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## The Leading Floriculture Magazine

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## Push your Wheelbarrow Upside Down

*A visitor to a mental hospital saw an inmate pushing a wheelbarrow upside down. When he asked the inmate why he was pushing the wheelbarrow upside down the inmate replied "I don't think I'm crazy, do you? "I pushed this wheelbarrow right side up yesterday and they kept filling it with gravel"*

*On the basis of this reply, I think the inmate should be released and a lot of us put in his place. Too many people with the best intentions, go round pushing their wheelbarrows right side up and allow anybody and every body to dump their unwanted odd jobs, problems, worries and grievances, into them. So they end up pushing the burdens of everybody else gravel.*

*Do not allow every Tom, Dick and Harry dump their unnecessary knowledge, follow the Seven Critical Steps as Neil Adcock advises.*

*Paula Koross is one of the most dynamic and versatile flower farm production managers in the country currently. Putting some ink into this paper Paula's story is about excellence and determination.*

*Talking to Dick Van Raamsdonk his message was quite clear. You will never have a better chance of getting your message across than at an exhibition. In front of you, stands the customer. Atlast marketing has gained a human dimension.*



*In understanding Thrips our special correspondent sums it up with Critters Down Under: Thrips! However, I just love the way Ruth Vaughan captures the essence of it all in the article Critical issues in plant nutrition in Floriculture.*

*In a nutshell, we have included stories to inspire you, give you ideas and encouragement on loving, nurturing and developing your flower farm. So don't end up pushing the burdens of everybody else gravel.*

*Happy reading.*

*Masila Kanyingi*



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A close-up photograph of a woman's face, focusing on her eyes and lips. She is wearing bright red lipstick. In the foreground, a large, vibrant red rose is in focus, partially overlapping the bottom of the woman's face. The background is a soft, out-of-focus light color.

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# 6 Best Practices in Cold Chain Management



By Luke Gowdy

It bothers me that poor cold chain management leads to so much fresh produce being thrown out before it even hits the shelf. During a Supply Chain Conference presentation, it was explained that it doesn't have to be that way. You can use these 6 key concepts to build a better cold chain and reduce waste.

## 1. Secure the right expertise

Cold chains require trained temperature controlled specialists even before the product is picked up. Specialists who understand both temperature requirements of the shipment and who have a strong working relationship with the shipper and carrier can help balance unattractive load qualities like multi-pick, multi-stop loads by filling empty backhauls.

## 2. Determine capacity requirements

Whether transporting temperature sensitive goods by road, ocean, air, or rail, you'll need to carefully consider the pros, cons, and price—especially when coordinating across multiple types of transportation. Some commodities—those with higher price points—can benefit from a more expensive, yet faster shipping option.

## 3. Set clear expectations early in the process

If a trailer's temperature increases by only 2 degrees Fahrenheit, it can reduce produce shelf life by as much as 50%. That's why the shipper, carrier, vendor, provider, and other key stakeholders must agree on their roles—from acceptable temperature ranges and continuous temperature versus cycle settings, to proper seals, contingency plans, equipment expectations, and processes for returns and rejections.

## 4. Share responsibility when loading and unloading

Product that arrives at its final destination at the wrong temperature can be rejected. Before accepting loads, carriers should double check the temperature, including items deep within a pallet, which may minimize the risk for rejection. Thorough inspections by both carrier and shipper before loading can verify the trailer is in good working order. Shippers should watch for tears in chutes that can prevent consistent temperatures. Shippers should also check for proper container air flow. All observations should be carefully documented by both parties.

## 5. Balance cost and technology

As technology advances, so do the capabilities of temperature controlled equipment—from cooling/heating technology to monitoring capabilities. Proactive notice achieved through monitoring allows for fast action to minimize deterioration of refrigerated or frozen products. More expensive or sensitive products may be worth the added expense of state of the art technology.

## 6. Establish standard operating procedures (SOPs)

All SOPs should clearly outline:

- Who is responsible
- What needs to happen
- How checks and balances occur

All parties should agree to comply with, adhere to, and regularly review the SOPs as requirements shift.



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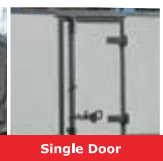
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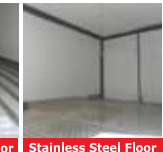
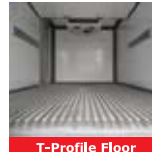
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# Sivanto Prime: The Latest Insecticide From Bayer CropScience

By Anthony Songoro

## What is Sivanto Prime?

Sivanto Prime is the latest insecticide from Bayer Crop Science for the control of important sucking insects that fits perfectly in sustainable growing systems. Sivanto Prime protects your crop against a wide range of insects, such as whiteflies, aphids, and thrips and is effective against both nymphs / larvae and adult stages. Sivanto Prime has a fast activity and is absorbed by the leaf, after which the active substance moves in the direction of the juice flow. Also key, the mode of action of the active substance flupyradifurone, makes Sivanto Prime an asset in resistance management strategies

## What is the mechanism of action of Sivanto Prime?

Sivanto Prime works in the central nervous system of the insect as an agonist of the nicotinic acetylcholine receptor (nAChR) of the insect. The active substance flupyradifurone mimics the natural neurotransmitter. The long-lasting effect of the product results in a disorder of the nervous system of the insect, and subsequent death.

## What makes Sivanto Prime unique?

Sivanto Prime has a very fast effective control against sucking insects and a favorable profile. Sivanto Prime gives effective vector control through fast activity and feeding cessation in insects.

## How is Sivanto Prime classified in the IRAC mode of action group?

The Insecticide Resistance Action Committee (IRAC) has classified Sivanto Prime, (flupyradifurone), in the new subgroup 4D - Butenolides, a new

subgroup of Group 4, which includes all insecticidal agonists of the nicotinic acetylcholine receptor (nAChR).

## What innovation characterizes Sivanto Prime's formulation concept?

SIVANTO® Prime has a unique formulation concept based on a specially tailored emulsifier system that has never been used by Bayer before. The formulation is easy to use and store thanks to improved cold stability and offers fast solubility and good mixability in the spray tank. The advanced retention properties result in good coverage and improved leaf penetration to ensure rapid action of the active substance.

## What are the core benefits and properties of Sivanto Prime?

The new butenolide chemistry makes Sivanto Prime a systemic insecticide that can be used to control a wide range of sucking insects, such as aphids, whiteflies, thrips and other important pests. Sivanto Prime fits perfectly in an integrated cultivation and is safe for honeybees and bumblebees (when used according to label). Sivanto Prime is also safe for most beneficial insects.

## Does Sivanto Prime fit within an integrated system?

Sivanto Prime is the ideal product within an integrated cultivation system due to the minimal risks to beneficial insects, such as ladybugs, parasitic wasps and predatory mites.

## How fast is the initial effect of Sivanto Prime?

A leaf application with Sivanto Prime ensures a rapid reduction of the sucking of the insects, after which the secretion of

honeydew strongly decreases. After a few hours the first dead insects are visible and the maximum killing is reached within two hours.

## What is meant by the systemic and translaminar effect of Sivanto Prime?

Sivanto prime is taken up into leaves and stems after spray application and via roots if applied to soil or alternative substrate. After uptake into plant system, Sivanto prime is translocated acropetally in the xylem, in direction of transpiration stream and moves translaminar to the underside of the leaf. Due to the systemic properties, the active substance is redistributed quickly and evenly over the entire leaf, so that hidden insects are controlled.

## Is Sivanto Prime effective against various stages of the plague?

Sivanto Prime addresses both the larvae / nymph stages and adult stages.

## What is recommended for active resistance management with Sivanto Prime?

Sivanto Prime is an insecticide from the completely new chemical subgroup 4D: butenolides. Sivanto Prime differs in structure from all other insecticides (such as neonicotinoids = CNI, pyrethroids, and organophosphates).

In order to prevent resistance, it is necessary to alternate between the different chemical groups. An alternation between the various subgroups reduces the risk of cross-resistance.

**The writer is the head of customer marketing, Bayer CropScience**



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# The Seven Critical Steps

## To a Successful Warehouse Automation

Retailers are turning their attentions to warehouse automation. The reasons may be all too apparent, but the path to a successful project is not so obvious, *writes Neil Adcock.*

**W**hy are omnichannel retailers suddenly taking an interest in automating their warehouses?

Until very recently the retail sector had tended to shy away from making such investments, preferring instead to take on a large labour force to manually process orders. However, that thinking appears to be changing – and rapidly so.

A number of leading retail brands are now actively engaged in adopting high levels of automation. The reasons are clear to see, but the right approach needs to be taken if agility and operational performance are to be leveraged to full advantage.

