change that has seen rains disappear, destruction of forests, poor management and a ballooning population.

It is however worthy noting that everywhere you go, new seedlings are being planted everyday as Kenyans, for the first time awoken to the need of increasing the country's tree cover.

It is becoming obvious if we expect water to flow we must retrace our steps and embark on an aggressive massive reforestation and afforestation in mountain and hilly areas at county and national levels. This needs to go hand in hand with a deliberate plan to collect rain water and store it for use and regenerate humidity cycle. Trees on their own will not solve the water crisis considering the natural habitat has been destroyed and will take years to restore.

The heavy rains will sadly go with little if not nothing to show for collecting and storing water. This therefore is a call to all. Plant as many trees as you can and encourage your neighbours, friends, colleagues and leaders to plant trees. And collect as much water as you can. Dig dams and water reservoir


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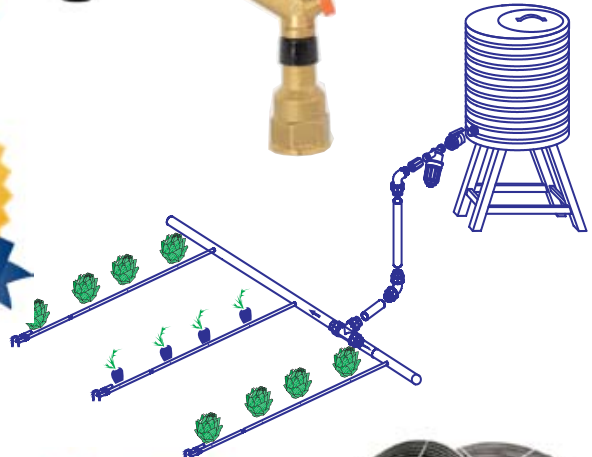


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# Agribusiness mission to connect Kenyan players with Netherlands investors

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**C**hangemaker International and Capacity Africa have organized a first of its kind investment mission for Kenyan agribusiness stakeholders to Netherlands in a move meant to open opportunities for Kenyan businesses by connecting them to prospective investors while showcasing Kenyan goods and services.

The mission, which will take place from June 11 to 15 2018, comes as trade between Kenya and Netherlands deepens buoyed by growing demand and shared interests.

Trade volumes between the two countries stood at Sh60 billion in 2016 with Netherlands being the third largest trading partner for Kenya. Key Kenyan exports to Netherlands include horticulture with Kenya

importing machinery, chemicals and services. Globally Netherlands remains the second largest exporter and importer of agribusiness products and has positioned itself as a world leader in cutting edge agricultural innovations.

While Kenya counts on agriculture for contribution to household and national incomes, with 80 per cent of the population depending on it for survival while contributing 65 per cent of all foreign earnings, the sector remains heavily underdeveloped with harvest wastage, poor marketing, low uptake of technology and weather changes conspiring to rob farmers' earnings across the value chain. This, despite the sector exhibiting great prospects for growth.

The trade and investment mission therefore hopes to attract buyers and investors to Kenya even as it

showcases the milestones in the sector. Participants will benefit from information sharing, market access and potential financial support.

Participants will also visit GreenTech Expo in Amsterdam, one of the leading horticulture and agribusiness exhibitions in the world with over 5,000 exhibitors, buyers, suppliers and investors in the sector. Other key events planned during the visit include business workshop on industry best practices and opportunities available, matchmaking of Kenyan potential investors, buyers and suppliers, visiting horticultural farms and factories outside Amsterdam and business to business networking forums among other activities.

The idea is to allow participants learn from the rest of the world how to maximize innovations and produce cost effectively



# INVEST IN KENYA

AGRIBUSINESS / HORTICULTURE  
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MISSION TO THE NETHERLANDS



**11th to 15th June 2018**

Changemaker International has organised a Trade and Investment trip for Agri-business and Horticultural stakeholders to the Netherlands. The trade mission targets Agri-business and Horticultural investors, exporters, SMEs, County Government Trade Officials, suppliers and policy makers.

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# NoPath for Downey Mildew and Botrytis, says Koppert Biological Systems



Charles Macharia (centre), Koppert, together with participants present NoPath after its unveiling

**T**he unveiling of NoPath by Koppert Biological Systems has rightly come when growers in the horticulture industry are grappling with increasing challenges in dealing with crop diseases and pests menace. Koppert is renowned as the world market leader in biological crop protection and natural pollination. The company offers sustainable Integrated Pest Management (IPM) programs to growers that allow them to maintain healthy crops with minimal reliance on chemical pesticides.

The new product is based on essential oils extracted from plants. It is used for the management of fungal and bacterial diseases in various crops. It is a preventive, curative and eradivative product which is safe for humans and the environment. With a wide spectrum anti-microbial and anti-fungal properties, it is used to reduce microbial contamination or

infection in plants or plant parts and can also fight soil related diseases.

NoPath which is set to manage Downey Mildew and Botrytis was launched in 3 regions namely; Nairobi, Nanyuki and Naivasha respectively. The colorful events attracted growers who flocked in wide procession eager to take hold of this new solution. The launch

that premiered in Nairobi, left participants assured of a better way in the management of fungal diseases. The next event was in Nanyuki, while the wrap-up was in Naivasha where growers packed up the seminar venues.

The presenters at the events who were mainly from Koppert Kenya and Koppert BV-Netherlands were



Nicolas Stutterheim gives his presentation on NoPath

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such as Downy mildew and Botrytis in crops.

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**During the unveiling of NoPath**

ardent in giving new revelations which sparked interactions between them and the keen participants. They reiterated that NoPath is made from natural food-grade ingredients thus ensuring safety to users and the environment.

Dr. Nicholas Stutterheim, the brain behind the product, took the participants through the mode of action of NoPath while revealing lab test results of cultured pathogens and field test results from across the world.

The testimonials were astounding. Naomi Kahurani, commercial manager at Koppert Kenya took the audience through testimonials of growers who are currently using NoPath. Below are some of the testimonials.

***“We use NoPath very effectively in our varieties that are susceptible to downy mildew. We normally start drenching NoPath in both soil and hydroponics greenhouses at least two months before the onset of the long rains and short rains. Consequently, we see less downy mildew incidence throughout the rainy season. Our experience with NoPath is that it gives the best preventive control of downy mildew in roses.”*** Madhav Lengare–The General Manager, Kongoni River Farm (Liki and Timau Division)

***“The type of rose that we grow is inherently susceptible to downy mildew. Since our farm operates***

***under GAPs, NoPath fits well in our integrated Downy mildew management strategy. With NoPath Drench, we no longer worry about Downy mildew even in the rainy season”*** Godfrey Kahiga, Production Manager from Tambuzi Ltd

And from Basavarajappa Yogeesh-Florenza Limited, ***“I started using NoPath 2 years ago on only 3 ha at the time. I started seeing some improvement in the vigour of the crop, reduced sensitivity to Downy mildew, while Botrytis noticeably reduced in these greenhouses. Prior to NoPath, it was very tricky to control Botrytis and Downy mildew in the crop in our 2 ha blocks. When I saw these changes in the treated area, 6 months later, we extended the use of the product to whole farm of 16 ha. NoPath has also***



**One of the participants asks a question on NoPath during the Seminar/ Launch event**

***given considerable improvement on the foliage.”***

Geoffrey Ongoya, while taking the audience through the results of the official efficacy trials which lead to registration of NoPath, concluded that the product is:

- Effective for management of Downy Mildew and Botrytis.
- Can be used as a drench or aspray.
- Recommended rate is 2L/ Ha.
- Spraying at 7 Days interval; Drenching at 3 Weeks interval.

As the launch concluded, it was clear that NoPath is the sustainable approach in the management of fungal diseases in cut flowers, herbs, vegetables and other crops. Current work in Kenya has showed good control of downey mildew on roses, chives and basil; rust on beans and carnation; early blight on tomatoes and soft rot in arabicum, among others.

Miriam Gacheri Kirigia, one of the participants happily confessed, “NoPath for me is a must add to the list of products.” Ms. Virginia, also a participant, said, “ This is a new dawn for agriculture.”

With exporters facing stringent measures on maximum residue levels and the market leaning towards sustainable farming, NoPath is a great relief for them ☐

# Fighting Botrytis in Ornamental crops

By VICTOR JUMA

**B**otrytis cinerea (grey mould) is one of the most widespread and destructive fungal diseases of ornamental crops. It infects over 200 plant species worldwide causing annual losses of \$10 billion to \$100 billion. Botrytis cinerea is responsible for the grey mould disease in a number of ornamental crops including roses, carnations, violet, begonia, chrysanthemum, gerbera, dahlia and geranium reducing both quality and yield. In ornamental crops, yield loss can be total because infected cut flowers are rejected at auctions.

The majority of losses caused by *B. cinerea* in cut flowers occur in the packing house and during transport to the market. Botrytis cinerea is aggravated by latency of the petal infection, which may not present visible symptoms at the time of flower harvest. Although flowers are handled at temperatures between 2 and 10°C after harvest, higher incidence of *B. cinerea* has been observed, mainly during transport and storage.

Botrytis cinerea is evident on plant surfaces as grey fluffy mycelium. Initially, the symptoms appear on infected flower petals as restricted lesions. Subsequently, these lesions become necrotic and spread to the whole petals and the receptacle, finally resulting in collapse of the flower head and petal drop reducing the market value of the flowers and reducing the vase life. Disease control can be difficult because the pathogen can infect several plant parts including flowers, stems, leaves and buds at pre and post-harvest stages.



**Rose petals infected with Botrytis cinerea**

Infections initiated by conidia can be completed in about eight hours, if high humidity and low temperature are available. A higher incidence of *B. cinerea* is usually observed during rainy seasons. This happens perhaps because temperature is normally low and relative humidity is high in this period of the year.

Botrytis cinerea can persist in greenhouses year round as mycelium, conidia or sclerotia on living or dead tissue and as sclerotia or conidia in infested soil. Infected plants or infected and decaying plant parts in the greenhouse form a source of inoculum. *B. cinerea* can thrive under a range of temperatures

between 2 and 30°C. The optimum temperatures for the different growth phases range from 12–30°C. *B. cinerea* will therefore always be a potential threat in greenhouse crops. Spore dispersal is stimulated by rising or falling humidity. Temperature and relative humidity (RH) both have a direct effect on *B. cinerea* epidemics, but in greenhouses the effect of climate generally constitutes a combined effect of the two.

## **Management of Botrytis epidemics in greenhouse crops**

Due to favorable weather conditions all year round, inadequate incorporation of integrated control

measures, planting of highly susceptible varieties and increasing customer demand for good quality cut flowers among other factors can lead to serious economic losses. The problem with several ornamental crops is that no disease is found in the greenhouses, but symptoms become visible in the post-harvest phase due to more conducive conditions for *B. cinerea* during cold-chain marketing.

Controlling *B. cinerea* is commonly achieved with a combination of pesticide treatments, biological control agents and agronomic practices. Although very helpful, agronomic practices alone cannot prevent the disease in greenhouse crops, so chemical treatments and biological control agents should normally be used.

### Sanitation

In all greenhouse crops, it is advised to remove old blooms, canes showing dieback and other *B. cinerea*-infected plants or plant debris immediately from the greenhouse within plastic bags, to prevent further progression of the fungus into the plant and the build-up of inoculum. Debris left in the greenhouse can be a potential source of initial inoculum the following season, thus emphasizing the importance of sanitation inside and outside greenhouses.

### Greenhouse climate

In the greenhouse, humidity is controlled by heating, ventilation and irrigation practices. It is particularly important to avoid periods of free water on plant surfaces, because this allows *B. cinerea* spores to germinate. Periods of high humidity coincident with suitable temperatures favors the development of gray mold outbreaks in flower crops. Windows on the sides of the greenhouse can be opened during the production phase to control RH and provide good ventilation to prevent botrytis development. Canopy Wetness of > 4 h should be avoided.

### Cultivar

In practice growers choose cultivars for their market value and end-user preference and not for their decreased susceptibility to diseases. However, where possible, select cultivars which are known to be less susceptible than others to *B. cinerea* and are less problematic at the consumer level. For roses, for instance, the susceptibility of a cultivar and the differences between different cultivars can vary due to different plant architecture and canopy density.

### Plant spacing

Plant spacing influences the microclimate in the crop and the extent of direct contact between plants. In densely planted crop, grey mould incidences can be higher compared to more widely spaced plants. Always consider the breeder's recommended plant spacing for optimal plant growth and disease management.

### Cropping method

Pruning makes the microclimate in the canopy less conducive to *B. cinerea*, but causes wounds which may be infected by *B. cinerea*. Pruning wounds are less likely to become infected by *B. cinerea* when they are cut close to the stem instead of leaving a small fragment of the petiole on the stem.

### Fertilizer

Fertilizer rates in soil-grown crops and the composition of the nutrient solution used in substrate-grown crops both influence host susceptibility to grey mould. High nitrogen rates enhance plant growth and foliage density. In general, increasing the nitrogen level is believed to result in increased susceptibility to *B. cinerea*.

Calcium is generally associated with reduced susceptibility to *B. cinerea* because it plays a role in the integrity of the cell wall and increases resistance to enzymatic degradation by *B. cinerea*. In roses

grown in nutrient solutions to which Ca<sup>2+</sup> was added, the Ca<sup>2+</sup> content in the plant was raised and post-harvest botrytis blight severity was strongly reduced (Baas et al. 2000).

### Chemical control

Chemical control remains the main way to reduce the incidence of *B. cinerea* in ornamental crops, but control necessitates preventive applications of chemical fungicides in order to achieve good efficacy and to minimize the risk of resistance development in *B. cinerea* populations.

Effective options for *B. cinerea* control are available either as preharvest sprays in the greenhouse or as postharvest dips of flowers to prevent disease development. Optimize spray volumes to achieve a sufficient spray deposition of susceptible tissue for good efficacy.

Several families of fungicides are available and can be classified according to their biochemical modes of action e.g. fungicides affecting fungal respiration; anti-microtubule toxicants; compounds affecting osmoregulation; fungicides whose toxicity is reversed by amino acids; and sterol biosynthesis inhibitors. Alternation of various groups of fungicides is recommended to avoid resistance development.

One effective chemical option against *B. cinerea* is Switch® which contains a combination of the anilinopyrimidine, cyprodinil, and the phenylpyrrole, fludioxonil. Treatments with Switch® have demonstrated good efficacy and consistent control of both preharvest and postharvest botrytis in cut flowers □

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**Victor Juma, Business Manager East Africa, Lawn and Garden - Syngenta East Africa Ltd.**

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TM

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# Cargolite shaping the future of flower packaging

More stems can be packed and the weight of the carton is considerably reduced - *Guy Symondson*



By **GEORGE ACHIA**

**T**he future of flower packing is set to change for the better with introduction of a new innovative packaging system that delivers significant savings in air freight, by packing more flowers per air pallet and improve in general the quality of the product before arriving at destination.

Developed by a Nairobi-based, Cargolite, the developers of this innovative technology wanted to meet four principles that would go a long way in improving the transportation of flowers; removing the load from the carton walls, reduce the carton weight, increase

the pack rate and improve the stack ability.

“In order to remove the load from the carton wall, each Cargolite carton is equipped with two polypropylene frames and each frame consists of two vertical columns that are connected to each other with upper and lower laterals. These frames, which are also used to hold the cartons in a horizontal position, divert the weight of the flowers away from the carton’s walls and support each carton separately”, explains Guy Symondson, Cargolite’s East Africa representative.