Several significant factors have come into play to alter the balance between the use of man or machine. Firstly, shoppers are shifting online in a big way. The Office for National Statistics estimate that consumers

spent £1bn a week with UK online retailers, up 20.7 percent. Internet shopping now accounts for 15.3 percent of all retail spending.

This massive and continuing growth in online purchases, with its requirement for single item picking, packing and dispatch, as well as increasing SKU proliferation, has placed a huge strain on finite labour resources in the all-important logistics hot spots. Even outside these areas, the pool of available labour is diminishing fast. The introduction of the National Living Wage has also significantly increased costs for highly staffed operations.

Brexit is another factor weighing heavily on the minds of those managing labour intensive operations. The big question is, will the availability of cheap labour from Europe ebb away in the wake of tighter



“More integrated automation can certainly provide impressive bottom-line benefits and may take the form of semi-automated pick stations, automated packing and fast sortation systems – pouch sorters too can provide flexible storage, buffering and transit benefits.”



some degree of automation or mechanisation.

Whilst a fully automated warehouse

can provide significant cost benefits, it is not always the best approach. For those businesses lacking the throughput, suffering restricted access to capital or where growth trajectory and product mix are uncertain, the targeted application of automation technology to key operations is a good option. Labour intensive processes such as picking, sorting and packing lend themselves well to focused automation.

The use of carton erectors, auto-bagging machinery, putwalls and conveyor runs can positively affect the cost per single being processed.

More integrated automation can certainly provide impressive bottom-line benefits and may take the form of semi-automated pick stations, automated packing and fast sortation systems – pouch sorters too can provide flexible storage, buffering and transit benefits.

But before launching into any productivity-boosting project, there are important steps to consider if the pitfalls are to be avoided. Here are seven top tips to ensure automation is a success:

**Understand the volumes**

Key questions are: What is the forecast growth? Will any increase in volumes be across particular SKUs, involve more SKUs



border controls and the lacklustre appeal of a weaker currency? Then there are the competitive pressures within the market place.

Consumers expect ever-faster delivery, greater choice and multiple options for

pick-up, home delivery or returning goods. Critically, the leading retail brands are choosing to actively compete on service, with later and later cut-offs and same-day delivery options. Simply put, manual fulfilment operations are at their limits and the only sensible option is to introduce

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## Main Story

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or impact other product types? What effect does peak trading and promotions have on throughput?

Accurate scenario modelling is of critical importance as it helps determine the robustness of any proposed solution to changes in volume or depth and breadth of stock. How do different growth patterns impact the proposed modularity or expansion potential of the solution?

#### Consider service levels

It is important to consider, not only current service levels and cut-offs, but also future alternatives that may offer competitive advantage. Service levels often suffer at peak, so it is critical for the system to be able to process the volume within the available window. Always, overlay alternative growth rates to 'stress test' solutions.

#### Plan the integration

How will the automated systems fit within the facility? Will manual areas be impacted? Are there enough doors? How will any extension fit within the proposed plot? All simple questions, but again, these must be clearly thought-through to ensure the success of the project.

#### Define the role of the facility

It is essential to engage with the wider business to determine future supply chain flows and the requirements of the facility – not everything may be needed on day one of the operation. Examples may include the implementation of cross-dock operations for key lines, returns streaming, inbound quality control and supplier conformance.

#### Set processes and design

Future ways of working and detailed processes must be thoughtfully incorporated within any design. This



will require close co-operation and co-ordination with the automation supplier to ensure that each step of the process is validated, and future changes are understood and catered for. This equally applies to the layout itself, ensuring for example, that sufficient buffering conveyor is in place to allow for downtime or stoppages.

#### Co-ordinate software integration

This step should consider which warehouse management system should be used, how it will integrate into the ERP and who will be responsible for the infrastructure. Importantly, will the control room have access to the necessary levels of data to maximise the efficiency of the operation?

#### Ensure smooth commissioning and transition

A key element of the project is the commissioning phase. Thought needs to be given to ensuring that sufficient time and budget is applied to testing the system, transitioning stock and to ensuring that realistic figures for productivity are factored in.

There are many potential dangers. Failure to fully understand the dynamics of the business, its growth expectations – in terms of volumes, SKUs, product types – and the impact of peak trading and promotions on the warehouse, can result in an inflexible and under-performing investment.

Importantly, the right questions need to be asked, but operational managers, distracted with the essential every-day running of the business, can often find themselves too short of time and too close to the operation to be able to undertake a full analysis of future needs.

Expert advice and guidance from experienced consultants, well-practiced in the application of a wide range of automated warehouse solutions, can help ensure a successful project –avoiding the anguish of a sub-optimal investment.

**Neil Adcock is a Consulting Partner at Bis Henderson Consulting**



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# Six Key Benefits IFTEX Show Has to Market Your Business

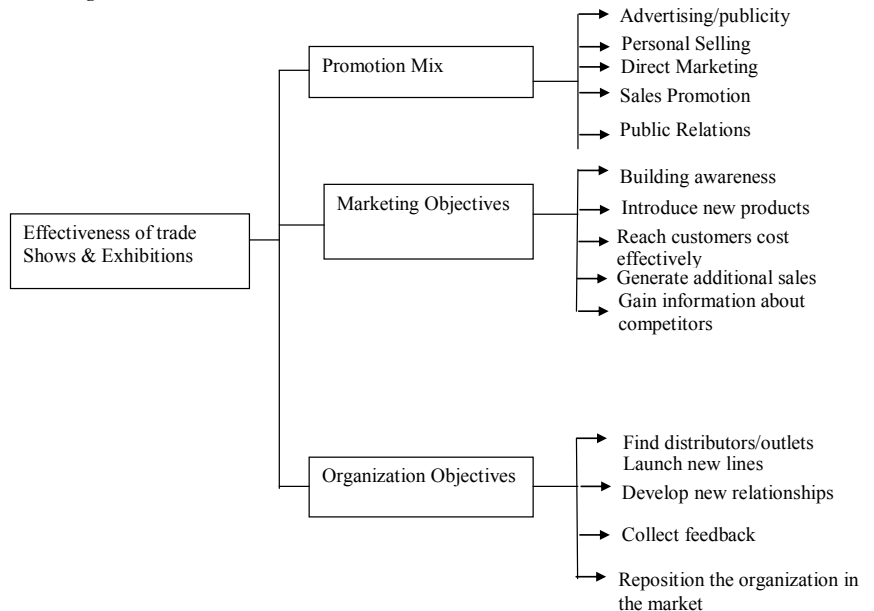
**I**FTEX has traditionally been a very popular exhibition to market your products, services and business. With advances in social media marketing and Internet technology, like webinars, Google hangouts and video conferencing, the value and benefits of marketing via trade fair comes up. Though technology is changing marketing at a rapid pace, there are several benefits from having exhibit presence at a trade show.

These six key benefits are why your business must have IFTEX Exhibition marketing presence:

## 1. IFTEX Creates Lasting Impressions If Done Right

The main purpose of IFTEX is to showcase

Figure 2 a.



a wide variety of options for attendees and business to engage and interact with each other. With a well-designed trade show booth that draws attendees' attention, a few promotional items, a contest opportunity with giveaways and sales collateral, you will have a well-rounded booth experience that leaves an impression with a prospective customer for months. Consider having attendees enter a drawing by submitting a business card or completing an action on social media. These types of promotions serve dual purposes: increasing engagement and capturing potential contact information as well.

## 2. IFTEX is Incredible Face-To-Face Marketing Event

When it comes to influencing a decision, nothing can compete with face-to-face interaction. IFTEX provides opportunities to engage with current buyers and prospective. It doesn't matter whether you're marketing a product or selling your new variety, an in-person presentation and short question based conversation afterwards can help you to close the deal quickly versus an email sharing the latest sales promo. This makes pre-IFTEX



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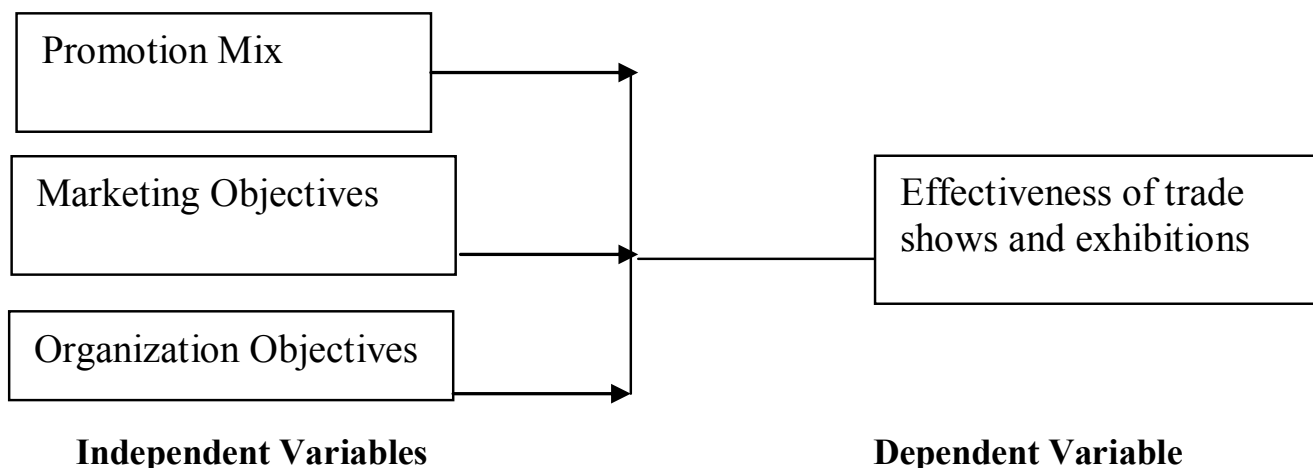


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Figure 2 b.



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planning key to your success. If you've got an employee who is a natural at "turning on the charm" or one who is great at relationship selling, should be a no brainer on them being a part of the sales team. The cost of bringing them to IFTEX show event could pay for itself within hours of the show starting.

**3. IFTEX Lead Generation Potential**

When it comes to benefits, this is one of the biggest. IFTEX has massive followings and attendance. Each attendee of IFTEX is a potential lead waiting to be captured. Having QR codes linked to social media accounts or lead generation pages, asking for contact information during a presentation and getting their business cards are all great ways to get fresh leads in your sales pipeline. Make it clear to them that you'll be contacting them after the show. Make sure to follow up with the candidates most likely to buy while the event is still fresh in their mind.

**4. IFTEX Target Audiences Result In Direct Sales Opportunities**

IFTEX has a specific market or niche it focuses on. By exhibiting at IFTEX, the odds are very high that you'll have exposure to an audience that is likely to have an interest in your product or services and are ready to buy. ALWAYS have something to showcase at IFTEX. It doesn't matter if you only bring your old varieties or the newest, the opportunity to generate sales shouldn't be lost because you didn't have something. Don't miss out on that sale!

**5. IFTEX is Cost-Effective Networking and Advertising**

Designing the trade show booth, renting space on the trade show floor, traveling to the show and from the show, paying for lodging

and meals can seem like a steep price tag for a single marketing event. If you've done the pre-show marketing work leading up to the show, the potential that IFTEX offers your business can far exceed the investment.

Though you might have a larger initial investment to showcase your business at IFTEX than other advertising or networking methods, the cost to convert a prospect into a sale is often much lower than other alternatives. With proper research and planning, IFTEX is one of the most cost-effective sources of leads and sales possible.

**6. IFTEX Level The Marketing Field**

One of my favorite benefits to IFTEX is the low cost barrier to get involved. From locally owned small scale growers to multinational growers, everyone has access to the same attendees at IFTEX. It's almost as simple as paying for your exhibit location space, designing your trade show display booth, promoting your business leading up to IFTEX and interacting with the audience during the show. Even a relatively unknown grower can generate large numbers of sales and leads through IFTEX. Certainly this is possible via other marketing channels, but few are as easy to execute as IFTEX can be.

IFTEX offers big benefits to businesses of any size. By combining exposure to a large number of potential leads with the ability to interact personally, IFTEX offers an experience that other forms of marketing cannot.



## Buyers Flock Nairobi

The 1979 film 'Being There', is the only screen performance for which actor Peter Sellers won an Oscar. Seller portrays a simple minded gardener turned from a sheltered existence into the harsh realities of life. Through a series of mishaps and misunderstandings, the gardener became a highly respected policy adviser to the president of United States.

The thinking on which the character builds his reputation and gains recognition as an authority is the simple philosophy that politics and business are very much like a garden-find or make the right sort of soil, plant it well, nurture it, feed it, and it will reward you well by providing for you year upon year.

And even in the world of commerce there is a reasonable analogy to be made.

As to how the film came by, its title you probably cannot do better than hazard guess that it was a reference to its main character 'Being There' in the right place in the right time.

And there can't be many who would disagree with that theory. Not in the Flower business at any rate, where 'Being There', in the right place at the right time can be condensed into one word-'Marketing'.

'Being There' became very much the catchphrase when talking to Mr. Dick Van Raamsdonk, the President

of HPP Exhibitions Holland. June is the month flower buyers should be packing their suitcases and Travelling to IFTEX, an international Floriculture Trade Fair. The fair

to be held from 5th-7th June is organized by HPP Exhibitions and will bring together all growers of cut flowers and their buyers under one roof.

During the interview, Mr. Dick Van Raamsdonk said unashamedly that he believed 'Being There' was the main commercial advantage to every Kenyan grower. Adding, "Buyers love Kenya Flowers and Kenya is currently the most exciting

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supplier to the buyers. To Europe, Kenya is what Ecuador and Colombia is for USA". He said Being There was the best way of meeting and networking with the right buyers.

Speaking exclusively to **Floriculture Magazine**, Mr. Dick Van Raamsdonk said Kenya has the right quality and price for buyers. He said the market is big enough and this is the right time Kenyan growers can make themselves the global flower suppliers. "Kenyan growers have a business duty to present themselves in a big way in this year's IFTEX. This will give them an opportunity to meet not only the buyers but also the consumers and get to understand what they need, he added.

"Do Kenyan growers want to market themselves?" he asked. Then 'Being There' will be the best decision one can make. Mr. Dick Van Raamsdonk said that he had teamed up with the government institutions, flower organisations and growers to make the show very successful. Likening Kenya to a sleeping flower giant, Mr. Dick Van Raamsdonk said It was only in Kenya where you can get all flower sizes, most promising production and the right quality from one country all year round. "This is a golden chance to market these products to the most promising flower market currently", he said.

By no means the least of the reasons given and yet surprising not the first thought on every growers mind, this is an excellent way of meeting buyers. Kenyan growers will not only meet the right buyers but also keep their position as a leader in flower exports. It is a near suicidal for any grower who ignores his market. "It is my dream to bring the most promising flower producer (Kenya) and the most promising flower market together", he concluded.

Quality standards are always a top priority. And so everyone would like to share with the original breeder, grower, buyer and consumer. Those who will miss IFTEX will spend the next one year with the old technology, old contacts, old friends and business plus more aging mindset on how the market is evolving. Well the chance of 'Being There' is open you do not have to say when it's too late. "BUT NO BODY TOLD ME"

## Why Exhibit

**T**rade fairs, conferences, business events, economic forums and exhibitions can be defined in a unified manner as sophisticated platform for conducting business on a national and international scale. It is more than just a marketing tool as the entire marketplace is at your fingertips. As a source of market information they fulfill your needs in a centralized way said Mr. Dick Van Raamsdonk.

IFTEX provide growers an excellent opportunity to assess opinions from buyers and determine market potential, conduct research and evaluate competition, develop commercial structures by identifying new agents and distributors, and initiating joint ventures and project partnerships. "IFTEX provides a unique networking platform to both local and foreign participants. It helps in promotion, marketing and publicity efforts of participating companies. It leads to joint ventures, tie-ups and also help bring in investment in the Country", says Mr. Dick Van Raamsdonk.

As a reliable media for exchange of information, IFTEX is being globally recognized as the apt medium for doing flower business today. In the words of Dick Van Raamsdonk, "The current economic slowdown is the ideal time for the industry to showcase its presence on exhibition floor as the industry is very much in a position to reinforce its tenacity, strength and collaborative nature".

In fact, in tough market conditions, it becomes all the more imperative for all growers to show greater visibility, strong fundamentals and continuation of businesses. The platform is ideal for growers to nurture the trust and confidence across the supply chain."

Agrees Eliud Njenga of Credible Blooms, "IFTEX brings the potential buyers at a single platform wherein they have an access to entire gamut of varieties. The tools of the exhibition is like live demonstration, product launches, touch and feel of the product, networking opportunities, etc., all further foster sales.

In its Ninth year, IFTEX has gotten an acceptance in it's role in promoting trade in the sector. This was assured the moment buyers accepted to come in. It was not the same anymore and may never be the same.

What has followed was a number of buyers increasing every year. The advent has seen a new development to further enhance the productivity of IFTEX; suppliers into the industry have joined in and are increasing by year. The step has catapulted IFTEX to the new levels of excellence. It can now be counted among the major flower trade shows in the world.