“And with the weight diverted away from the carton’s walls, it is not necessary to use heavy five ply

boards. In addition, with the frames holding the cartons from collapsing, less packaging materials are required to protect the flowers,” he adds.

As a result, more stems can be packed and the weight of the carton is considerably reduced, which meets the second and third principle. The developer was also able to meet his fourth principle, stackability, as the projections of one frame fit into the cavities of the frame above it.

“This makes the boxes on the air pallet very stable and enables the flowers to arrive at their destination without any damage”, he says.

After many years of trading in cut flowers from many different countries, it was clear to the





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developer, John Kowarsky, the CEO of Cargolite, that there was an urgent need to improve the packing materials used in transporting cut flowers from one country to another.

Consequently, in 2013, he began to develop the idea of a new packaging concept that would solve the problems of standardization, and the damage to flowers from crushing cartons.

“The solution at the time would always be to increase the strength of the carton, thus increasing the weight of the packing material. This solution incurred extra expense for packing materials and air freight,” explains Guy.

The vision was to create a standardized carton that would avoid the crushing of the cartons at the bottom of the pallet and produce a carton that would weigh less than the regular carton in order to minimize the cost of air freight.

“In 2016, we began supplying the Cargolite carton to IPL and Oserian and the concept has been very successful as all flowers that are sent by Oserian to the auction are now being transported in Cargolite cartons,” he says.

Kenyan flower farm Oserian recently started to ship their flowers through this concept, saving the company up to 8000 USD for every 1 million stems transported to Europe.

After conducting several trials, Oserian is the first farm that started to use the Cargolite concept for their flower shipments.

According to Guy, as the farms and logistic players get more experience in working with the Cargolite packaging concept, they expect more farms to join in and begin to use this new and innovative packaging concept.

And unlike regular boxes, which are often stacked densely, the Cargolite frames create a space between the cartons which make it ideal for the cold air to flow between the boxes. Moreover, Cargolite also has a lower carbon footprint than regular boxes as the cartons require much less paper and the cartons contain more flowers. This according to the developers will enhance the sustainability practice in the flower industry □





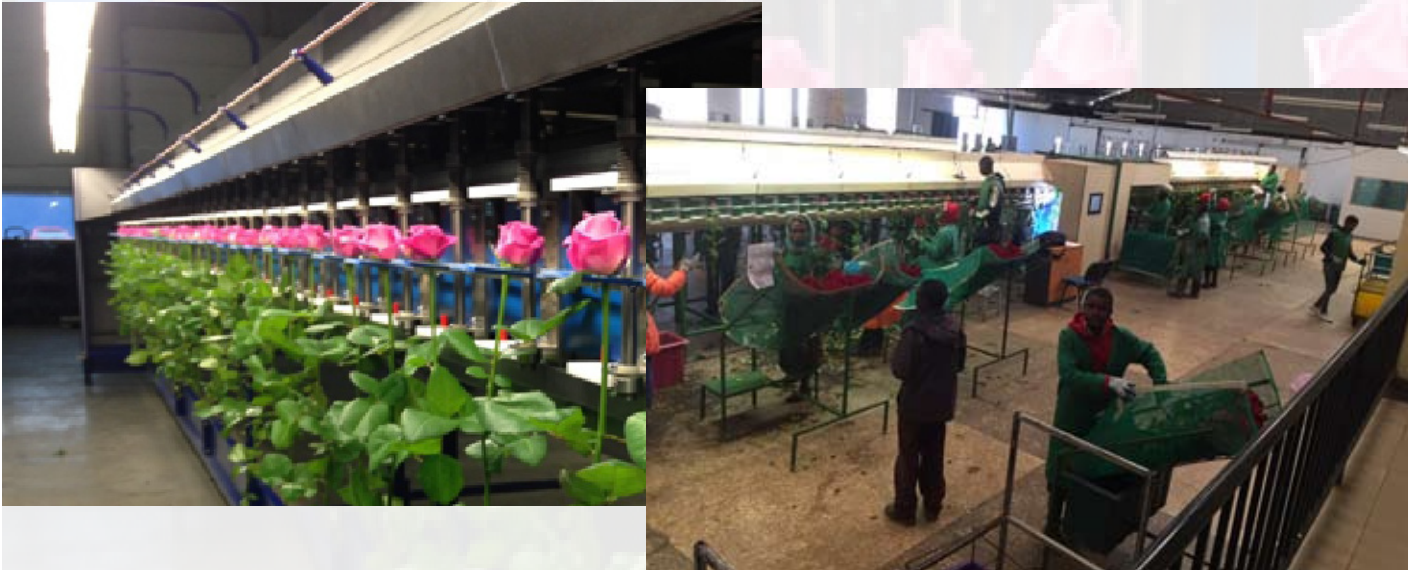
# Jamafa Machinery bv.

The supplier for grading machines and farm equipment

Jamafa Machinery B.v.

*Congratulates*

Oserian on the path that they have taken and wishes them all the best in the future.



Not only are they one of the leading flower production farms in Kenya they also have a very forward minded view on how to grow in more than only flowers.

They have invested in long term projects that will bring them and the region good business in the future.

A good example is the investment they made in the post-harvest!

To get the maximum efficiency and quality in the post-harvest area, they have invested in Rose grading/bunching machine from Jamafa machinery bv. Again, a good long-term investment, that will take them to the next level in flower processing.

[www.jamafa.com](http://www.jamafa.com), [info@jamafa.com](mailto:info@jamafa.com), Tel: 0031-495652820

# Salute to the Queen of Africa

By **HAMISH KER**

**A**s a pioneer of the flower industry in Kenya, Oserian was identified as the perfect farm to develop the “Queen of Africa” into the Queen of Roses in its geothermal rose heated project. The “Queen of Africa” required unique growing environment and climate in order to bring out the very best in this rose in terms of head size, balance for optimal air freight as well as the ability to open which enables people to appreciate its shape and beauty.

Growing Queen of Africa in its geothermal project has enabled Oserian to grow a premium white rose which is consistent in quality and ideal for the premium floral market.

The flower has shifted from a focal flower in the finest bouquets to being the pride and joy in any bride’s wedding day.



**Anton Koning (R) Queen of Africa grower at Oserian and Hamish Ker (L) former Technical Director at Oserian Development Company, currently the Managing Director, Oserian Flowers Limited, at the Queen of Africa greenhouse. Looking on Raimon Loman, Sustainability & Quality Manager, Bloom**

Queen of Africa’s flat open blossom lends itself perfectly for glittering and colouring so that it can be tailor-made for special events when one wants to add that extra sparkle to their display of roses or magical touch to a bouquet.

All in all we are confident this rose is set to become the Queen of African roses! ☐

**Hamish Ker is MD Oserian Flowers Ltd.**  
[md@oserialflowers.com](mailto:md@oserialflowers.com)



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**FLORI4 NATURE**

We sustain nature through our wildlife sanctuary and native vegetation. We raise seedlings for reforestation, use geothermal power to heat greenhouses, apply IPM to reduce chemicals and recycle plastics.



**FLORI4 SCHOOLS**

Oserian has constructed and furnished two early childhood development centres, two primary schools, a high School for employees and built two community schools.



**FLORI4 FARMING**

We believe in a hunger-free Kenya. Our Tissue Culture lab produces high value food crops like banana seedlings and seed potato to increase farmers’ yields.



**FLORI4 WATER**

Water is life. Our water management model has been cited by the Water Resource Management Authority as an industry benchmark. Oserian has developed several community water projects.

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# Alstroemeria: sparkling colours and enduring friendship

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

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

## Symbolic

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

humour, patience, empathy, commitment and respect. Your customers can decide for themselves which petal represents which quality. All the more reason that these should be enjoyed as long as possible in the vase!

## Post-harvest treatment

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



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

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

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

**CHRYSA**

# Everything's coming up roses for De Ruiter

By GUY KEBBLE

In recent years, De Ruiter has been hard at work on five red and five pink rose varieties for Africa. The group of red rose varieties has been named The "new" Big Five. Some of these are already known in the market because they're in production or being traded already. The varieties; Rhodos, Ever Red and Red Kamala, are already widely known. The Spectre (intermediate) and Cupido (T-Hybrid) are brand new varieties, and are being trialled at some large companies in Africa. The "new" Big 5 will be communicated as a very welcome addition to the complete range for chain partners.

On May 13, De Ruiter won the first

prize in the Keukenhof Consumer Award Rose 2017, for the Ever Red variety, which is supplied by chain partner F. Optimal Connection. Earlier this year, De Ruiter already won a professional jury award for Cherry Kheops, a special spray rose with 40-60 rosebuds per branch.

De Ruiter is not only introducing new varieties in the red segment, the company is also active in the pink segment. In addition to the existing variety Pink Rhodos, a mutant of the well-known red variety, Wham, Celeb, Opala and London Eye are also presented to the market.

In the special shape segment,

the Vuvuzela range and X-expression are popular choices, characterized by their bud shape and colour combination. These strong characteristics already yielded De Ruiter the name of 'color breeder'. "We still are," says Örjan Hulshof, Sales and Marketing Manager, "but we're also looking for an all-around supplier of a complete rose assortment for the whole market. Our pay-off is 'creating flower business' for a reason." □

---

**Guy Keeble , Commercial Manager,  
De Ruiter**  
[guy.keeble@deruiter.com](mailto:guy.keeble@deruiter.com)



**DeRuiter**  
creating flower business

Mr Rob Letcher	: Managing Director	-	rob.letcher@deruiter.com
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Mr Guy Keeble	: Commercial Manager	-	guy.keeble@deruiter.com
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# Oserian Development Company diversifies its commercial activities

**Consequently, the Farm has been subdivided and Change Of Use amended to Industrial, Commercial and Residential uses in support of the diversification plans.**

**O**serian Development Company Ltd, one of the largest flower growers and exporters in Kenya has embarked upon a bold plan to diversify its commercial activities.

Consequently, the Farm has been subdivided and Change Of Use amended to Industrial, Commercial and Residential uses in support of the diversification plans.

Oserian is already a small town in its own right, with over 11,000 people living in its Company funded housing estates and benefitting from the Company funded Creches, Schools, Medical Centre and Social Halls. The new strategy will ultimately see the expansion of these amenities in support of the diversification which will see the creation of an industrial park which will be known as Two Lakes Industrial Park. In addition we have already created Two Lakes Flower Park and Two Lakes Business Park – both of these are already up and running with tenants in situ.

In order for the Business to be better able to focus upon these diversification plans, we have recently Contracted out all our flower packing operations and similarly put all our non-rose crop production on a Contracted basis. Both providers are also looking to offer their services to the other Companies that are moving into the Flower Business Park. All businesses operating from Two Lakes Flower Park must comply with the accepted flower industry norms.

Not a single permanent unionisable worker has been retrenched as a result of these strategic changes. Seasonal employees whose contracts expired at 31st March 2018 were released as we reached the end of the 'Event Season' and all have already been fully paid off.

Negotiations are ongoing with additional tenants



for both the Business Park and the Flower Park and we have received the first significant expression of interest in taking premises within the Industrial Park. The new developments are in line with the foundations of green energy and creation of agro-processing businesses that are seeking steam and affordable electricity. Upon completion, the entire Two Lakes project it is expected to create over 20,000 new jobs.

Agriculture remains part of our DNA and in addition to the continued growing of Roses, the Farm is also diversifying into growing other non-flower crops of which further press statements will be made in due course □

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# Agriculture Division of DowDuPont™, to become Corteva Agriscience™

as it progresses towards becoming a standalone company

**I**nternational chemical manufacturer Dow Chemical Company and DuPont who recently completed their merger transaction forming DowDuPont (NYSE: DWDP) have announced they are set to create three separate publicly traded companies in agriculture, materials science and specialty products sectors that will lead their respective industries through productive, science-based innovation to meet the needs of customers and help solve global challenges.

The agriculture division will be named Corteva Agriscience™ and is set to officially start operations within 18 months of the merger closing estimated to be in June 2019. The fully independent business is set to ride on the combined strengths of DuPont and Dow AgroSciences and will champion enhanced capabilities in science and solutions that will benefit farmers and consumers.

Corteva Agriscience™ now brings together DuPont Crop Protection, DuPont Pioneer, PANNAR and Dow AgroSciences to create a market-shaping, standalone agriculture company with leading positions in seed technologies, crop protection and digital agriculture. Corteva is derived from a combination of names which means heart and nature.

“This is the start of an exciting journey. Corteva Agriscience™ is bringing together three businesses with deep connections and dedication to generations of farmers. Our new name acknowledges our history while looking forward to our commitment to enhancing farmer productivity as well as the health and well-being of the consumers they serve. With the most balanced portfolio of products in the industry, nearly a century of agronomic expertise and



**The team that will drive Corteva forward**

an unparalleled innovation engine, Corteva Agriscience™ will become a leading Agriculture company, focused on working together with the entire food system to produce a secure supply of healthy food,” said James C. Collins chief operating officer at the Agriculture Division of DowDuPont. The intended company will be headquartered in Wilmington, Delaware, with the Africa Middle East headquartered in South Africa.

In East Africa, the agriculture division of DowDuPont is headquartered in Nairobi, with a fully-fledged seed facility in Nairobi and a research arm in Eldoret.

The agriculture division has also been in numerous partnerships across various value chains in the region.

It has been actively involved in the research work on Maize Lethal Necrotic Disease in collaboration with CIMMYT and Kenya Agriculture and Livestock Research Organization under USAID Kenya funded MLND research centre. It has also played a part in maize production best management practices to increase productivity per hectare area, an initiative that has

been managed by PANNAR SEED and DuPont Pioneer in association with One Acre Fund. To improve access to farm inputs among thousands of farmers in East Africa, it has set up distribution centres through AMPATH cooperative model, supported by PANNAR SEED while establishing demonstration plots for continued learning through the AMPATH project. County agriculture extension officers have also been trained on maize agronomy, pest and disease management.

The division also runs a maize breeding program along with other breeding programs in the region that combined, cover mid altitude through transitional and highland elevations for Eastern, Southern and Central Africa. The research is focused on traits needed by farmers in the region.

“We will continue to invest in some of the most recognized and premium brands in agriculture: Pioneer®, Encirca®, the newly launched Brevant™ Seeds, our award-winning crop protection products while bringing new products to market through our solid pipeline of action chemistry and technologies,” said Collins □



A white flowering potato crop field

# Recapping developments in the potato industry from an NPCK perspective

By CAROLINE THEURI

**I**n September 2015, Justice Francis Gikonyo from the High Court in Meru County suspended a law stipulating that potatoes should be packaged in bags weighing not more than 50 kilogrammes (kgs). This was after traders and potato farmers had claimed in the petition that they were not involved its enforcement. The ruling also allowed traders or middle-men to revert to the use of extended bags which weigh more than 50 kgs, contrary to the Agriculture Food and Authorities (AFA) Act.

“The traders would squeeze as many potatoes into the extended bag, increasing chances of rotting and lowering the quality of potatoes. The

bag is big which poses a health risk for the carrier, forcing them to drag it, which in turn damages the potato crop,” says Ms Sarah Kuria, the National Potato Council of Kenya (NPCK) Policy, Lobby and Advocacy Officer.

The traders also use the extended bags to exploit farmers from their money when they demand the farmers to package potatoes in the bigger sacks weighing more than 50kg for a smaller price.

The packaging case is still in court but it has served as a lesson for the NPCK. Ms Kuria says that the new development is that the industry regulator is trying to involve all stakeholders in the process of creating another law. The focus for NPCK will be on why it is important to

stick to the packaging of potatoes in bags that weigh no more than 50 kgs, as it is supported by organisations such as the International Labour Organisation (ILO).

According to industry reports, Meru County is the only region that has successfully enforced the law, a development attributed to producers refusing to sell in extended bags, an indication where there is goodwill, the law can work for the benefit of all.

“We also need to develop another legal notice using the AFFA Act. This process requires stakeholders. In May, we have a national conference for all stakeholders such as farmers so that we ensure that there is ownership of the law and a legal notice in place,” she says.

Ms Kuria explains that the county governments will be key in implementation and ensuring that the tax levied on the 50 kg bags in their financial bill will be charged per weight, and not per bag. This drive towards a new packaging law is among the developments that the NPCK is trying to pursue in the potato industry.

According to Ms Rose Manyonge, the Value Chain Development Officer, another development is that NPCK is trying to address the challenge of few certified seeds. This is by encouraging farmers and investors to come up with new methods of producing seeds.

“For a long time, potato farmers could not access certified seeds with a Kephis label. This was either due to unavailability, high cost, or, the long process required to acquire certification. Yet, such seeds are able to boost the production of potatoes that can counter post-harvest losses. They are also disease and pest tolerant,” she says.

Ms Manyonge says that NPCK has found big four producers of seeds, such as Kevian and Suera Flowers, who are ready to invest in Kenya and some have already began producing the seeds. She explains that there are also individually-owned private owned companies, such as Naryan, who are registering their own farms to produce seed because they have the resources and capacity to do it.

NPCK has a website and a potato variety catalog for 55 certified seeds which have been registered by Kephis. However, Ms Manyonge explains that only a quarter of the farmers can access them. Thus, NPCK is encouraging farmers to use local varieties instead of the few Dutch and Irish import ones used for processing. Some of these varieties include Shanggi, Dutch Robjin and Kenya Karibu.

According to Ms Manyonge, the challenge for potato farmers in accessing certified also occurs when they do not manage to complete the entire seed certification as required by the Kenya Plant Health Inspectorate Services (Kephis). She says that this is because Kephis stipulates that the farmers undergo a rigorous inspection



**Members of Isei Co-operative Society harvesting Markies variety in Bomet County**

process to get their seed certified, involving such processes as verifying the its potential to yield and the seed's tolerance to diseases. Ms Manyonge says that if the seed succeeds this inspection, it will be certified by Kephis and given a label. However, she says that this sometimes does not happen due to either disease or the huge investment required to certify the seed. It then that the local farmers resort to sell the uncertified seed as ware, which lacks a certification by Kephis.

“The danger for farmers is when they sell their seeds as ware yet they have not been given such approval by Kephis to do so. There is also a danger if the farmers plant the ware as seed which will be introducing a new germ in the population. The fact is that ware needs to be destroyed but that rarely happens,” Ms Manyonge says.

#### Processing

Another development is the potato processing of starch in Nyandarua County. Ms Manyonge says NPCK is trying to support farmers to sell collectively as groups such as cooperatives through its stakeholder platform. She says that the regulator does this by mapping the market outlets for potato farmers that are available both for fresh table potatoes and for the processing markets. However, Ms Manyonge says that it has been a challenge for the farmers due

to the strict requirements that farmers need to abide with when dealing with big institutions.

“Farmers can be organised to meet the requirements of these markets. For instance when dealing with the government, you require a group pin, a KRA compliance certificate to do business with the government but how many farmers are willing to do that?” she says.

Ms Manyonge says that NPCK has been able to link about 21 potato farmer groups to market. In 13 counties, such as Meru, Molo and Nyandarua, at least one or two co-operatives have benefitted. However

She says that despite this attempt by NPCK to organise farmers into groups, it has been a challenge for farmers in these groups to meet the strict requirements for processing chips and crisp markets, based on variety and quality of the potato tuber of the imported varieties. For instance, while crisps require round tubers, chips need long ones. Ms Manyonge says that for farmers who opt for table potatoes for processing over import varieties, they are still vulnerable to the price exploitation of middle-men, who are also keen to destroy their groups to prevent them from market access.

“The table potatoes are challenging as they are sensitive to price changes caused by middle-men. They are also

⇒30



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### Product Profile

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

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

### Key Benefits of Orvego®

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





### Farmers touring a demonstration site

are keen on destroying the groups because they know that if farmers have one voice they will access more than just the market," she says.

Potato is the second most important crop in Kenya, notes the NPCK. Its data states that there are over 800,000 smallholder potato farmers and over 2 million people in the value chain. Potato in Kenya is produced on a total of 169,000 hectares of land. Ms Manyonge says that the crop is rain-dependent, whose seasonality poses a challenge as it is subject to price changes. The NPCK, through one of its council members, the International Fertilizer Development Center (IFDC) is putting up small tonnage storage facilities, though Ms Manyonge did not reveal where this is taking place.

"It acts like the normal cold storage and the largest we have had for them is 44 tonnes for the IFDC model, while the smallest model is 40 tonnes. They normally invest 80 percent and farmer ownership is around 20 percent. It is doing well so far, according to my assessment, because last season we were able to protect farmers against risks using forward contracts. They were also able to sell sustainably

through that cold storage structure," she says.

Ms Manyonge says that there are plans to decentralize storage from the farmer level to outlets in major cities such as Eldoret, Isiolo, Kisumu, Nairobi and Nanyuki.

### Re-organisation

Re-organisation of the potato industry began with NPCK in 2011. According to Ms Manyonge, it was necessary to re-organise the whole value chain in terms of production, logistics, storage, seed supply and having clearly defining the roles of different players such as farmers, input providers and regulators. She says that NPCK has made strides in boosting seed supply, where it has sought to encourage farmers to adopt technologies as hydroponics for growing potato, though the challenge for farmers is to adapt to other seed varieties.

"However, farmers have found it hard to transition from their usual Shangi potato seed to the new seed because of less demand," says Ms Manyonge.

She adds: "Middle-men are also a challenge. They are benefitting a lot from the value chain but are not prepared to re-organize themselves

and share the benefits to people such as farmers."

Ms Manyonge says that NPCK has a web-based SMS based platform known as Viazi Soko whose role is to try and close the information gap brought by middle-men and between buyers and sellers of potatoes. According to Ms Manyonge, it works by informing buyers, who are farmers if a certain seed is available. They are then able to know get information as the contact person, the seed variety and how much the seed costs.

"The seed producers are able to post their supply on the portal which is updated every Monday. If seed is disposed, the system automatically reduces sold quantities," she says.

According to the Liaison and Partnerships Officer, Ms Esther Kaguora, 12,850 potato farmers have been registered on the platform from the different potato growing counties.

She says that the website has also been instrumental in avoiding duplication of resources and creating synergies among partners who are doing similar potato projects, albeit in different counties □

# The role of soil health in natural disaster mitigation



**The Texas Dustbowl. In the 1930's there was an agricultural revolution in farm machinery that prompted farmers in American to convert arid grassland into cultivated cropland, by deep ploughing the soil and removing the deep rooted, productive, prairie grassland that was important for soil structure and water holding capacity. The result was severe drought and dust storms, that irretrievably destroyed 100 million acres of grazing, created a famine, and wipeout the livelihoods of 10s of thousands of people.**

**BY RUTH VAUGHAN**

**Y**ou may think that the common factor between drought and flood in many places in Kenya is water, especially lately. Other than the lack or abundance of rain, the major reason for droughts and floods is the soil's health status and its inability to absorb, store and release water.

Soil is the upper layer of the earth on which plants grows, and animals live on. It is made up of organic matter and inorganic matter – sand, silt and clay. 75% of the earth's surface is water. 25% of the earth's surface is soil. Of the 25% of the earth's crust that is soil – it can be broken down into the following uses.

Agriculture currently accounts for about 20% of the land use. Agriculture is essential for human existence. Without food we wouldn't be here. The human population continues to grow, with an increasing demand for food. This puts pressure on the current agricultural area and we see forests and environmental land being cleared to increase this production. In addition to this, bad agricultural practices on marginal land, continue to turn agricultural land into arid land. Further putting pressure on our forests and ecosystems.

To start with we need to protect and increase our forest areas. Forests in our mountain ranges and hilltops are

essential for regulating two climate patterns. Water and wind. The trees act as wind breaks and slow the wind down. The vegetation, roots and soft thick soils absorb heavy rainfall like a sponge and slowly release it into our streams and rivers, supplying water in the dry season and reducing floods in the wet seasons. Hence, the common term "water towers". In addition to this, trees can capture water out of the air by condensation, creating a natural drip zone, even without rain. Forest soils are very fragile and rely on their full ecosystem for their fertility and water holding capacity. Clearing forests irreparably damages the soil and the efficiency of our natural water towers.

A healthy soil is a productive, stable soil. So, protecting and enhancing the soil health in agricultural land brings financial returns to farmers as well as helping in the mitigation of natural disasters and climate change. This is true for cropped and grazed soils. In the process of absorbing

Land Use	% of land surface	% of the earth's surface
Oceans and water		75
Ice, snow, deserts, mountains	51	12.75
Forest and Arid land with grazing potential	14	3.50
Tropical Forest	8	2.00
In use cultivated land	10	2.50
In use grazed land	10	2.50
Arid land with cropping potential	6	1.50



It is very possible that the recent fissures and flooding that have started to cross the Narok Road may be due, not to Geological Activity (which is a slow process) but due to a combination of high rainfall, lack of trees to slow the water down and bad agricultural practices that have destroyed the soil structure, and its ability to absorb, hold, and slowly release water.

and releasing water, healthy soils naturally reduce the likelihood of droughts and floods.

**What soil properties are important factors in determining how much water is held?** Well, **soil texture is important** – the amount of clay, loam and sand. But we cannot change this easily.

Soil depth is most important. A shallow soil holds much less water and quickly produces run off (floods and erosion). We need to protect and build up our soils, to reduce erosion of valuable topsoil and increase the soil depth. Soils that have been eroded down to bed rock – hold no water at all. Soils can be artificially shallow due to a plough pan or compacted zone created by tillage for crop production. The disk plough is a big agronomic disaster. The disc plough turns the soil over and buries the biologically active, organic matter and nutrient rich topsoil away from the plant roots, it generally creates a plough pan at 15-20 cm deep.

*“Regular use of disc ploughs reduces soil aggregates to small particles and produces a compacted layer or plough pan which prevents air, water or roots penetrating the subsoil. When it rains, soil particles on the surface collapse together to form a crust which repels air and water and prevents water infiltration.”*

In a soil that is 1m deep, with a water holding capacity of 100 mm/m, the land can absorb 4 inches of rain or a million liters of water/ha. A soil with a plough pan at 20 cm can only absorb a fifth of this, creating 800,000 liters/ha of run off. A crusted degraded soil holds no water at all, creating a million liters of run off (a flood!).

The land’s ability to hold and absorb water depends on several properties that are influenced by human activity. It goes without saying that rooves and hard road surfaces create nearly 100% run off that must be captured / diverted / controlled by good planning.

In soils, the moisture holding capacity and soil ‘strength’ depends on the following features that we can control, soil porosity, organic matter content, chemical makeup, roots, and crumb structure.

**Soil porosity** is defined as the number of pores, voids, open spaces between soil particles. The pores hold air and water. Pores spaces may be formed by the movement of roots, earthworms and insects through the soil. The more porous the soil, the better the water can infiltrate. The greater the volume of pores, the higher the storage capacity of the water. Healthy soils with good porosity, absorb and store water deep into the soil, reducing flooding. The same pores allow the

roots to penetrate deep into the soil to mine the nutrients and stored water required for growth – so that plants can grow and transpire in the “drought”. Mechanical, human and livestock movement over the soil can substantially compact the soil and reduce soil porosity.

Organic matter content improves the strength of the soil by holding the soil particles together creating a strong porous crumb structure that resists erosion, improves water infiltration and increases the soil’s inherent ability to hold water. Organic matter acts like a giant sponge and can hold 400X more water than sand. A 1% increase in organic matter can increase the soil moisture holding capacity by 4%. Modern farming practices of tillage and inorganic fertilizers quickly burn out the organic matter and reduce the soils’ ability hold water and fertilizers and to grow high yielding crops. A healthy soil should have at least 3-5% organic matter. This, on its own, can absorb about 3-500,000 liters/ha water & sequester several tons of carbon/ha– alleviating climate change.

The chemical makeup of the soil is very important for its crumb structure, strength and porosity. Inorganic soil particles are negatively charged need positively charged particles to hold them together – these include the soil cations and



organic matter. Organic matter contains large particles with many positive charges and very effectively binds the inorganic soil particles together. Calcium (large) and magnesium (small) have two positive charges and can hold two soil particles together, potassium and sodium have only one positive charge and are very small, they can disperse the soil – crusting it and a substantially reducing water infiltration. The amount and the ratio of the positively charged cations determines the soil structure, strength, and water infiltration: - reducing wind and water erosion, loss of topsoil and floods.

Adding just NPK to the soil and not considering the nutrient removal of all the soil nutrients, mines the soil of valuable cations, can cause acidification, loss of structure and big reductions in yields, root structure and plant cover.

Overgrazing substantially reduces the soils ability to absorb water, by removing the plant cover, root structure and organic matter, by carrying the soil nutrients off the land, and by plugging the soil pores and crusting the surface through the action of the hooves walking through the soil. Overgrazed soil quickly deteriorates, does not absorb water that is required for the grassland to regrow and produces a great deal of run off. In Kenya,



**Serious gully erosion in many parts of Kenya causes death & loss of livelihoods, from floods and droughts and is created by tree cutting and overgrazing, causing loss of soil depth, soil compaction, and soil crusting, with 100% run off and flooding every time it rains.**

and other hot countries, we see a big salt accumulation in overgrazed soil, due to excess evaporation, to the point that soils quickly become crusted and arid, and unsuitable for anything.

So, what can we, as farmers, do to reduce droughts and floods? Good agricultural practices to build deep healthy soils! Test the soils, balance the cations, increase the soil organic matter, use no till or reduced till farming methods, plant trees, maintain forests and grasslands, rotate deep rooted crops, manage crop residues so that the soil is never

bare, don't overgraze and most importantly manage for healthy soils that will give you high yielding, healthy crops and grass lands.

CropNuts runs a soil testing lab so that you can monitor your health for better soil structure and higher yields, and an Agronomy Consultancy Service to improve your agronomic practices. Contact us at support@cropnuts.com □

**Ruth Vaughan, Technical Director-  
CropNuts**  
ruth.vaughan@cropnuts.com



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# The importance of rain water harvesting for farmers

By PRITEN GOHIL

**G**lobal warming has now reached a point that its changing the climate patterns around the world. Unfortunately, sub-Saharan Africa will be one of the regions which will be most affected.

We are already experiencing the effects of climate change in the form of the recent drought periods and erratic rain patterns in Kenya. Recently, the weatherman announced that the dry spell this year will be longer than previously expected.

Water is life, hence the lack of it affects each and every one of us. It affects our economy by increasing the prices of basic food items. Hence the need for water security for farmers.

Farmers can achieve water security by employing simple and affordable strategies for Water Harvesting. The cheapest and simplest strategy is to build a small dam on their farm. Traditionally, when farmers want to build a dam, they had to hire a contractor to dig the earth and install the liner for them. This is a very expensive process and the majority of the farmers cannot afford this.

Tembo Liners offers the solution to farmers to build their own dams by providing ready to install Liners. All farmers have the basic tools to dig their dam, hence no need to hire a contractor.