Among other benefits, IFTEX provides growers and buyers a face to face meeting point, which is seen as a perfect cost effective means for achieving trade objectives. According to Mr. Shiraz of Agrichem Africa Ltd, "The scope of exhibition becomes more important as face to face meetings with target audience provide an opportunity for businesses to meet new buyers in person and also renew their contracts with existing buyers."



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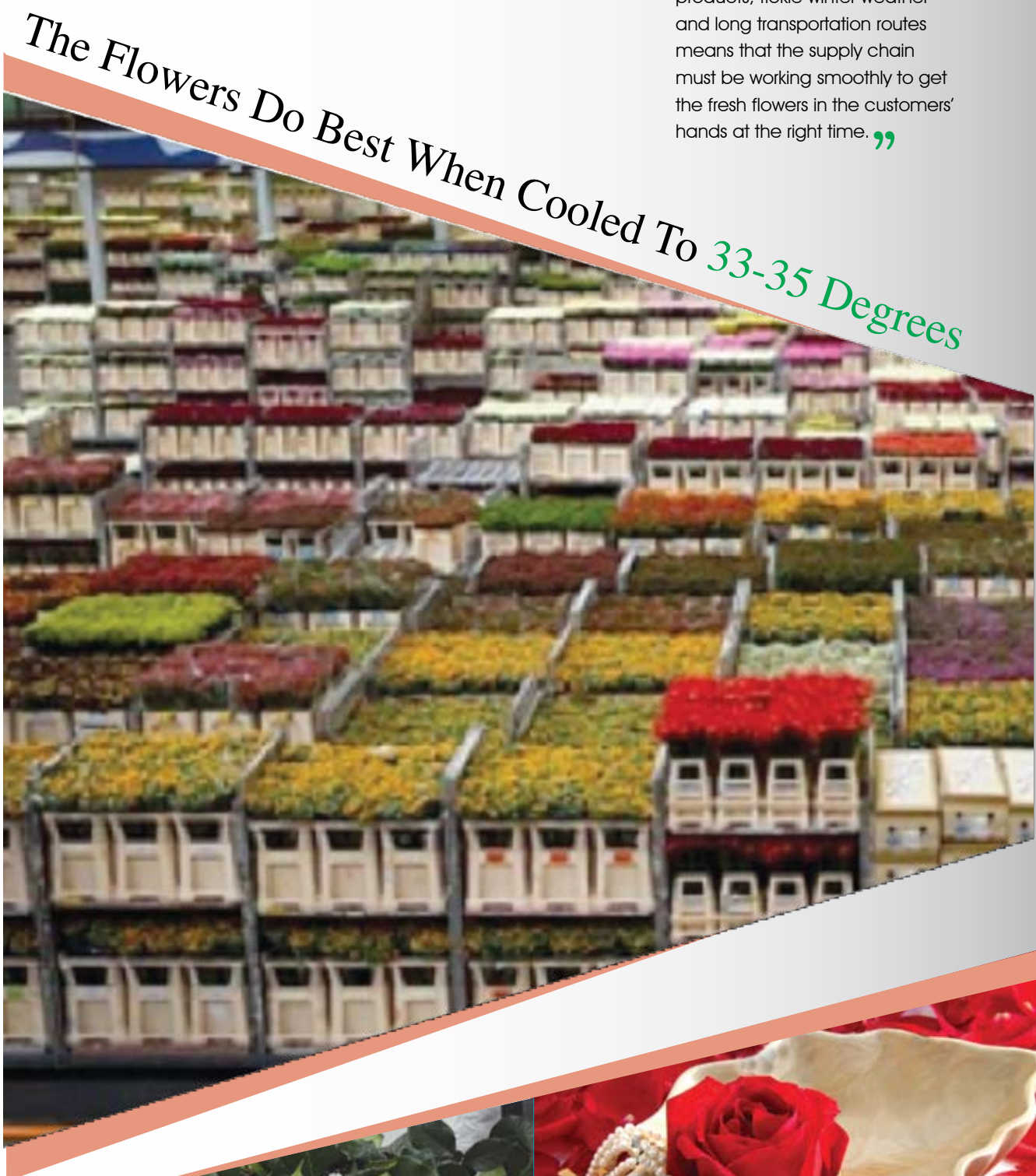
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“ High volume, perishable products, fickle winter weather and long transportation routes means that the supply chain must be working smoothly to get the fresh flowers in the customers’ hands at the right time. ”



# The Hidden Supply Chain

## Behind Valentine's Day Flowers

**T**his year's Valentines Day and mother's Day million's of consumer's bought flowers. It's peak for florists, anticipating to bring billions of dollars to the floral market.

While it's easy for customers to pick up flowers at the local grocery store, florist shop or to seamlessly order arrangements online, not surprisingly there's up to a year of forecasting and planning for what one representative from online flower delivery company calls a "last-minute holiday."

Don't underestimate the importance of these days to the floral industry. The biggest floral holidays are Valentine's Day and Mother's Day, but Valentine's Day is a big percentage of yearly sales.

High volume, perishable products, fickle winter weather and long transportation routes means that the supply chain must be working smoothly to get the fresh flowers in the customers' hands at the right time.

### The cold chain

Lovebirds around the world can thank the cold chain for allowing them to adorn their tables with blooming buds every February, and actually all year round.

That's because most of the flowers sold come from abroad. The main domestic floral producers, accounts for only a

small percentage of the flowers, though these flowers too must be maintained in the proper environment for quality purposes. The rest of the flowers primarily come from South America and Africa.

The main flower hubs and international Airports in Europe and America see the entry for planes full of flowers. These stems are stored in refrigerated rooms at the airport before hopefully moving via refrigerated truck or plane to other parts of the country, with some going directly to consumers

Flowers then transported to regional airports are ideally moved quickly



### From Page 21

to a refrigerated distribution center. Here, they're sometimes made into arrangements or bouquets and sent out directly to the consumer, or they go to the florist's refrigerator before local delivery.

The longer the flowers remain in a cooled area, the longer they'll survive. Flowers do best when cooled to 33-35 degrees at the grower's site, and maintained around that temperature during their entire journey through the cold chain, starting with the truck ride from the grower to the local airport.

Unfortunately, not all regional airports, domestic airplanes or regional wholesalers have that refrigeration. A cold chain interruption can cause a 30-40% loss of vase life for the flowers, even if they're put back into a cold environment.

#### The Valentine's Day timeline

Most distributors have a long lead time for the flowers and containers, with some ordered nine months to a year ahead. "For the hot selling items, we want to make sure we secured those for next year, like containers and vases that go into these arrangements," said a florist.

Most distributors start putting together their partner marketing materials three to six months before peak, they start talking to florists about their Valentine's Day orders a few months ahead. They'll discuss the type and quantity of flowers each florist may need for a productive holiday.

The day after Christmas, some wholesalers send price lists for valentine to retailers, along with their prior year's orders for planning purposes. They send their supply list to the growers in mid-January, for arrival starting February 1.

#### Supply Chain Dive

The week before peak is crunch time. The florists start "greening up" a few days before the holiday. They're premaking bouquets with the greenery in them. The florists are also planning out delivery logistics, checking their order numbers, delivery zip codes and routes. They may also hire extra drivers. This is done in advance so the florist has the arrangements ready to go at the right time. For same-day orders, florists need to check current inventory as well as driver and arranging capacity before agreeing to an order.

The arrangements are filled with the flowers a day or two before Valentine's Day. Some florists offer a discount for February 13 delivery, to spread them out.

#### The floral timeline and forecasting

Growers start growing the roses a year ahead of time. Roses are the biggest seller, with 63% of floral purchases including red roses.

And even though planning starts a year in advance, Valentine's Day is a last-minute holiday. That's because most of the orders come from men, who tend to delay making their flower plans. Typically, consumers are 60-65% women for most floral ordering.

Minimizing variability makes the florists' job easier, and there's less excess product. Some distributors have proactively slimmed down the number of designed arrangements. For Valentine's Day, which is different than most other holidays, most consumers stick with reds, pinks and sometimes whites. This helps the florist ensure they're not stocking up on colors or varieties that won't sell. Consumers can still choose a custom bouquet, but if it's the florists' design, the florist will likely use the same types of flowers as the other arrangements.

To forecast the orders, distributors look at year-over-year data as well as the day of the week that Valentine's Day falls. "Unfortunately

for data purposes, Valentine's Day orders are dictated by the day of the week. Additionally, the number of people ordering flowers on a mobile device or tablet is exploding so comparative data is more difficult to obtain.