For example, a dam to hold 200,000 litres can be made with the following dimensions: 10m length x 10m width x 2m depth. (Approximately Ksh 46,000/- for this liner)



After digging their dam, the farmer needs to ensure that the ground is smooth and free of any sharp stones or objects that may damage the liner.

The next step is to measure the ground length and ground width to get the size of liner required.

With this size, they can place their order with Tembo Liners who will produce this liner to their size required.

Installation of the liner is also quite simple. After laying the liner on the dam, the farmer needs to secure the edges of the liner with soil. This serves two purposes: it anchors the liner to the ground and protects the edges from getting damaged by anyone walking on it or from direct sunlight.

Water harvesting will enable every farmer to ensure they have enough water for more than one season of their crop. This reduces the reliance on the weather pattern, improves

food security and sustains the farmers income.

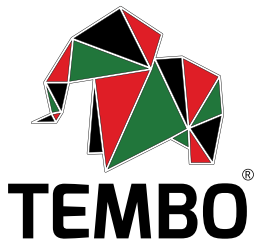
The same liners can also be used for Fish Farming, which has been proven as a lucrative side business for farmers.

Recently, World Food Programme (WFP) carried out a pilot project of providing farmers in a drought affected area with liners to hold 500,000 litres. The project was a success as within two years, every farmer was able to repay the cost of the liner and some farmers were even able to purchase another liner with their own means to expand their businesses.

In other parts of the world such as Asia, this technology has been widely adapted and has proven to increase food and income security for the farmers.

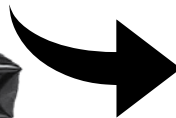
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**Priten Gohil, Africa PVC Industries Ltd-  
priten@africapvc.com**



# TEMBO LINERS

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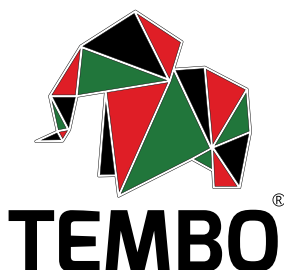


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**Stephen Musyoka,  
General Manager,  
Madumbi East Africa**

# New firm to offer biological control solutions to boost agriculture in the region

By **GEORGE ACHIA**

**A** South African-based company has launched its operations in Kenya, in a strategic move to bolster its agricultural activities within East and Central African region.

Madumbi East Africa is tapping into the leadership of Oserian in horticultural production to deliver sustainable biological control to help curb an unending losses caused

by pests and diseases to enhance agricultural production within the region.

“Madumbi East Africa is a member of Andermatt Group, a Swizz based company that will offer macrobial, microbial and biostimulant solutions suitable for both organic and integrated growing systems. The company is headquartered at Oserian in Naivasha, Kenya,” says Stephen Musyoka, the managing director.

Biological control is a method of controlling pests such as insects, mites, weeds and plant diseases using other organisms to maintain pest populations below damaging levels. It is an important component of integrated pest management (IPM) programs that strive to ensure sustainability in agriculture.

According to Musyoka, there has been an accelerated use of biological control of pests and diseases using

their natural enemies such as predators and parasitoids, as a result of food safety and environmental impact concerns due to overuse of synthetic pesticides.

“The company will provide microbial solutions for major pests across a wide range of crops, targeting red spider mites, thrips, whiteflies and aphids,” explains Musyoka, adding that Madumbi East Africa’s ability to produce in mass these natural enemies in a sustainable manner will see this bio-pesticide practice grow over the next decade in East Africa region.

As a member of the Andermatt Group, Madumbi East Africa will have access to the entire Andermattbiocontrol portfolio including leading virus, bacterial and fungal solutions against key pests such as fall armyworm and African bollworm, to ensure that crops have a healthy start in East Africa.

Madumbi East Africa is leveraging on Oserian’s foot print and its strength in horticulture production in Kenya to lead the discourse in sustainable agriculture in the region.

“Oserian is our strategic partner locally since it has adjusted its production system to address the ongoing changes in horticultural productions to align with sustainability approach to flower growing,” says Musyoka.

He further notes that Madumbi East Africa will utilize some of the sustainable projects at Oserian such as the geothermal heat project and to use their green houses for production.

Madumbi East Africa is part of a growing list of companies moving into Kenya due to the country’s infrastructure and liberal markets, state-of-the-art skyline, improved technology, highly educated and trained manpower, and diverse and vibrant market that have elevated Nairobi to become the business hub of the region □

The banner features the company logo 'Madumbi East Africa' at the top, with a ladybug on a leaf. Below the logo, it states 'A member of the Andermatt group' and includes three small images: a person in a lab coat, a close-up of a plant with a pest, and a field of crops. The main headline reads 'Your partner in sustainable solutions'. Below this, there are three service icons: 'BioManagement' (Sustainable management of pest and disease), 'BioInoculant' (Shape and build soil life), and 'BioStimulant' (Support crop vitality and yield). A central circular logo depicts a yin-yang symbol with a leaf and a globe. The slogan 'Backed by Science. Loved by Nature.' is followed by the website 'www.madumbi.co.za'. The bottom of the banner shows a large ladybug on a green leaf.

**Madumbi**  
East Africa

A member of the Andermatt group

**Your partner in sustainable solutions**

**BioManagement**  
Sustainable management of pest and disease

**BioInoculant**  
Shape and build soil life

**BioStimulant**  
Support crop vitality and yield

Backed by Science. Loved by Nature.

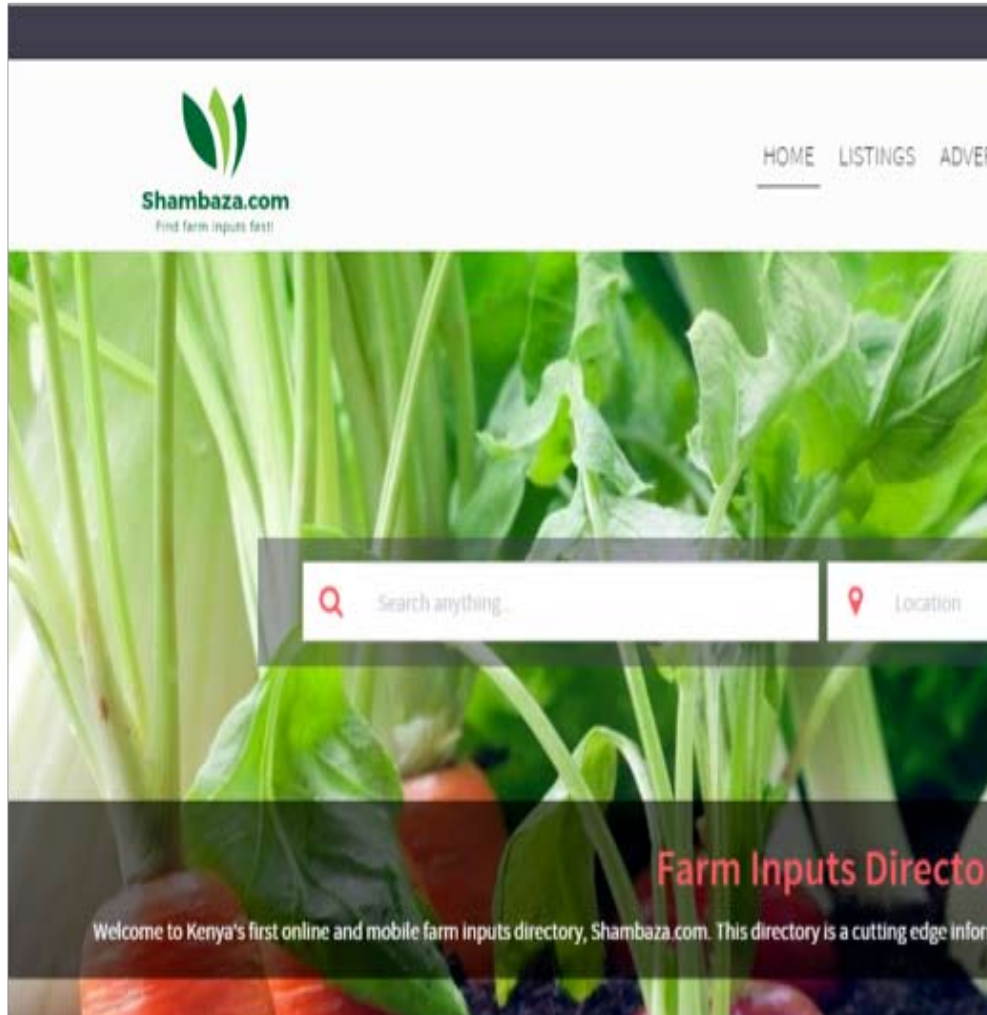
[www.madumbi.co.za](http://www.madumbi.co.za)



**S**hambaza edirectory is Kenya's first online and mobile farm inputs directory. The edirectory is a cutting edge information service specifically designed to link farmers to the right input suppliers. It is a one stop directory service for farmers in search of farming inputs such as fertilizers, pesticides, seed, livestock products, farm machinery and equipment, green housing material, water treatment products amongst many others.

**KEY STRENGTHS**

- Shambaza prides itself with a wide list of various farm inputs supplied by the very best and trusted manufacturing companies throughout Kenya.
- The inputs are categorized into listings to provide the farmers with a precise yet extensive list to choose from.
- It is a very resourceful and reliable directory where you can search



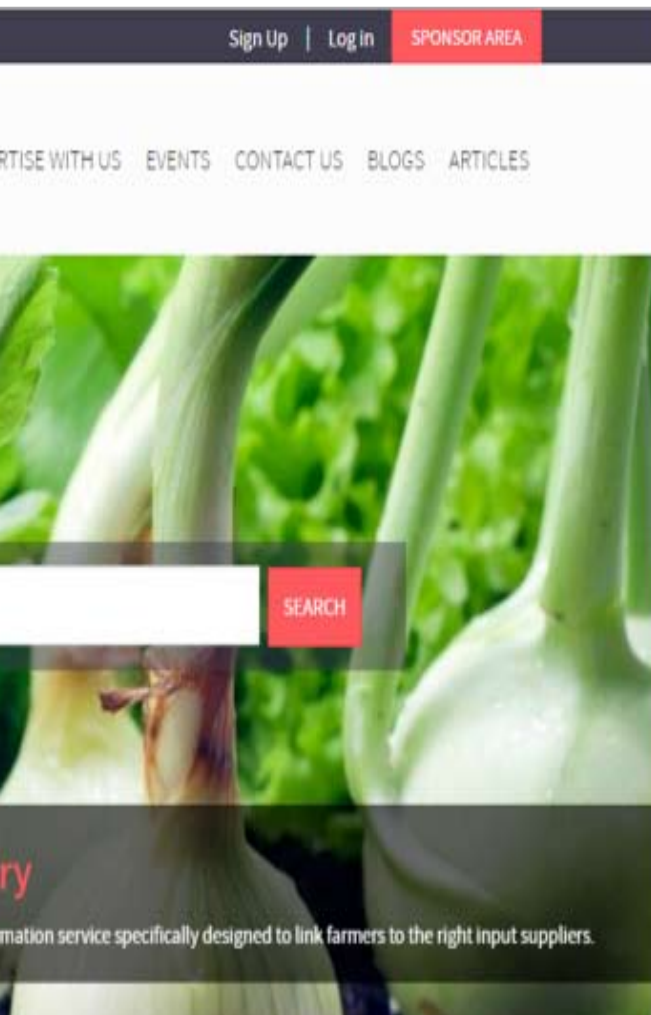
using various keywords like product name, active ingredient or even crop pest/disease problem (e.g. “thrips” or “rust”) to find the product you need with ease.

- The huge database of farm inputs available in this directory makes it the only easily accessible online inputs directory available across East Africa.

**BROWSE BY CATEGORY**

[more categories](#)

Adjuvants (16)	Bee Keeping Equipment (42)	Biocide (4)	Biologicals (55)	Compost (4)	Crop Protection (290)
Disinfectants (7)	Farm Machinery & Equipment (48)	Fertilizers (218)	Foliar Feeds (125)	Greenhouses & Tunnels (27)	Gypsum (3)
Herbicides (66)	Hydroponics (1)	Irrigation (26)	Lime Products (11)	Livestock (78)	Monitoring Equipment and Buffer Solutions (31)



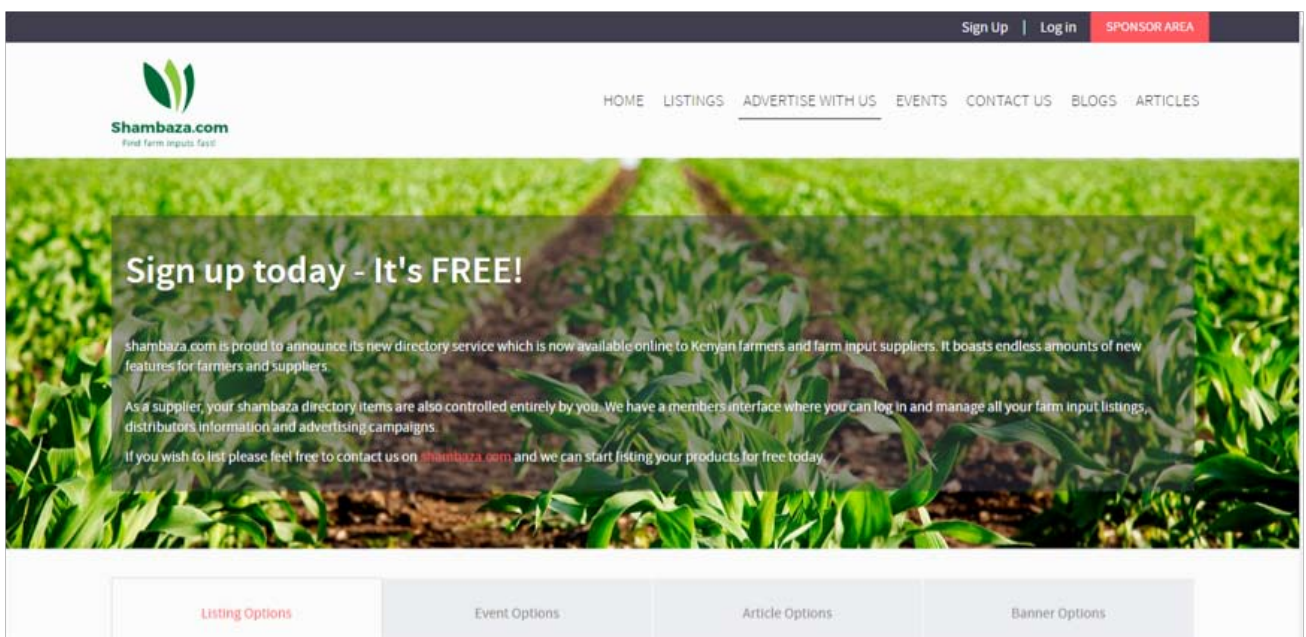
The directory is designed in a way that similar problems that are encountered by farmers are grouped together and the available inputs that can be used to solve or deal with them are availed with a touch of a search function. It also goes further to provide contacts on each product or input listed on the directory for ease of access and inquiries to the suppliers by farmers.

To achieve high yields, farmers need to find the right farm inputs for their farm enterprises thus buying inputs should be based on advice and information from the right and reliable sources. Cropnuts, guiding farmers for 20 years, developed Shambaza to fill this market gap where it helped independently link farmers to the correct inputs. This ensured that counterfeits and sub-standard products were avoided as much as possible by the farmers.

Shambaza is the most reliable directory currently in the market as all the products listed are taken through a rigorous process to ensure that any product listed are certified to meet the required standards and recognized by the relevant regulatory bodies.

Shambaza has come at a time where there is a lot of duplication of counterfeit products and farmers have been subjected to purchasing and use these substandard products. It has also come at a time where Kenya's Agriculture sector is shifting and the young generation is showing more interest. They would like to access reliable information and inputs fast! It has also made it easy for input suppliers who have been using it as marketing tool for their new products. Many have seen the need to associate their products with Cropnuts mainly because we are independent in the advice we give

To get your products listed as well email us at [shambaza@cropnuts.com](mailto:shambaza@cropnuts.com) or call +254-720 639933



Shambaza, Kenya's first and finest farm inputs directory. <http://shambaza.com> □



**Dr Jane Ambuko explains how the Zero Energy Brick Cooler works**

# Smallholder aggregation and agro-processing

## for better market access and profitability while reducing postharvest losses in horticultural value chains

By JANE AMBUKO

**S**mallholder farmers in Kenya (and Africa at large) have an enormous task of feeding the ever rising population with the limited resources at their disposal. With the right inputs (certified seed, fertilizers, water etc.), our farmers have the capacity to produce enough food to feed the 40 Million Kenyans and even have surplus to export. Unfortunately this is not the story of our smallholder farmers from the different sectors (dairy, fish, food crop, cash crop etc).

Many smallholder farmers use their limited resources to produce food that is eventually lost along the supply chain before reaching the consumer. According to FAO reports, 30% of food produced for human consumption is lost or wasted before

it reached the consumer. In fruits and vegetables, the losses are estimated to be 40 – 50% of the total production.

For horticultural farmers, the losses are aggravated by the fact that fruits and vegetables are highly perishable and have to be harvested and sold or utilized once they mature or ripen. The plight of mango farmers in Kenya is of particular interest because of the seasonality of the crop. Mango fruiting in the major producing regions starts from November to March with the peak being between January and February. For many farmers, mango is their main cash crop which they tend all year round. Mango farming is expected to be their source of livelihood but this is far from the truth. A survey carried out during the mango season in 2017

revealed that while most traders buy mango fruits at a paltry 3-5 KSH at the farm gate, the same fruits retail for as high as KSH 60 in Nairobi's retail outlets that include supermarkets. Generally the farmers are at the mercies of traders given the high perishability of mango fruits. Once the fruits mature and ripen on the tree, it has to be harvested otherwise it will fall off the tree and rot. Without cold storage facilities which could be used to slow down the deteriorative processes and possibly extend the marketing period of the fruits, the farmers are left with no choice. They either opt to sell their fruits at the throw away price (3-5 KSH) or leave the fruits to rot away on the trees.

It is this narrative that the University of Nairobi Project team





### Explanation at Receiving

with support from the Rockefeller Foundation is seeking to change through the smallholder aggregation and processing. Over the years, farmers have been encouraged to form or join groups as a strategy to enhance their bargaining power and avoid exploitation from traders. Farmers have responded positively by forming groups some of which have even graduated into cooperative societies. Although such groups have helped the farmers to better access training and extension services, market access remains a major challenge for most of them. Aggregation of smallholder farmers into farmer groups is essential to meet the quantity, quality and consistency of produce required by buyers.

Given the foregoing, the Rockefeller Foundation (RF) under the Yieldwise initiative is working with partners to demonstrate the potential benefit of smallholder aggregation and processing. Through a project implemented by a team of researchers from the University of Nairobi and Jomo Kenyatta University of Agriculture and Technology in partnership with RF's implementing partner Technoserve Kenya, two aggregation centers have been established.

One center (off-grid) has been established in Machakos

County for the Masii Horticultural Farmers' Cooperative Society. It is an off-grid center meaning that the farmers do not require electricity to run it. At this stage, the center is designed mainly for aggregation of fruits and vegetables. The center is equipped with an evaporative charcoal cooler (ECC) and a series of zero energy brick coolers (ZEBC). The ECC and ZEBC operate on the principle of evaporative cooling. When water evaporates from the wet charcoal and sand in the ECC and ZEBC respectively, it takes away heat from the stored produce and the surrounding environment. Evaporating water not only results in a cooling effect but also increases

relative humidity around the stored produce both of which slow down spoilage of the stored fruits or vegetables. The evaporative cooling facilities in this center have the capacity to hold 3–4 tons of mango fruits at a time. The group has already benefited from group training on good production and postharvest handling technologies and practices from the project team. This group has already started benefiting from the aggregation facility by negotiating for better prices for their aggregated produce. In the just ending mango season, they were able to sell their mango fruits to different buyers for KSH 6 to

10 per piece. This is an improvement from the usual farm gate price of KSH 3 to 5 offered by most buyers during the peak season. The group hopes to graduate from simply aggregating produce to aggregation and processing. Although mango is the main commodity in the area, the group has been encouraged to take advantage of the facilities to aggregate other commodities such as tomatoes, French beans, paw paw among others which grow in the area.

The second center (on-grid) has been established in Karurumo, Embu County and is owned by the Karurumo Horticultural Self Help Group. It is a full-scale aggregation and processing center with facilities



**Dr. Catherine Kunyanga explaining how the tunnel solar dryer works**



**Juice packaging**

with an opportunity to ensure that their research outputs benefit the end users – ‘from lab to land’. The centers are expected to serve as one-stop shop where farmers and other stakeholders can see postharvest technologies and innovations at work.

The two centers in Machakos and Embu Counties have been introduced on pilot scale with goal of replicating them in other regions and Counties in Kenya. This will require the support of the County governments and development partners. The vision for this initiative is that smallholder aggregation centers will serve their intended purpose of delivering high quality and quantity fresh and processed horticultural products for the market. This will ensure better returns for farmers while reducing postharvest losses in Horticultural value chains. In addition small-scale processing has potential to spur growth of cottage industries in rural areas thereby driving rural industrialization □

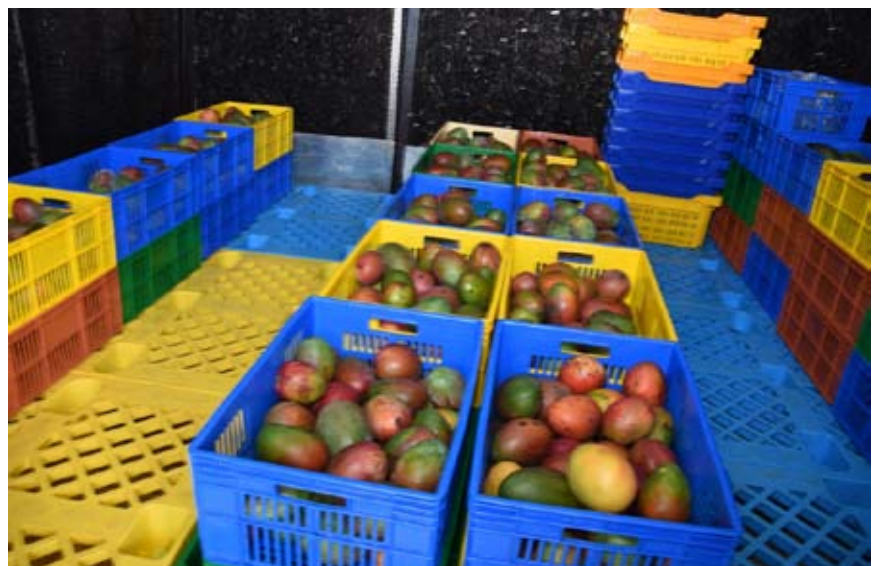
***Dr. Jane Ambuko, Team leader,  
University of Nairobi Postharvest  
Project, YieldWise Initiative***

***jane.ambuko@uonbi.ac.ke***

for both aggregation of fresh produce and also small scale wet and dry processing. The installed facilities include the zero energy brick cooler and evaporative charcoal cooler similar to those in Masii. In addition, the center has a Coolbot cold room which is a low-cost alternative to a conventional cold room. Based on best practices for horticultural produce handling and cold chain management, when the produce is received at the center it is sorted and graded based on the market destinations. Thereafter the produce should be precooled in the evaporative coolers to remove the field heat prior to storage in the Coolbot cold room. The center is also equipped with facilities for small scale wet and dry processing of fruits/vegetables. For example mango which is the main fruit in this region can be wet-processed into diverse products including pulp (puree), mango concentrate and ready to drink juice. Besides wet processing, fruits (and vegetables) received at the center can be dried into high quality products. To do this, the center has two tunnel solar dryers each of which has capacity to dry one ton of high quality dried fruits in one loading. Processing provides an alternative of transforming unsold fresh fruits (and

vegetables) into shelf-stable products. Without processing facilities, farmers are often at the mercies of traders who take advantage of their desperation to buy the fruits and vegetables at very low prices. This situation will change because farmers don't have to sell their fruits since they have the option of processing. Moreover with access to markets, processed fruits and vegetables have better returns for the farmer than fresh (unprocessed) produce.

The aggregation and processing centers have provided researchers



**Mango in Charcoal Cooler**

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# Flower Farming in Mount Kenya Region



By THEURI KAHUTHIA

## Flower Farms in Nanyuki

At one point, someone might have just surprised you with a bouquet of flowers. Probably, you didn't wonder where they came from. Before they arrive at your doorstep, the pretty petals have crossed equators or even oceans to get to your doorstep.

To the European Union and America, Kenya is considered to be the largest producer and supplier of flowers. Around Nanyuki region, there are a number of well-known flower farms that produce a wide variety of flowers. Some of the farms include: Flower farms located near Nanyuki are on the leeward side of the mountain and therefore experience relatively higher temperatures of between 22-25 degrees. Flowers do well in temperatures between 16-23 degrees. Even though high temperature speed up flower growth, they facilitate to poor quality flowers and they are therefore controlled through the use of greenhouses.

### Fresco Flowers

This is a flower company which was founded in 2005 that is located on one of the world's largest flower auction, known as Royal Flora Holland, around Nanyuki region. Strategically positioned, this farm creates a perfect platform for the exportation of flowers to Europe and beyond.

Fresco flowers grows different types of roses such as the red rose. With the large farm, the company employs a large number of locals hence creating jobs.

With conditioned flights, the flowers are transported from Kenya to Amsterdam, Netherlands or at times Liege, Belgium. The freight forwarder then transports the flowers to the final location which is Aalsmeer.

### Bondet Flowers Limited

The MarginPar Holland partner is located in Nanyuki, at an altitude of 2200 metres. This 35-hectare farm produces Eryngium Questar varieties, Hypericum and Astantia which are roses that do in high altitude areas. Marketing of the roses takes place under the name Mount Kenya Flowers.

Due to its outstanding quality of flowers, Bondet Ltd has received accreditation from MPS, Kenya Flower Council and Global Gab. The summer flowers that come from Bondet are sold under the Kariki CW and MarginPar name.

## **Tambuzi Limited**

Tambuzi limited is located in Burguret, on Nanyuki-Naromoru road. It was founded by Tim and Maggie Hobbs, in the mid-1990s where they just started with a few hectares. Today, it has a 65 hectare farm which is subdivide for different purposes. The company grows two types of flowers; summer flowers and roses on a 25 acre perimeter. The rest of the farm is placed under bee keeping, production of sustainable forestry and livestock farming. In order to meet the high flower demand, Tambuzi has added two more farms, Turraco and Pendekeza, both located in Timau.

Even though a river passes through the farm, Tambuzi does not use the water for irrigation. The company has many boreholes and big storage tanks that provide water for irrigation. In addition, it has a dam that collects water during the rainy seasons. The water is pumped to the farm for irrigation purposes.

With a goal to impact other peoples' lives, Tambuzi employs a large number of the neighbouring community. Just like in other farms, Tim and his family call Tambuzi their home, showing that it's not all about business.

Just as its "stop and smell the roses" motto suggests, Tambuzi's flowers have an attractive fragrance. For the reason, they easily find their ways in overseas markets, mostly in countries such as Denmark, Australia, America and United Kingdom.

## **Equinox Flowers Limited**

The farm lies at a high altitude of 2000 metres on the equator. It produces quality cut flowers throughout the year since the equatorial temperatures sustain a perfect balance. This constitutes of warm days and relatively cool nights throughout the year.

Light levels are general high in the farm. As a result, Equinox concentrates on growing rose flowers with intense colors especially the bi-colour variety ones. For transportation of roses from the greenhouses to the park house, the farm has installed a 2 mile cable way which more efficient and faster.

## **Red Ice**

Red Ice farm is located on the slopes of Mt Kenya, 7 kilometres away from Nanyuki town. In 2004, this farm was established by the Vegpro Group. This is one of the major flower suppliers to Europe, America and Australia.

Red Ice Farm is established on an 80 hectares land with only 25 hectares under flower farming. The company plants both roses and herbs. Some of the rose types grown include: Belle Rose, Aqua, Viva, La Belle, Classic Duett, Marie-Claire, Valentino, Red Calypso and Mariyo.

In order to create awareness for environmental issues, the remaining 55 hectare have been set aside for forestry and wetlands. All the water which is used in the farm comes from either boreholes, harvested rain water or at times from the lands' filtered waste water from the wetlands.

Sometimes, people may ask themselves where most famous florists get the nice smelling roses to make their beautiful compositions. These flowers come from Kenya, and around Nanyuki region in particular.

## **The Kariki Group Flowers**

It was started in 2002 at the Kangaita farm, near Nanyuki on the slopes of Mount Kenya. The farm is on a high altitude of 2500 metres with cool temperatures conducive for flower farming. Specializing on different flowers, the Kariki Group Flowers navigates easily on the international markets. Some of the varieties include: roses, Eryngium, Solidago, Hydrangea, Strokesia and Astantia. Most of the water used for irrigation comes from the boreholes. During the rainy season, rain water is harvested and stored in tanks.

## **AAA Growers**

AAA Growers is located on the Nanyuki Naromoru road just a few kilometres from Nanyuki town. The farm is on an altitude of 1800 metres and experiences warm temperatures throughout the year. The AAA roses have dominated the flower market in some European countries. With the application of modern facilities and an experienced professional team, the farm produces quality flowers.

Basically, the farm relies on organic fertilizers. Most of the water that is used in the farm

usually comes from the boreholes. During the rainy season, rain water is harvested and stored in the tanks.

Mount Kenya Aestromeria

This is a company based within Tambuzi farm that specializes in Aestromeria flowers. This company was started two years ago and has rapidly grown. Most of the facilities used by the company are owned by Tambuzi such as the water sources. The company has managed to purchase a farm in Timau just close to Tambuzi's other farms in Pendekeza.

## Flower Farms in Timau

In Timau, flower farming is slowly gaining popularity with many companies shifting to Timau. A good example of such companies are Kisima and Tambuzi, which have purchased farms in Timau. This is mainly because of the favourable weather conditions for flower farming. In addition, the region has fertile soils following the volcanic activities in the nearby Mount Kenya.

In the Timau region, the climate has done a critical role in flower farming. This is due to the influence of ecology and topography. In addition, glacial extent and sufficient

rainfall favours the flowers. The current situation in the slopes of the mountain is wet, with relatively low temperature of about 16-25 degrees. Flowers do well in cool environments.