When Valentine's Day is on a weekend, then the inventory a florist needs will go down, as men are more likely to take their partners out to dinner or another activity. On a weekday, every woman in my office and most offices, wants those bouquets planted on their desk for everyone to see. They want to see who has the biggest arrangement. Florists get more orders when Valentines' Day falls on Tuesdays through Fridays.

#### Supply Chain Dive

Another factor in the flower planning forecast: the weather. If a snowstorm is predicted for Valentine's Day, even stores with heavy foot traffic will pull back on inventory.

#### Keeping the flowers fresh

There's usually a 10-day span from arrival at the floral warehouse to customer delivery, and roughly a 24-day period from the grower to the customer. It's a long process, and the way the stems are cut and packed, along with refrigeration is what allows them to have the long life. Once they're put into water, they start to bloom, but they also start to die.

The stems can initially be left dry, and they're usually not shipped in water. Not only does it take more resources to ship flowers in water, but the blooming and dying process quickens. Florists start putting them in water about seven days after they're cut.

The entire cold chain process means nothing if the flowers quickly die or don't look good. The Valentine's Day flowers on this holiday of love should last two to three weeks at customer level. If not, perhaps there was a lapse somewhere in that cold chain.





# MAGNAR

## Water Solutions



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## Together with members, making production and the market place more sustainable

"I prefer to speak of sustainable development rather than sustainability. That suggests a proactive and lasting approach. Sustainability is not just the latest craze." These are the words of Sustainability Program Manager at Royal FloraHolland, one of the accelerators of the Floriculture Sustainability Initiative (FSI).

**“F**ortunately, people are increasingly realizing that the earth is not an infinite source of raw materials. Or a bottomless pit. We must do everything in our power to manage people and the environment as sustainably as possible.”

For Royal FloraHolland, sustainable development means close cooperation between the company, the members of the cooperative and the (chain) partners in the floriculture industry. “17 Sustainable Development Goals have been set on a global level. We are examining which goals are important to us and in which areas we have an influence. We are working together with our members on this. The Members’ Council is the logical place to discuss this, prior to discussing it externally.”

### **Creating Structure**

Royal FloraHolland has noticed that people often consider sustainability to be a container concept. “It is important to clearly identify the themes that are important for our sector. That is why we have mapped out these themes in recent months, creating structure. It is essential for Royal FloraHolland to realize and maintain sustainable production and a sustainable marketplace.” Royal FloraHolland gives concrete examples of the activities the company and its members currently want to prioritize. “We are urging members to start working with digital environmental registration and certification. And we want to reduce single-use packaging. We do this together with the Sustainability Leading Team (which consists of members) and through member consultations.”

### **Recognized Certification**

FSI is the leading initiative within the international floriculture industry with regard to sustainability. It was established by the sector and currently has more than 50 members. “As an accelerator, we are working together to set the standard for sustainable production and trade. This is now mainly linked to an FSI-recognized certificate. That is why we are encouraging our members to go along with the market demands.” Royal FloraHolland has noticed an increase in the supply of certified products. “For Dutch growers, a MPS-GAP or Global G.A.P. certificate is currently the best choice. It is a misconception that members must be members of FSI in order to be certified.”

### **Respect for people and the environment**

Royal FloraHolland is currently working on making certificates more visible in Floriday and thus in the sales channels. “This offers growers an opportunity to market themselves and distinguish themselves. It also allows customers to buy more efficiently.” Together with FSI, the accelerators want to respond to pressing issues and recruit more members. “With more members there is more support and there is more pressure on the end customer to make the same demands. We must also be transparent towards the consumer and show where our flowers and plants come from. In particular, we must demonstrate that they have been produced with respect for people and planet. In this way we contribute positively to the reputation of the sector so that everyone can continue to enjoy beautiful flowers and plants.”



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As flowers lose water through small pores in their leaves called stomata, they actively pull water up their stems.



## Six Steps to Hydration Success

Flowers contain a waterway system (xylem) consisting of capillaries. These capillaries act like straws that carry water and nutrients throughout the flower. This important process is called “hydration.” You can’t underestimate the value of proper hydration to the life of fresh cut flowers. A flower dehydrated during postharvest shipping needs a jump-start of water and nutrients. It’s a process with many moving parts! So, to help you achieve optimal results, consider the following care and handling advice:

### Sanitation

The importance of cleanliness is often underestimated. Research has shown that dirty buckets can reduce the vase life of a rose by up to 20%. Make sure that everything – buckets, cutters, coolers, benches, and so on – is cleaned with an approved disinfectant cleaner.

### Variety knowledge

Varieties differ! Not all red roses, for example, enjoy the same vase life. Some bloom differently, and some may absorb water and nutrition differently. The consumer typically has no clue, but the consequences of buying the “wrong” flower that fails to meet expectations are well known: customer dissatisfaction, loss of business, and negative word of mouth. So, familiarize yourself with the characteristics of the flowers you offer, hydrate accordingly, and educate your customers on proper hydration practices.

### Jump start

The hydration process will be interrupted if the flower’s capillaries become blocked, accelerating flower death. Blockages can occur due to microbial growth from poor sanitation and the formation of air bubbles due to environmental stresses like high temperatures, low humidity, and lack of water.

To help prime the flower stem to maximize solution uptake and keep flower stems free flowing, jump start the hydration process by dipping flowers for one second in an hydrating treatment. Place 2 inches (about 5 to 6CM) of the solution in the bottom of



a container.

### **Nutrition and proper dosing**

Most post harvest companies offer a variety of flower foods suitable for different flowers and applications. The importance of flower food is well documented. It gives flowers the nutrients they need, discouraging bent neck, and promoting bud opening. Proper flower food dosing is critical in order for flowers to receive these benefits. Too little flower food will not sufficiently lower the pH in the solution, resulting in decreased flower life. Too much can be toxic and reduce vase life. Read the label and properly mix hydrating treatments and flower food solutions.

### **Temperature management**

The water temperature in your solution also affects development and vase life. A warmer solution promotes bud opening, but also hastens flower death. For longer lasting flowers, a chilled flower food solution is recommended. The flower will receive proper nourishment and hydration while the cooler solution slows down the flower's metabolism and life cycle. In general, keep properly hydrated flowers in a 34-38°F cooler, at 75-85% humidity and with adequate air flow (though not directly exposed to air currents.)

### **Finishing spray**

As flowers lose water through small pores in their leaves called stomata, they actively pull water up their stems. This ongoing process of "transpiration" controls the water balance in the flower, and it's taxing! You can help your flowers effectively maintain their water balance by applying finishing sprays. These lock in moisture, reduce water loss and help extend vase life.

### **A system of care that begins with hydration**

Sanitation, proper dosing, and temperature management... each of these interact with hydration, and directly affect vase life. Each is a vital part of creating and maintaining an environment for long-lasting flowers. But you can do it successfully with the right tools, protocols and advice. Satisfied customers and repeat business will be your reward!



To help prime the flower stem to maximize solution uptake and keep flower stems free flowing, jump start the hydration process by dipping flowers for one second in an hydrating treatment.



# FCM: Deadly Pest Causing Havoc.



It is the dream of every farmer to export their produce for higher returns. However, many face phytosanitary and technical challenges that lead to rejection of their produce by exporters.

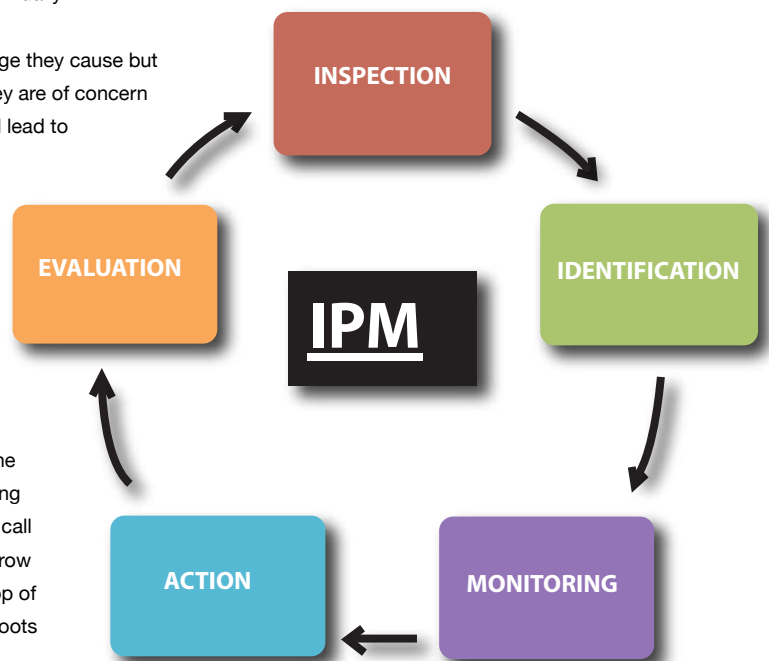
For some time now, Kenya Plant Health Inspectorate Services (Kephis) has been sensitising farmers on what is needed in the export market. James Wahome, General Manager, Phytosanitary Services at Kephis spoke of one pest, False Codling Moth (*Thaumatotibia leucotreta*) that can stop farmers from exporting their produce.