Rose plantations in the region can easily be distinguished by many polyethylene covered greenhouses. These greenhouses serve a number of functions. For instance, the roses need utmost care from adverse weather conditions. In addition, they need protection from direct sunlight and wind which can destroy the flowers. Some of the major flower farms situated in Timau include:

### Batian Flowers Limited

On the slopes of Mt Kenya, just a few kilometres from Timau, is Batian Flowers Limited. The farm is well known for its production of different varieties of flowers such as: alstroemeria, roses, florinca, scented and garden roses and other flowers of unparalleled quality. It proudly boasts of its notoriety and the way it takes care of the the environment and the employees in general.

From the farm, Batian Flowers supplies the world with Kenyan alstroemeria, roses, florinca, scented and garden roses. To buy Batian alstroemeria, roses and florinca you can contact their distribution company in Dubai.

This company's website will give you an understanding of the organization, our staff and, obviously not to overlook, the unbelievable assortments of flowers that are grown.

Due to strategic position on the slopes of Mt Kenya, energy, information and assurance

of flowers, we deliver a nature of blossoms we have confidence in. Observe and get in touch with us to encounter the blooms yourself. To see the assortments that are being developed and photos of Batian's homestead please have a further take a gander at the product page.

Upendo Flowers does most of Batian flower's advertising. Based in Dubai, Upendo flowers are also the distributors of flowers to the entire world.

### Uhuru Flowers

Meaning freedom in Swahili language, "Uhuru" Flower Company is located near Timau town, on the northern slopes of Mt Kenya. The flower farm is situated on altitude of 2600 metres above sea level. In the country, this is the highest rose flower farm.

Uhuru Flowers was started in 1998, and has expanded over the years. Led by Ivan Freeman, the farm has a small and highly experienced management. Uhuru's aim is to consistently produce quality and presentable cut roses with an excellent vase life and a large head size.

Its proximity to the equator, high altitude and latitude enables the farm to produce high quality flowers throughout the year.

### PJ Dave Group Flowers

The PJ Dave Group is a family-claimed cut-flower business that farms and exports roses day by day to clients around the globe. The group has built up its name and regard for their proceeded with greatness in the worldwide market. With a large farm, the company is able to produce many stems of roses in order to meet the demand for flowers. Having worked their way up as a main brand in the previous 18 years, the PJ Dave Group company is situated slopes of Mount Kenya, a short distance from Timau town.

PJ Dave Group is one of Kenya's largest producer and exporters of quality roses with a particular focal point of serving its clients, who perceive the Group as one of the principal brands to work with.

### Timaflor Flowers Ltd

The farm was started in 1974 by Simon van der Burg, near Timau on the slopes of Mt Kenya. Starting with 5 acres, the farm managed to produce quality flowers that saw it grow rapidly. With time the farm has increased its land size to 100 hectares. It's only a few miles from the equator and therefore it produces quality roses throughout the year. The temperatures fluctuating between 19 and 23 degrees which is a conducive environment for flower farming.

Timaflor Flowers grows different varieties of flowers with its main focus on roses. In order to guarantee a reliable approach, the farm has come up with sophisticated systems that have also helped in improving the environment.

Mostly, Timaflor depends on solar energy for all its activities. Due to its strategic position on the windward side of the mountain, the farm receives adequate rainfall. The water is harvested and stored in tanks from where it's then used for irrigating the farm.

## Sunland Roses

**S**unland Roses is a 50 hectare farm located in Timau, just 50 kilometres from Meru town. The farm is owned by Silas Mwiti. Hosting more than 80 greenhouses, a lot of flowers flourish.

Some of the varieties of flowers grown in the farm include: Sanoli, Red Naomi, Sweetness, Air force, Cape Red, Scenta, Ice Bear and Anna Karina. Before planting the roses, Mwiti prepares his beds, places the drips and thereafter buys rose stalks. In order to push through in the international market, Sunland flowers are grown organically.

The farm's main source of fertilizer is worms. Mwiti rears a lot of earth worms that supply

him with adequate foliar. Using poles, a polythene material and iron sheets, several beds have been made for rearing these worms. When harvesting the fertilizer, a lot of water is flushed in to the beds. This water flows through the polythene material ending up in the storage tanks. From there, the fertilizer is directly pumped in to the greenhouses and eventually to the flowers.

Apart from worms, Sunland Roses also uses dried roses for making manure. This compost manure is mainly used during the planting of new roses.

Since the farm is located on the leeward side of the mountain, it

doesn't rely on rain water. Believing that every single drop is important, Mwiti harvests dew that collects on his greenhouses. He has fixed gutters on all the greenhouses and connected them with pipes that takes the water to the reservoir. Every day, the amount of dew collected is enough to fully sustain irrigation.

After 3 months, the flowers are ready for harvesting. From there, the farm produces about 12000 boxes. The flowers are sorted, packaged according to their sizes and colour and eventually exported to the markets mainly in Australia, Italy, Holland and Russia.

## Lobelia Flowers Ltd.

**T**his is a 20 hectare farm located at an altitude of 2320 metres, on the slopes of Mount Kenya, near Timau. The farm concentrates in growing lobelia flowers which are sold in Japan, UK, Australia, Netherlands and Middle East. It employs the use of solar energy and harvests rain water for irrigation purposes.

## Flamingo Siraji

**T**his is a world class flower farm located on the slopes of Mt Kenya, close to Timau. It specializes on large headed roses and spray carnations. Located at a high altitude, close to the equator, the farm enjoys regular rainfall and consistent temperatures which are conducive for flower farming. Most of the customers come from the Middle East, Europe, Japan, South Africa and Australia.

## Cutting, Packaging and Transportation

All the cut-flower companies in Mount Kenya region have a pack house for the grading and packaging of the flowers. The flowers are then transported to JKIA via refrigerated trucks on a daily basis. Some of the transport companies include KUENHE+NAGEL and Every24. Unfortunately, during the transportation of flowers, some challenges are encountered. These include:

- Traffic Jams hence delays in flower delivery.
- Some roads become

difficult to access in rainy seasons hence late flower delivery.

To deal with traffic jams, the flowers are transported to JKIA at night when the roads are not congested.

Mostly, flower pests are not a big issue for these flower companies are constantly spraying their flowers.

All flower farms in Mt Kenya region have their own staff welfare and a SACCO. The welfare airs the workers grievances to the management. The SACCO enables the company's workers to save

some money in it. Every year, these workers receive dividends depending on what they have saved in the SACCO. Internal audits are frequently conducted so that risks can be identified and assessed giving time for the bound action plan to be undertaken.

These flower farms also participate in the Fair trade, Lewa Marathon and also in wildlife conservation in Laikipia. They also take part in philanthropic activities such as child care and offering scholarships.



# Hortinews Directory



## Associations

Associations	Country	Phone	Email
Kenya Flower Council	Kenya	254-733639523	info@kenyaflowercouncil.org
Fresh Produce Exporters Association Of Kenya	Kenya	254-20 205160333	info@fpeak.org
Tanzanian Horticultural Association	Tanzania	255 (27)2544568	info@taha.or.tz
Ethiopian Horticulture Producers Exporters	Ethiopia	251-116636750	info@ethionet.et
Kenya Horticulture Council	Kenya		

## Flower Farms in Kenya

Region	Altitude	Region	Altitude
Lake Naivasha Region	6178ft	Mt.Kenya Region	6358-7057 ft
Nakuru Region	6070ft	Limuru-Rumuruti-Olkalau Region	6024-7802 ft
Nairobi Region	5515ft	Kericho-Kitale-Eldoret Region	6060-6995 ft
Athiriver-Kajiado Region	5649ft	Thika-Juja-Kiambu Region	5649 ft

## Breeders / Propagaters

ORGANISATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Dummen Orange	Flower Breeder	Mr.Steve Outram	254-733-609863	s.outram@dummenorange.com
Schreurs East Africa Ltd.	Flower Breeder	Mr.Haiko Backer	Tel:+254 203566135	sales@schreurskenya.com
Wac International	Flower Breeder	Mr.Richard Mcgonnell	254-722-810968	richard@wac-international.com
Florensis Hamer	Flower Breeding	Mr. Eddy Verbeek	020 50010	verbeek@florensis.com
Interplant Roses	Flower Breeding	Mr.Gavin Mouritzen	254-729-406668	info@interplantea.co.ke
United Selections	Rose Breeder	Mr.JellePosthumus	254-2-3656135	jposthumus@united-selections.com
Solo Plant Kenya Ltd	Breeding	Tomer Weiss	+254 (0)715 631 373	tomersolo@soloplant.co.ke

## 1. Lake Naivasha Region

ORGANISATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Florema(k)ltd	Begonia	Mr. perter maina	254-050-2021075	
Carzan flowers	Carnations	Mrs. Carol Manji	254707110030	info@carzankenya.com
Loldia	Cut flowers	Mr. Gary	0721 237936	
Longonot horticulture	Cut flowers	Mr. Shado rai	254-050501473	
Blue sky	Cut flowers	Mr. Mike	0720 005294	info@blueskykenya.com
Indu farm	Cut flowers	Mr. Wesley Koech	0715 546908	
Leekem holding ltd.	Cut flowers	Mrs. Margaret Muthoni	254-720-267004	leekement@gmail.com
Rainforest	Cut flowers	Mr.Fabian Philippart	0716 686998	fphilippart@fleurafrica.com
Savannah flowers	Cut flowers	Mr. Ignaitus lukulu	0728 424902	i.lukulu@savannahinternational.com
Star flowers	Cut flowers	Mr.dinkar	0722 203750	dinkar@vegpro-group.com
Subati	Cut flowers	Mr. Naren Patel	0712 584124	naren@subatiflowers.com
Wildfire flowers	Cut flowers	Mr.patrick mbugua	254-722-204669	office@wildfire-flowers.com
Aquila development company	Cut flowers	Mr.abhay marathe	254-722-205368	info@aquilaflowers.com
Beauty Line	Gypsophila	Mr.Peter Gathiaka	0722 676925	
Hamwe Ltd.	Hypericum	Mr.Adrew Khaemba	Tel: +254722431170	hamwe.production@kariki.biz
Sun Buds	Hypericum	Mr. Paul Kamau	Tel:+254 728339953	sunbudsltd@gmail.com
Oserian Development Company	Rose & Fillers	Mary Kinyua	Tel: +254 721299008	mary.kinyua@oserial.com
Oserian Flowers Limited	Carnations & Fillers	Mr.Hamish Ker	Tel: +254 722204701	md@oserialflowers.com
Colour Vision Roses Ltd	Rose Breeders	Mr.Peter Vandemeer	254-05050310	petervandemeer@terranigra.com
Rift Valley Roses	Roses	Mr.Peterson Muchiri	254-721216026	
Van Den Berg Roses	Roses	Loek Van Adrichem	+31 6 31 791 898	loek@bergroses.com



Aquilla	Roses	Mr.Yogesh	050 506609	info@aquilaflowers.com
Bigot Flowers	Roses	Mr.Jagtap K	254-722205271	jagtap.kt@bigotflowers.co.ke
Bila Shaka	Roses	Ms. Judith Zuubier	+254(0)72 220 4489	info@zuubier.com
De Ruiters	Roses	Fred Okinda	+254(0)722 579204	fred.okinda@deruiter.com
Finlay's Kingfisher	Roses	Mr. Charles Njuki	Tel: +254-724391288	Charles.njuki@flamingo.net
Galaxy	Roses	Mr. Kiran		kiran@vegpro-group.com
Groove	Roses	Mr.John Ngoni	Tel: 0724448601	groovekenya@gmail.com
Harvest Flowers	Roses	Mr Phanael Ochunga	0722 506026	phanael.ochunga@gmail.com
Karuturi Flowers	Roses	Mr.Sylvester Saruni	Tel: +254 722873560	henry.muller@karuturi.com
Kongoni Farm	Roses	Dinkar	0728 608785	dinkar@vegpro-group.com
Larmona	Roses	Fiona	254 722 564 089	fiona@lamornaflowers.com
Maridadi Flowers Ltd	Roses	Jack Kneppers	07-33333289	jack@maridadiflowers.com
Mbegu Farm	Roses	Mr. David Mousley	Tel:0722 833 122	mbegufarm@iconnect.co.ke
Nini Farm	Roses	Billy	254 723 786 003	billyc@ninitld.com
Shalimar Flowers (K) Ltd	Roses	Export Manager	0722 811832	info@eaga.co.ke
Stockman Rozen	Roses	Mrs. Sarah Tham	0720 603990	info@srk.co.ke
Twiga Roses	Roses	Mr.Pius Kimani	0721 747623	pius.kimani@gmail.com
Panda Flowers	Roses	Charkara	0786 143515	chakra@pandaflowers.co.ke
Finlay's Flamingo	Roses and Fillers	Mr.Peter Mwangi	Tel:+254 722204505	peter.mwangi@flamingo.net
Colour Crops	Summer Flowers			
Esmeralda Breeding	Summer Flowers	Mr.Loui Hooyman	31-297-385444	info@esmeraldabreeding.com
Multgrow Investments	Summer Flowers	Mr.Peter Murimi Mbugua	254-724-977259	peter_murimi@yahoo.com
Kentalya	Cut Flowers	Mrs.Lynette	0733 549773	lynette@kentalya.com

## 2. Nairobi Region

ORGANISATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Black Tulip Group	Cut Flowers	Mr.Mohan Choudhery	254-722-825429	info@blacktulipflowers.ae
Caly Flora Ltd .	Cut Flowers	Mrs.Catherine Gichungu	254 725456930	info@calyflora.co.ke
Everest Enterprises Ltd.	Cut Flowers	Mr.John Karuga	254-722-720876	jkaruga@everest.co.ke
Flora Delight	Cut Flowers	Mr.Marco Van Sandjik	254-722-384188	info@floradelightkenya.com
Particle Blooms Co. Ltd.	Cut Flowers	Mr.Caleb Amunga	254-704-040101	info@particleblooms.com
Phinna Flowers Ltd.	Cut Flowers	Mrs.Ruth Thuo	254-723-582476	phinnaflowers2014@gmail.com
Redhill Flowers	Cut Flowers	Mr.Isaac Bwire Ombunda	254-702-344047	redhillflowers@yahoo.com
Rose Bunk International	Cut Flowers	Mr.Nahashon Macharia	254-773-754140	nahashon@rosebunkintl.com
Sian Agriflora Ltd	Cut Flowers	Mr.Jos Van Der Venme	254-725-961961	info@sianroses.co.ke
The Flower Hub	Cut Flowers	Mr.Stephen Swainston	254-722-509970	info@theflowerhub.com
Tripple F Agencies	Cut Flowers	Mr.Amos N. Wakiria	254-735-405982	wakiria@fagencies.co.ke
Van Kleef Kenya	Cut Flowers	Mrs.Judith Zuurbier	254-722-364943	judith@vankleef.nl
Winchester Farm	Cut Flowers		254-0722-203630	info@mzurrieflowers.co.ke
Zaina Blooms	Cut Flowers	Mr.Michire Mugo	254-736-080070	zainablooms@gmail.com
Credible Blooms	Roses	Mr.Francis	020 2102019	info@credibleblooms.co.ke
Flamingo Flora	Roses	Sam	254-0721993857	s.ivor@flamingoflora.co.ke
Karen Roses	Roses	Mrs.Juliana Rono	254-722-717187	sales@karenroses.com
Kreative Roses Ltd.	Roses	Mr.Bas Smit	254 733501640	info@kreative-roses.com
Lakshmi Group Ltd.	Roses	Mr. Serghei	254 714551969	serghei.lakshmigroup@gmail.com
Magana Flowers	Roses	Mrs Ann Gitari	254-20-2017651	marketing@maganafloowers.com
Magnate Flowers	Roses	Mrs.Gladys Muthoka	254-722-777051	magnateflowers@gmail.com
Mzurrie Flowers	Roses	Mrs.Irne Njeru	254-722-203630	irene@winchester.co.ke
Shallimar Flowers Ltd	Roses	Mrs.Elizabeth Wahogo	254-738-391832	elizabethw@eaga.co.ke