False codling moth (FCM) hit flowers by close to 10% which led to some interceptions in the market, tainting the image of the country. KEPHIS have urged all growers to adopt more traps to ensure mass trappings of pests which are climate oriented. The players in the industry resolved to involve IPMs manufacturing companies when dealing with specific markets that are sensitive to various pests.

This is a major pest, because the larvae of the moth feeds on a wide range of rose varieties. Lately it is also becoming an issue in in gypsophilla. The brown insect originated from Sub-Saharan Africa, but has also been detected in Europe and US. It thrives under warm and humid conditions and can produce up to five generations annually.

These pests are not only a concern due to economic damage they cause but also giving growers sleepless nights due to the fact that they are of concern to phytosanitary bodies and that detection on shipment will lead to interception hence leading to greater losses. Demand by market to reduce pesticide use of flower leaves growers with limited options for moth control too.

For effective control of these pests, the grower needs to understand their identification and behaviour. When it was first noted in roses, growers gave it different names as they were not sure of the enemy. It is observed to cause damage on the flower bud where the larva enters into the bud leaving behind its frass covering the entry hole on the outside. It then burrows downwards feeding on the inside of the stem hence misleading the observer to call it "stalk borer". On the cut point it is noted to enter and burrow inside leaving tiny particles of the stem content pilling on top of the cut point, as such the cut point dries up and no new shoots can be realized from such infested points-damaging!



### Identification and Management of False Codling Moth (FCM)

False codling moth which bears the scientific name; *Thaumatotibia leucotreta* and also known as (Citrus codling moth, orange codling moth and orange moth) is a plant pest which attacks many horticultural crops in many parts of the world today. FCM has been listed as the most harmful organism with its many species being listed for quarantine pests.

The pest grows through five stages (Egg- Larva- Pupa-Adult). The most common hosts of FCM are; citrus, avocados, capsicum, corn, sorghum among others, it is estimated that FCM grows in more than 35 species of cultivated plants and more than 48 species of wild plants.

#### Life Stages

FCM lays small eggs which are invisible to the eyes with a diameter of 1mm and flat oval in shape, they lay eggs on the bud (fruit). FCM normally lay between 5 pm to 11 p.m. The period of hatching ranges between 2 to 22 days. The hatched larvae live for 12 to 65 days depending on the weather conditions. Upon maturity they exit the fruit and drop to the ground on silken threads.

During the larva stage, the pest would attack the crop from where it will bore a hole while feeding and dwelling in it till it pupates where it will gradually spiral down with to the ground. Initially, the female moth lays eggs on the crop surface where they hatch after six days. Once they have hatched they start feeding on the crop. "The female lays eggs where the crop is so as to enable the larvae find food easily.

During its metamorphosis, the FCM larvae bore the crop thus destroying it completely. The larvae are categorized into different instars according to their lengths. According to a crop protection expert, the first four instars are white in colour but this changes to pink with a distinctive black head capsule. The FCM is most destructive at the larval stage.

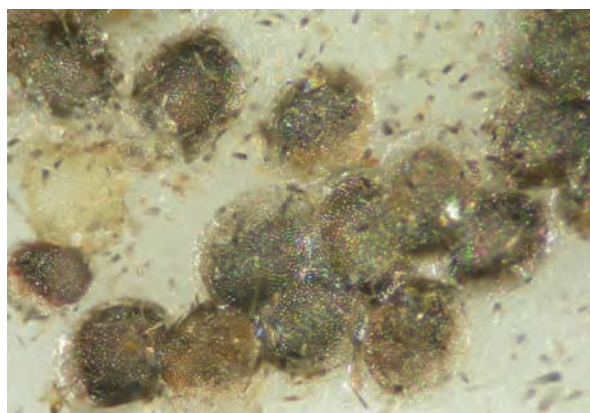


Pupal stage is dependent on temperature and gender regulation for instance warmer conditions are ideal to a quicker emergence, males mature within 13-48 days and females take 11-40 days.

#### Identification

It is hard to identify the pest during the egg stage because of its invisibility. Once hatched the larvae burrow into the rind of the fruit. A discoloration appears at the point of entrance, while inside they tend to feed on the pulp, causing premature ripening and fruit drop.

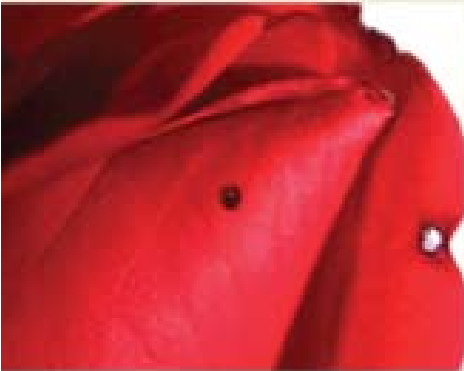
FCM in roses are identified from any occurrence of small holes in petals. Once the pest is in larvae stage, it goes straight to the center of the bud



#### Management and Control

The management process of citrus moth (FCM) normally goes through the following processes; Identification- monitoring- action- evaluation- inspection. To be able to manage pests well, the following management practices should be adhered to; reduction of pests to an acceptable threshold and pest eradication. Acceptable threshold simply means eradication of pests to an economically justifiable number; this is so because continuous application of any preventive measures would be effective from this point. Pest eradication entails complete removal of pests. The most viable strategies to manage pest include; avoidance of pests, early detection and curative measures.

## FCM SYMPTOMS



Symptom FCM: one small hole in the petal; the larva bores straight to the center of the bud immediately after hatching.

Symptom cotton bollworm: several small holes in petals, later larva bores into the bud.



### From Page 33

Managing the pest isn't easy since they are nocturnal so they can only be detected through trapping using the lures. To monitor the pests, traps are placed about five metres from the growing areas which form the inner buffer zone. However, once the presence of the pest is noted to be too high inside the traps, control through mass trapping or chemical interventions should be applied.

Maintaining high-level of hygiene is also critical in insect and pest management.

All the same, there are other ways in which the FCM pest can still be controlled. One of them is by mating disruption. Unlike in the Mass trapping where you target the males by trapping, here you confuse the males. The strategy here is to use the same substance that mimics the pheromone by smearing it on different locations thus confusing the males. In the end they will not be able to mate.

Equally important is the fact that these methods do not ultimately do away with spraying, rather a farmer should integrate both methods. Trapping the FCM will help you reduce the amount of sprays you use as we have found that it reduces the pests by over 70%.

Once hatched from the eggs, the larvae burrows into the bud. A discolouration appears at the point of entrance. While inside they feed on the pulp.

Eric Ogumo, a crop protection expert, says that over the last two years, the pest incidence has increased due to the changing weather patterns. "Although it has been around, FCM is now classified as an emerging pest because it is affecting exports from Kenya," he said, adding that the pest has also shifted to rose flowers causing major losses to growers.

### Avoidance of Pests

This can be made possible through use

of physical barriers like insect proof nets, provision and use of double doors for greenhouse units, paying attention to sanitation and cultural practices which works well for your farm, inspection of seedlings or any other planting materials upon arrival, balanced use of fertilizer, pruning and taking quarantine actions.

### Early Detection

Early detection can be achieved when a farm regularly practice scouting and monitoring of its crops to assess and inspect the plants against FCM infestation. Performance of timely scouting and monitoring makes it possible to detect situations where pests are absent or present at low levels. This method of pests' management helps the grower to prevent extensive damage of crops and avoidance of unnecessary application thus minimizing expenses in the farm.

**Scouting:** This identifies the pests, its location and evaluates the extent of damage

while analyzing the effectiveness of previous treatments.

**Monitoring-** This process can be performed through the use of attractants; use of sticky cards and pheromone traps (emits pheromone, which attracts male moths hence get caught in a sticky surface). Monitoring is really vital since FCM lays eggs at different places which makes it difficult to detect, they are also nocturnal, and entry of larvae to the fruit/stem at many stages also makes it difficult to detect thus the need for monitoring. This process gives the advantage against other methods especially when it comes to Moths.

#### Curative Measures

There are four curative measures namely; biological control, chemical control, insect growth regulators and cultural control.

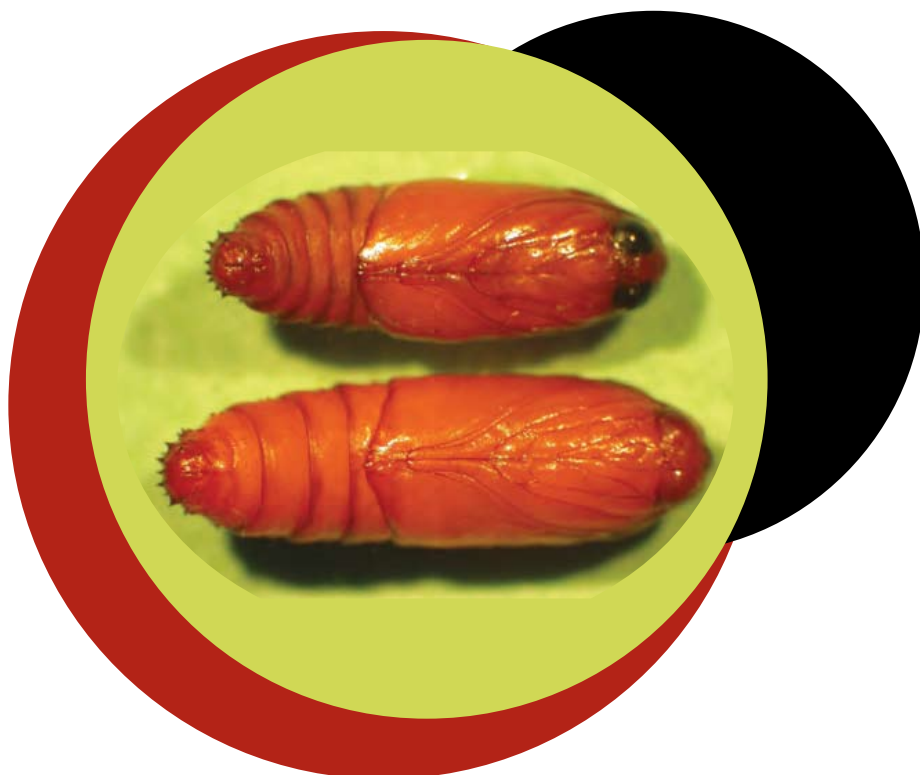
#### Biological control

This can be achieved through the use of pathogens, parasitoids, parasites, predators and bio pesticides. These biological control agents are either naturally or commercially available.

#### Chemical Control

It is important to pay close attention to the right PHI (Pre Harvest Interval) to avoid harvesting crops with chemical residues. It is also ideal to know the Maximum Residue Levels (MRL) recommended and legally allowed by the regulator, consider environment safety, and resistance of pests should be necessary to practicing a good chemical control approach.

It is good to note that chemical control is the most commonly misused pest management strategy especially when it comes to FCM and this has led to pest resistance in most cases. The most common practice with chemical control is use of insecticides with more benefits for instance, less toxic to human and increased pests' efficacy. The use of systemic insecticides which move through the phloem or xylem can be toxic to phloem feeding insects. Examples of neonicotinoids which



translocate through the phloem are; Thiamethoxam, Imidacloprid and Clothianidin. In order to overcome pest resistance the grower should avoid tank mixing, practice pests' monitoring, avoid the use of persistent chemicals, use chemicals with different modes of actions, practice long term rotation of crops where necessary and using the most effective chemicals at the time of the year.

#### Insect Growth Regulators

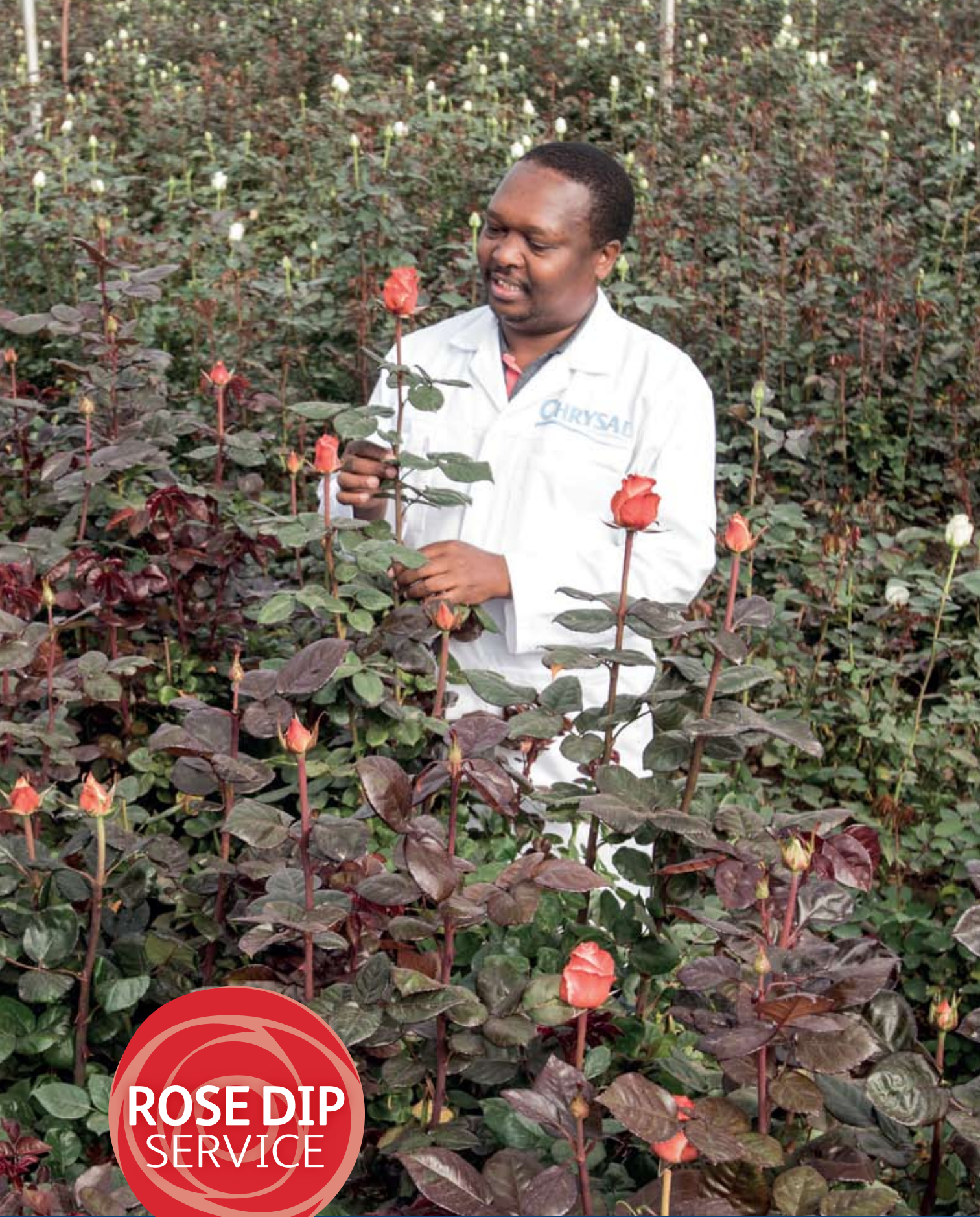
They are less toxic and they kill insects by disrupting their development process. Their complex mode of actions prevents any resistance occurring from the pests. Prevention of insects from entering their reproductive stage blocks any growth and spreading of pests into the plant tissues.

#### Cultural Control

Whatever cultural practices common in your farm should be exercised consistently. The most common practices are; proper disposal of rejected produce, removal of infested and old flower buds, deep ploughing, removal of alternate hosts, crop rotation, use of trap plants and paying close attention to farm sanitation

#### Conclusion

You are advised to identify the most susceptible varieties at the production site, varieties where breeding of the individual hosts occur, use pest management approach which targets at least two developmental stages of FCM, be up to date with what is happening in the surrounding environment. Also refer to the PCPB list of the approved products for FCM.



**ROSE DIP  
SERVICE**

Keeps your roses Botrytis free • Enhances colours • Longer vase life

# Would you like to have better flowers and increase profit?

**Chrysal Rose Dip; beautiful roses and low wastage.** Every grower wants to ensure beautiful flowers and low wastage. However, according to a study by Innovative Fresh, the amount of waste caused by Botrytis in supermarkets is on average 12%. Waste also occurs at the farm, during transport and at the final customer. The total cost of Botrytis damage amounts to millions of Euro's.