## 3.Mt.Kenya Region

ORGANISATION	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Mount Kenya Alstroemeria	Nanyuki	Cut Flowers	Mr.Edwin Van Der Veen	254-718-240581	info@mountkenyaalstroemeria.co.ke
Bondet	Nanyuki	Erygium	Richard Fernandes		

Kariki Limited	Nanyuki	Hypericum		0722 50 99 19	info@kariki.biz
Live Wire Ltd	Nanyuki	Hypericum And Lilies	Mr.Esau Onyango	0728 606872	info@livewire.co.ke
Finlays Sirimon	Timau	Lilies	Ms.Purity Thigira	0733606411	purity.thigira@finlays.net
Batian Fowers	Timau	Roses	Mr.G.Muriungi/Dirk Looj	0720 102237	dirk@batianflowers.com
Bloomingdale Roses	Timau	Roses	Mr.Sunil Chaudhari	0732 373322	sunil@bloomingdaleroses.com
Bogmack Farm	Timau	Roses	Mr.Anderson	0722 350020	kathendusn@yahoo.com
Equinox	Timau	Roses	Mr. Rod Jones	+254 722 204271	rod.jones@equinoxflowers.com
Fides Kenya Ltd	Embu	Roses	Mr.Francis Mwangi	254-06830776	info@fideskenya.com
Lobelia Farm	Timau	Roses	Mr.,Peter Viljoen	254-06241060	
Lolomarik	Nanyuki	Roses	Mr. Topper Murry	0715 727991	topper@lolomarik.com
Protea Farm	Timau	Roses	Mr.Philip		info@lobelia.co.ke
Sunland Roses	Timau	Roses	Mr.Peter Viljoen	254-702-095696	sales@sunlandroses.com
Tambuzi	Nanyuki	Roses		+254 (0)722 716 158	tambuzi.sales@tambuzi.co.ke
Timaflor Ltd.	Timau	Roses			info@timaflor.nl
Timau Flair	Timau	Roses	MR.Philip Ayiecha	254-723383736	
Uhuru Flowers	Timau	Roses	Mr. Ivan Freeman	Tel:+254722863252	ivan@uhurufowers.co.ke
Vegpro-K Ltd	Timau	Roses	Mr.Vivek Sharma		vivek@vegpro_group.com
Kisima	Timau	Roses and Lilies	Mr.Martin Dyer	+254 (0)722 509 830	info@kisima.co.ke

## 4. Nakuru Region

ORGANISATION	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Bliss Flora Ltd.	Nakuru	Cut Flowers.	Mr.Shivaji Wagh	254-720-895911	shivaniket@yahoo.com
Carzan	Rongai.	Cut Flowers.	Francis	254-0720 890920	info@carzankenya.com
Kudenga Flowers	Mau Summit	Cut Flowers.	Mr.Joseph Juma	254-0725 643942	kudenga.fm@kariki.biz
Molo Greens Ltd	Molo North	Cut Flowers.	Mr.Justus Metho	254-722-755396	info@mologreens.com
Molo River Roses	Muserечи	Cut Flowers.	Mr.Alice Mureithi	254-0724 256592	andrewwambua@yahoo.com
Roseto Limited	Rongai	Cut Flowers.	Mr.Yogheesh		farm.florenza@megaspingroup.com
Kariki Limited	Molo	Hypericum		+254 722 50 99 19	info@kariki.biz
Amor	Nakuru	Roses	Mr.Ketan Jerath	254-738-119774	flowers@xflora.net
Baraka Farm	Nakuru	Roses	Lucy	254-0720 554106	lucy@barakaroses.com
Buds&Blooms-Bliss Flora	Nakuru	Roses	Mr.Shivaji	254-0720 895911	shivaniket@yahoo.com
Elbur Flora	Elburgon	Roses	Peter Kairu	254-51343473	eflora@africaonline.co.ke
Fontana Ayana	Nakuru	Roses	Mr.Gideon Maina	254-0721178974	gideon@fontana.co.ke
Fontana-Akina	Nakuru	Roses	Mr.Girish Appana	254 722728441	girish@fontana.co.ke
Kimman Roses Ltd.	Elburgon	Roses	Mr.Daniel Moge Maina	254-721-734104	kimmanexp@gmail.com
Mau Flora	Nakuru	Roses	Mahesh	254-0787 765684	mahesh@mauflora.co.ke
Milmet	Nakuru	Roses	Pravin		pravinyadav.29@gmail.com
Omang-Africa	Nakuru	Roses	Mr.Inder Nain	254 733724029	flowers@xflora.net
Porini	Nakuru	Roses	Mr.Pitambar Ghahre	254-0726 774955	porini@isinyaroses.com
Pp Flora	Nakuru	Roses	Prakash	254-0718 045200	info@fantasy-flora.com
Preesman Kenya	Nakuru	Roses	Michael Kikwai	254-0720574011	kikwai1980@yahoo.com
Ravine Roses	Nakuru	Roses	Mr.Peter Kamuren	254-0722 205657	pkamuren@karenroses.com
Redwings	Kabarak	Roses	Mr.Sayer Simon	254-0722 578684	sayer@redwingttd.co.ke
Subati Flowers	Subukia	Roses	Mrs. Jennifer Sassi	+254 742 144493	jennifer@subatigroup.com
Vankleef	Nakuru	Roses	Judith Zuurbier	254-0722 364943	judith@vankleef.nl
Xpression Flora Ltd.	Njoro	Roses	Mr.Mangesh	Tel: 720519397	info@xflora.net
Sian Agriflora (Sian Roses)	Nakuru	Roses/Lilie	Mr.Jos Van Der Venne	254 722203630	info@sianroses.co.ke
Jatflora	Gilgil	Summer Flowers	James Oketch	254 724418541	jatflora@gmail.com
Morop	Bahati	Summer Flowers	Wesley Tonui	254-0720 983945	
Flora Ola	Solai		Mr.Wafula	Tel: 0708382972	floraolald@gmail.com

## 5. Thika -Juja-Kiambu Region

ORGANISATION	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Zena Roses	Thika	Carnations,Roses	Mr.Rakesh	Tel: 0724631299	info@zenaroses.com
Selecta Kenya/Kpp	Juja	Cut Flowers	Mr.Wilson Kipketer	020 352557	w.keter@selectakpp.com
Pollen Sygenta Ltd.	Ruiru	Cuttings	Mr Daniel Kisavi	Tel: 733603530	Daniel.kisavi@sygenta.com
Munyu Growers	Thika	Flower Grower & Exporter	Mr.Muthom Ngaru	254-721-956307	munyugrowers@gmail.com

Riverdale Blooms Ltd swiftkenya.com	Thika	Flower Grower & Exporter		Mr.Antony Mutugi	020 2095901	rdale@
Kariki Limited	Thika	Hypericum		+254 722 50 99 19		info@kariki.biz
Transebel Ltd	Thika	Roses	Brian Wahome	+254 722 255322		brianwahome@transebel.co.ke
Enkasiti Flowers	Thika	Roses	Mr.Thambe	Tel:+254 724722039		enkasiti@gmail.com
Gatoka Farm	Thika	Roses	Christopher Gacheru	+254 733 619505		chris@gatokaflowers.com
Penta Flowers Ltd.	Thika	Roses	Mr. Tom Ochieng	Tel:+254 733625297		tom@pentaflowers.co.ke
Simbi Roses Ltd.	Thika	Roses	Ms.Pauline Nyachae	Tel: +254204448230		Pauline@sansora.co.ke
Windsor Ltd	Thika	Roses	Mr.Pardeep	254-0674208		farm@windsor-flowers.com
Ever Flora Ltd.	Juja	Roses	Mr.Khilan Patel	Tel: 0675854406		everflora@dmbgroup.com
Kenflora	Kiambu	Roses	Mr,Aleem Abdul	254-722311468		info@kenflora.com
Valentine Kibubuti	Kiambu	Roses	Mrs. Suzan Maina	Tel:0203542466		info@valentineflowers.com
Red Lands Roses Ltd.	Ruiru	Roses	Mrs.Isabelle Spindler	254-733-600504		gm@redlandsroses.co.ke
Branan Flowers Ltd.	Thika	Roses Growers	Mr.Brian Wahome	254-734-424648		brianwahome@transebel.co.ke

## 6. Kajiado – Athi-River Region

ORGANISATION	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Carnation Plants Ltd	Athi River	Carnations	Mr.E.Fieldman	254-2045162	evi@exoticfields.com
Waridi Ltd	Athi River	Roses	Mr.Pd Kadlag	254-724407889	kadlag@waridifarm.com
Harvest Flowers	Athiriver	Roses	Monicah	+254 722294963	salesadmin@harvestflowers.com
Shade Horticulture	Isinya	Cut Flowers	Mr.Ashutosh Mishra	254-0722 792018	
Desire Flora K.Ltd.	Isinya	Roses	Mr.Rajaat Chaohan	Tel: +254 0724264653	rajatchaohan@hotmail.com
Isinya Roses	Isinya	Roses		+254 728 689 000	info@isinyaroses.com
Maua Agritech	Isinya	Roses	Mr.Kori	254-722206318	gm@mauaagritech.com
P.J. Dave	Isinya	Cut Roses	Mr.Ananth Kumar	254-729-405450	marketing@pjdave.com
Maasai Flowers	Kitengela	Roses		+254 714 065 245	
Charm Flowers	Kitengela	Roses	Sales Manager	+254 733 753149	admin@charmflowers.com
Maua Agri Tech Ltd	Kitengela	Cut Flowers		254 0722206318	kori@mauaagritech.com
Rose Plant	Kitengela	Roses	Mr.Atenus		
Sian Maasai Flowers	Kitengela	Roses	Mr.Andrew Tubei	254-722728364	atubei@sianroses.co.ke
Sian Roses	Kitengela	Roses	Mr.Jos Van Der Venne	254-0202170540	info@sianroses.co.ke
Afriscan Kenya Ltd.	Kiserian	Cut Flowers	Mr.Charles Mwangi	254-722-711925	charles.mwangi@afriscan.co.ke
Kordes Roses East Africa Ltd	Masai West Road	Roses	Roses	Mr.Christian Meuschke	254-0733 363642
info@kordesroses-ea.com					
Ngong Roses	Ngong	Roses	Mr. Charles Maina	020 2700660	ngongroses@capstoneonline.co.ke

## 7.Limuru-Rumuruti-Olkalau Region

ORGANISATION	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Tropiflora	Limuru	Carnations	Mr. Krasensky	254 0724646810	
Leekem Holdings Ltd	Nyandarua	Cut Flowers	Mrs.Margaret Muthoni	254-0720 267004	leekement@gmail.com
Tegmak Bloom	Nyandarua	Cut Flowers	Mr.Edward Kaguchu	254-722-292242	tegmakbloomsLtd@gmail.com
Highlands Plants	Olkalau	Cut Flowers	Mr. Leonard Kanari	254-0721345829	sales@highlandplants.co.ke
Aaa Roses	Rumuruti	Cut Flowers	Ms.Jennifer Sassi	254-20-4453970	sales@aaagrowers.co.ke
Terrasol	Limuru	Cuttings		254-0722 455996	
Black Petals Ltd.	Limuru	Roses	Mr.Nizra Junder	254-0722848560	nj@blackpetals.co.ke
Elbur Flora	Elburgon	Roses	Peter Kairu	254-51343473	eflora@africaonline.co.ke
Kimman Roses Ltd.	Elburgon	Roses	Mr.Daniel Moge Maina	254-721-734104	kimmanexp@gmail.com
Suera Flowers Limited	Nyahururu	Roses	Mrs.Peris Wanbui Mureithi	254-724-082797	perismureithi@yahoo.com
New Hollands Flowers	Olkalau	Roses	Mr. Francis	254-0700718570	
Golden Tulip	Olkalau	Roses	Umesh	254-0739729658	
Mahee Flowers Ltd	Olkalau	Roses	Vijay Kumar	254-020822025	info@eaga.co.ke
Africa Blooms	Rumuruti	Roses	Samir Chandokrkar	254-0735-384552	
Primarosa Flowers	Nyahururu	Roses	Mr.Vishal Metha	254-734-88223	mvishal@primarosaflores.com
Flora Delight	Limuru	Summer Flowers	Mr.Hosea Andanyi	254-0724373532	hosndai@yahoo.com
Kemaks Blooms Limited	Aberdare Ranges	Summer Flowers	Mr.Peter Gakuna	254-792-705160	kemaksblooms@gmail.com
Hatabor Rainbow Blooms	Limuru	Cut Flowers	Mr.John Ndungu	254-07213850959	

## 8. Kericho-Eldoret-Kitale

ORGANISATION	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
Maji Mazuri	Eldoret	Roses		+254 722 203631	info@mzurrieflowers.co.ke
Zena-Asai	Eldoret	Roses		+254 722 935 798	info@zenaroses.com
Zena-Sosiani	Eldoret	Roses		+254 722 935 798	sales@zenaroses.co.ke
Equator Flowers	Eldoret	Roses	Mr.Charles	254-0721 311 279	cmutemba@sianroses.co.ke
Sirgoek Flowers	Eldoret	Cut Flowers	Mr.Andrew Kosgey	254-0725 946429	sirgoek@africaonline.co.ke
Finlay Chemirel	Kericho	Roses	Mr.Aggrey Simiyu	254- 0722601639	aggrey.simiyu@finlays.co.ke
Finlay Lemotit	Kericho	Cut Flowers	Mr. Richard Siele	254-0721 486313	richard.siele@finlays.co.ke
Mount Elgon Orchards Ltd	Kitale	Roses	Bob Andersen	254 0735330592	info@mtelgon.com
Panocal International Ltd.	Kitale	Cut Flowers	Mrs.Mercy Njuguna	254-721-637311	mercy.njuguna@panocal.co.ke



## Growers In Uganda

NAME	PRODUCT	LOCATION	CONTACT PERSON	PHONE	EMAIL
Rosebud	Roses	Wakiso	Ravi Kumar	0752 711781	ravi.kumar@rosebudlimited.com
Maiye Estate	Roses	Kikwenda Wakiso	Premal		premal@maiye.co.ug
Jambo Flowers	Roses	Nakawuka Sisia Wakiso	Patrick Mutoro	(254)726549791	pmutoro80@yahoo.co.uk
Pearl Flowers	Roses	Ntemagalo Wakiso	Raghibir Sandhu	0772 725567	pearl@utlonline.co.ug
Aurum Flowers	Roses	Bulega-Katabi Wakiso		Kunal Lodhia Shiva	0751 733 578 kunal@ucil.biz
Eruma Roses	Roses	Mukono	Kazibwe Lawrence	0776 049987	kazibwe@erumaroses.com
Uga Rose	Roses	Katabi Wakiso	Grace Mugisha	0772 452425	ugarose@infocom.co.ug
Kajjansi	Roses	Kitende Wakiso	K.K Rai	0752 722128	kkrai@kajjansi-roses.com
Uganda Hortech	Roses	Lugazi Mukono	Hedge	0703 666301	mdhedge@mehtagroup.com
Fiduga	Chrysanthemums	Kiringente, Mpingi	Jacques Schrier	0772 762555	j.schrier@fiduga.com
Royal Van Zanten	Chrysanthemums	Namaiba Mukono	Jabber Abdul	0759 330350	j.abdul@royalvanzanten.com
Wagagai	Impatiens-Poinstia	Iwaka Bufulu Wakiso	Olav Boender	0712 727377	olav@wagagai.com
Xclusive Cuttings	Chrysanthemums	Gayaza-Zirobwe Road	Peter Benders	0757 777700	pbenders@xclusiveuganda.com



## FLOWER AND VEGETABLES FARMS IN TANZANIA

### lower Farms in Tanzania

NAME	PRODUCT	LOCATION	CONTACT PERSON	PHONE	EMAIL
Kilifi Flora	Roses	Arusha	Jerome Bruins	255 27-2553633	jbruins@habari.co.tz
Mt. Meru	Roses	Arusha	Tretter	255 27 2553385	office@mtmount-meru-flowers.com
Tengeru Flowers	Roses	Arusha		255 27 2553834	teflo@africaonline.co.tz
Hortanzia	Roses	Arusha	Michael Owen	255 784 200 827	hortanziagm@cybernet.co.tz
Kilimanjaro Flair	Hypericums	Arusha	Greg Emmanuel	255 784 392 716	greg@kilimanjaroflair.com
Multi Flower Ltd	Crysanthemums	Arusha	Tjerk Scheltema	255 27 255 3138	
Fides	Crysanthemums	Arusha	Greg Emmanuel	255 27 255 3148	fides@habari.co.tz
Dekker Bruins	Crysanthemums	Arusha	Lucas Gerit	255 27 255 3138	info@tfl.co.tz
Arusha Cuttings	Crysanthemums	Arusha	Tjerk Scheltema	255 27 250 1990	tjerk@arushacutting.com



# ETHIOPIAN HORTICULTURE PRODUCERS EXPORTERS

## Flower Growers in Ethiopia

NAME	PRODUCT	LOCATION	CONTACT PERSON	PHONE	EMAIL
Lisen Flowers	Roses	Holeta	Peter Linsen		elinsensose@ethionet.et
Hanja	Roses	Holeta	Holeta		peter.pardoen@karuturi.com
Alliance Flowers	Roses	Holeta	Navale		navele@nehainternational.com
Ethio Dream Rishi	Roses	Holeta	Holeta	011 23 72335	holeta@jittuhorticulture.com
Holeta Roses Navale	Roses	Holeta	Holeta		navele@nehainternational.com
Supra Flowers	Roses	Holeta	Kaka Shinde	0911 353187	kakashind@rediffmail.com
Agriflora	Roses	Holeta	M.Askokan	0922 397760	flowers@ethionet.et
Ethio-Agricert	Roses	Holeta	Alazar	0910 922 312	alazar@yahoo.com
Addis Floracom P.L.O	Roses	Holeta	Kitema Mihret	0912 264190	tasfaw@addisflora.com
Enyi-Ethio	Roses	Sebata	Teshale	0911 464629	enyi@ethionet.et
Lafto Roses	Roses	Sebata	Andrew Wanjala	0922 116184	irrigation@laftorose.com
Eden Roses	Roses	Sebata	Vibhav Agarwal	0930 011228	vaibhavaggarwal1@hotmail.com
Ethio-Passion	Roses	Sebata			roshanmuthappa811@gmail.com
Golden Rose	Roses	Sebata	Sunil		
E.T Highlands	Roses	Sebata		0911 502147	bnf2etf@ethionet.et
Sharon Flowers	Roses	Sebata			saronfarm@ethionet.et
Selam Flowers	Roses	Sebata	Etsegenet Shitaye	0913 198440	etsgshita@yahoo.com
Joy Tech	Roses	Debra Zyeit	Mulugeta Meles	0911 302804	mulugeta@joytechplc.com
Dugda Froliculture	Roses	Debra Zyeit	Sayalfe Adane	0911 504893	general@dugdaflora.com.et
Minaye Flowers	Roses	Debra Zyeit	Eyob Kabebe	011-9728667/8/9	minayefarm@ethionet.et
Bukito Flowers	Roses	Debra Zyeit	Anteneh Tesfaye	0911 615571	
Oilij	Roses	Debra Zyeit	Bas Van Der Lee	0911 507307	b.vanderlee@oilijethiopia.com
Yassin Flowers	Roses	Debra Zyeit	Tesfaye Gidisia	0911 897856	kamevision@yahoo.com
Z.K Flowers	Roses	Debra Zyeit	Abebe Mamo	911526529	abemic/2006@yahoo.com
Friendship Flowers	Roses	Debra Zyeit	Edwin	(251) 911304967	friendship.flowers@yahoo.com
Evergreen Farm	Roses	Debra Zyeit	Hiwot	0912 125065	Hiwot.Ayaneh@yahoo.com
Rainbow Colours	Roses	Debra Zyeit	Tedessa Kelbessa	0911 389729	rainfarm@yahoo.com
Sher	Roses	Ziway	Ramesh Patil 0912 131940		braam.roses@hotmail.com
Braam Farm	Roses	Ziway	Ben Braam 0920 746270		
Sher Koka Farm	Roses	Ziway	Alemitu Biru 0912 097824		
Ziway Roses	Roses	Ziway	Ermiyas Solomon	0921 094373	ermiasziwayroses@yahoo.com
Herbug	Roses	Ziway	Hubb	hubb@herburgroses.nl	
Aq	Roses	Ziway	Wim	wimjr@aqroses.com	
Margin Par	Hypericum	Ziway	Hayo Hamster	251 911505845	marginpar@ethionet.et
Tal Flowers	Gypsophila	Ziway	Uri	uridago@walla.co.il	
Ewf Flowers	Hydragium	Ziway	Humphrey 0920 351931	production-manager@ewf-flowers.com	
Red Fox	Pelargoniums	Ziway	Michael Zevenbergen	0911 490023	m.zevenberge@ethiopia.redfox.de
Abssinia Flowers	Hypericum	Ziway	Sendafa	ggh_link@ethionet.et	
Ethiopia Cuttings	Geraniums	Koka	Scoff Morahan		scott.moharan@syngenta.com
Florensis Ethiopia	Buding Plants	Koka	Netsanet Tadasse		flrdnsis@ethionet.et
Maranque	Crysenhemums	Merjetu	Mark Drissen	(251) 221190750	md@maranqueplants.com
Freesia Ethiopia	Freesia And Statice	Sebata	Ronald Vijverberg	(251) 115156259	freesia@ethionet.et
Yelcona	Hypericum	Sebata	Andreas	0921 146930	Andreasndieolens@hotmail.com

## Fruit, Herbs and vegetable Fruits In Kenya

COMPANY	LOCATION	PRODUCT	CONTACT PERSON	PHONE	EMAIL
AAA Growers	Nairobi	Horticulture	Mr.Neville Ratemo	020-4453970-4	admin@aaagrowers.co.ke
Belt Cargo Services Export Ltd	Nairobi	French Beans, Babycorn	Mr.J.Muigai	020-4448821	bcs@beltcargo.com
Best Grown Produce(K)Ltd			Mr.Paul Mugai	020-4448821	bestgproduce@yahoo.com
Chirag Kenya Ltd	Nairobi	Spces And Herbs	Sales Team	254-203573000	naturesown@swiftkenya.com
Canken International Ltd	Eldoret	Chillies And Fruits	Mr.Mohamed	020-222736367	canken@cankencargo.com
Darford's Enterprises Ltd	Nairobi	Vegetables	Mr.Abdul	254-206622857	abdulkarim@darfords.co.ke
Delmote Kenya Ltd	Thika	Fruits	Sales Manager	020-672141600	nanasi@freshdelmonte.com
Pj Dave Epz Ltd	Nairobi	Dried Herbs And Roses	Import And Export Manager		020-3542012 pjdaveflowers@wananchi.com
Dominion Vegfruits Ltd	Nairobi	Fruits And Vegetables	Mr.John Mairura	020-823002	vegfruits@wananchi.com
East African Growers Ltd	Nairobi	Fruits And Vegetables	Mr.Peeush Mahajan	020-822034/25	peeush@eaga.co.ke, george@eaga.co.ke
Equatorial Nut Processors Ltd	Nairobi	Macadamia Nuts	Sales Managers	020-2030196	gatua@equatorialnut.co.ke
Everest Enterprises Ltd	Nairobi	Fruits And Vegetables	Mr.John Karuga F	020-3542009	smuhoho@everest.co.ke
Fian Green Kenya Ltd	Nairobi	Fruits And Vegetables	Mr.Francis Thuita	020-826157	info@fiangreens.co.ke
Fresh An Juici Ltd	Nairobi	Fresh And Vegetables	Ms.Maleka Akaberali	020-826090	maleka@freshanjuici.co.ke
Fresco Produce Ltd	Nairobi	Vegetables	Mr.Charles Mbugua	254-0722-764395	mbugua@freshproduce.co.ke
Frigoken Ltd	Nairobi	Fruits And Vegetables	Mr.D.Karim	020-2391717	frigoken@africaonline.co.ke
From Eden Ltd	Nairobi	Vegetables	Mr.Zulfikar Jessa	020-8562203	roy@from-eden.com, zul@tilleygroup.com
Global Fresh Ltd	Nairobi	Vegetables And Fruits	R.Chaudhry	020-82749/50	info@globalfresh.co.ke
Green Kenya Organization	Nairobi	Onions And Tomatoes	Charles Butiko	254-723119111	greenkenya28@gmail.com
Greenlands Agro Producers Ltd	Nairobi	Fruits And Vegetables	Mr.G.Murungi	020-827080/1/2	murungim@greenlands.co.ke
Highlands Cannery Ltd	Nairobi	Fruits And Vegetables	Sales Manager	020-8564048	info@highlandcannery.co.ke
Hillside Green Growers Ltd		Fruits And Vegetables	Ms.Eunice Mwangera	020-2397353	eunice@hillsidegreen.com
Homegrown Kenya Ltd	Nairobi	Flowers And Vegetables	Mr.Richard Fox	020-3873800	richard.fox@f-h.biz
Indu Farm Epz Ltd	Nairobi	Vegetables	General Manager	254-20-550215/6	info@indu-farm.com
Jakal Services Ltd	Mombasa	Fruits And Spices	Mr.Bandali	254-7412229435	jakal@ikenya.com
Jungle Macs EPZ Ltd	Thika	Fruits And Vegetables	Sales Manager	020-2451841	info@junglemacdamias.com
Jetlak Foods Ltd	Ruiru	Fruits And Vegetables		254-722754181	mail@jetlak.com
Indu Farm Epz Ltd	Nairobi	Fresh Fruit And Vegetables	Mr.Christian Bernard	020-550215/6/7	info@indu-farm.com
Kakuzi Ltd	Thika	Fruits, Nuts, Tea	Mr.Richard Collins	060-2033012	rcollins@kakuzi.co.ke
KHE (1977)Ltd	Nairobi	Fresh Fruit And Vegetables	Mr.Manu Dhanani	020-2517979	khe@khekenya.com
Kandia Fresh Produce Suppliers Ltd	Nairobi	Fruits And Vegetables	Ms.Lucy Mundia	020-3500866	kandia@swiftkenya.com
Kenya Orchards Ltd	Nairobi	Fruits And Vegetables	Sales Manager	254-2054161	
Keitt Exporters Ltd	Nairobi	Fresh Fruit And Vegetables	Asif Aman	020-822829	asif@keitt.co.ke
Mace Foods Ltd	Eldoret	Vegetables	Sales Manager	254-720391290	info@macefoods.com
Mugama Farmers	Murang'a	Vegetables	Sales Team	254-728-358211	mugamaunion@yahoo.co.uk
Makindu Growers And Packers Ltd	Nairobi	Passion Fruit	Mr.O.P.Bij Okra	020-822812/196	info@makindugrowers.co.ke
Meruherbs		Organic Producers	Marketing Manager	254-20-4442081	meruherbs@meruherbs.com
Muount Elgon Orchard Ltd	Kitale	Orchards	Bob Andersen	254-5431352	info@mtelgon.com
Mboga Tuu Ltd	Nairobi	Chillies And Vegetables	Mr.J.Kent	020-3877988	mtl@wananchi.com
Mixa Foods And Beverages	Kisumu	Fruits And Milk	Charles O.Odira	254-733-714584	info@mixafoods.co.ke
Mosi Ltd	Juja	Fruits	Rose Wahome	254-722204911	mwaiwahome@mosiflowers.com
Migotiyu Plantations Ltd	Nakuru	Herds And Seed Production	Mr. Rao	051-2214898	alphegaisal@wananchi.com
Namelok Exotic (K) Ltd			Mr. Sinkeet	0724-743258	info@namelokexotic.com
Njambiflora Ltd		Vegetables	Njambi	020-822506/7	njambiflora@yahoo.co.uk
Nicola Farms Ltd	Nanyuki	Fresh Fruit And Vegetables	Ms. Grace Wanjiku	020-2048874/76	marketing@nicola.co.ke
Olivado Kenya EPZ Ltd	Nairobi	Avocado	Nairobi General Managers	020-710-535303	gh@tanlay.com
Saw Africa EPZ Ltd	Thika		General Manager	254-722531106	wainana_patrick@yahoo.com
Sacco Fresh Ltd	Nairobi	French Beans	Mr.Muia	020-824687/8	info@sacco-fh.com
Shree Ganesh Ltd	Nairobi	Vegetables And Onions	Mr. Kanji Kalyan Patel	020-80243645	meleka@freshanjuici.co.ke
Sian Agiflora Kenya Limited	Nairobi	Calla Lillies	Ms. Angelina Mangat	020-822220	rano@sianexports.com
Syngenta EA Ltd	Nairobi	Seeds	Sales Manager	254-203222800	synjenta.east_africa@synjenta.com
Sunripe (1976) Ltd	Nairobi	Fresh Fruit And Vegetables	Mr. Hasit Shah	020-822518/822879	info@sunripe.co.ke
Value Pak Foods Ltd	Nairobi	Fruits And Vegetables	Mrs. Patel	020 2695633	valuepak@wananchi.com
Valentine Growers Co Ltd	Kiambu	Vegetables	Sales Team	254-720203765	info@valentine-flowers.com
Vegpro Kenya Ltd	Nairobi	French Beans	Mr. Bharat.Patel	020-822831-4	bharat@vegpro-group.com
Wamu Investments Ltd	Nairobi	Fresh Fruit And Vegetables	Mrs. Peris Muriuki	020-822441	peris@wamu-investments.com

# A DIRECT LINE BETWEEN THE CONSUMER AND THE ORIGINAL PRODUCER

## THE CHAIN OF TRUST IN FOOD PRODUCTION

- All products with the GGN label are certified in accordance with the rules of GLOBALG.A.P. Standards.
- GGN stands for a thirteen-figure identification number by which all certified participants in the production and supply chain can be recognised.
- A farmer with this number identifies himself as a participant in the independent certification procedure in accordance with the GLOBALG.A.P. Standard.
- Importers and exporters in the worldwide supply chain are checked to ensure that GLOBALG.A.P. certified goods are suitably distinguished from non-certified goods and that they are correctly marketed as such.
- Any visitor to GGN.ORG can find out who has produced a particular end product and which farm it was bred on.



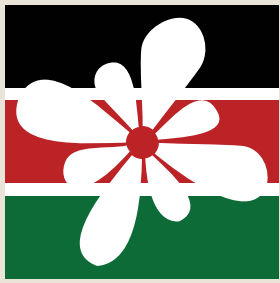
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