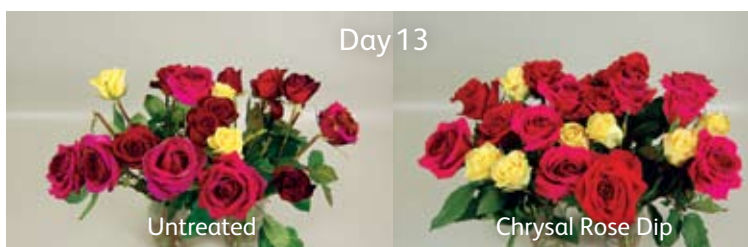
## What is Botrytis?

Botrytis cinerea (grey mould) is a fungus which causes a loss of quality in flowers like Rosa, Chrysanthemum, Gerbera and Lisianthus. The place of origin, season, hygiene during processing and storage, weather conditions and climate control play an important role in the appearance and development of Botrytis. The fungus thrives on both living and dead plant materials. The infection starts when miniscule little mould spores, spread through the air. Starting as a little white speck ('pock') on the flower petals, it spreads right to the bottom of the flower. It gradually changes its colour to brown and finally all the petals fall off. Unfortunately Botrytis is an irreversible condition. Whilst infected flower petals are often removed by hand, there can be no guarantees that the fungal infection has not already damaged the rest of the petals. Throwing the flower away is the only remedy to prevent further infection.

## Keeping your flowers Botrytis free with Chrysal

Chrysal now has the perfect solution to this problem and is introducing a new unique concept, Chrysal Rose Dip. Rose Dip is extremely effective against Botrytis and

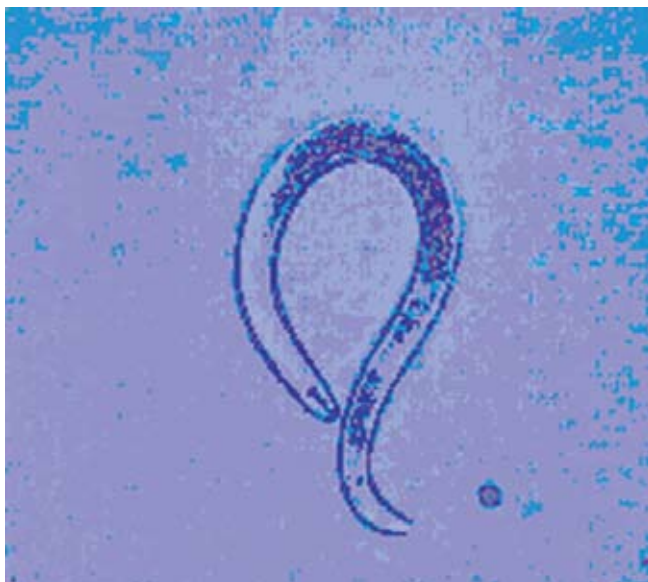
helps growers to keep their beautiful roses, fresher longer, full of colour and free of Botrytis. Chrysal offers a unique service in which the entire process of dipping the flowers locally at the grower after bunching is monitored by a Chrysal specialist. So the best results are guaranteed and the grower does not need to worry about the correct application and dosing.



Chrysal Rose Dip is the only registered anti-Botrytis product, making it safe to use and up to 95% effective against Botrytis.

Rose Dip is extremely effective at controlling Botrytis in the entire flower chain, making long transport possible, by reducing their vulnerability during the challenges of transportation. The application of Chrysal Rose Dip also enhances the colours, slows down the opening of the flowers and thus increase vase life. Growers can save costs while improving their quality. It's an all-round winner; happy grower, happy retailer, happy customer and happy roses!

# Kenya: Pest Control to Boost Yields Without Eu Residue Risk

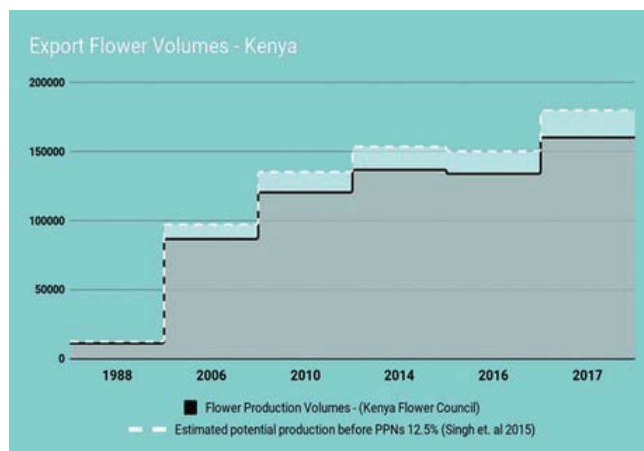


Nematodes are tiny unsegmented roundworms which grow up to 5 mm in length and move through the soil in a film of water. The most economically devastating species is the Root Knot nematode (*Meloidygene* spp.), which reduces yield and quality by damaging the plant's root system, restricting the uptake of nutrients and water. According to Singh et al. (2015), PPNs cause annual global yield losses of 12.3% equating to US\$157bn. According to the Horticultural Crop Directorate (HCD), Kenya's rapidly growing floriculture industry earned US\$823m in 2017, up nearly 20% from the previous year. By assuming 12.3% yield losses, Kenya lost an estimated US\$101m in potential export earnings due to PPNs from the floriculture industry alone.

**D**udutech has announced the launch in Kenya of NEMguard SC to control the country's most financially damaging crop pest with zero risk of triggering crop rejections by European Union importers on residues. NEMguard SC is lethal to plant parasitic nematodes (PPNs), but has been classified as having no harmful effects on humans, animals, or the environment, which means it does not appear on the MRL (Maximum Residue Limit) list regulating ingredients growers can use on exported crops.

NEMguard SC contains a formulation of plant-based allicin and selected polysulphides, which are lethal to PPNs when they are absorbed but are safe to users. In 2008, NEMguard SC was included on Annex I of EU directive 91/414/EEC since they do not cause any harmful effects on humans, animals, groundwater or the environment.

As such, NEMguard SC takes its position in pest management regimens as a safer alternative to the routinely used Class IV nematicides which are potentially harmful to crop workers and consumers alike. Furthermore, growers who export to the EU will benefit from using NEMguard SC as the residues do not appear on the MRL (Maximum Residue Limit) list which regulates the active ingredients growers can use should they wish to export their crops.



According to Barnaba Rotich, Head of Commercial at Dudutech, "by registering NEMguard SC in Kenya, Dudutech has allowed farmers to strategically harness its benefits in their crop protection plan to improve their overall sustainability profile, output and the safety and quality of their produce."

"Although the product has been labelled for use on roses and french beans, Dudutech has expressed keen interest in extending the label to other key crops. Available data indicates that Nemguard effectively reduces populations of plant parasitic nematodes on Tomatoes and Carrots amongst other agricultural crops. NEMguard SC also effectively reduces cabbage root fly in brassicas," Jack Adundo, Technical Manager, Dudutech, added.





## DSV to Acquire Panalpina; Strengthens European Logistics Sector

**D**anish logistics company DSV has agreed to buy Swiss rival Panalpina in a deal worth \$4.6 billion, creating a leading global transport and logistics company with significant growth opportunities and potential for value creation. Following completion, DSV will propose to its shareholders, to change its name to 'DSV Panalpina A/S', which reflects the long, rich history of both the companies.

The deal ends months after the speculation about Panalpina's talks with Agility on strategic opportunities with regard to their respective logistics businesses. On the other hand, Panalpina minority shareholders, including Cevian Capital AB and Artisan Partners went public with comments in favour of a DSV takeover, adding pressure on Panalpina's management and the foundation. On April 1, both investors backed the offer, the companies stated.

Peter Ulber, chairman of the board of Panalpina, commented, "The board of director's assessment is that the updated proposal of DSV is very attractive. It is recognising the quality of Panalpina's employees, the company's strong position as one of the world's leading providers of supply chain solutions, and its special competencies and know-how in air and ocean freight. The board of directors recommends Panalpina's shareholders to accept the offer. Our customers will be able to benefit from a stronger network and service offering as well as new competencies and skills. Talks with Agility have been discontinued."

DSV has a long and successful track record of partnering with companies, and the combined business will be exceptionally well positioned for future growth.

Kurt Larsen, chairman of the board of DSV, added, "A combination of DSV and Panalpina further strengthens our position as a leading global freight forwarding company. Together, we can present a strong global network and enhanced service offering to our clients, further solidifying our competitive edge in the industry. It's a great match on all parameters. Panalpina is a great company and we're very excited by this possibility to join forces and to welcome Panalpina's talented staff."

In January, DSV made an initial 170 Swiss franc stock-and-cash offer for Panalpina, before sweetening its initial bid to an all-cash 180 Swiss francs per share a month later. The approach to Panalpina comes just months after CEVA Logistics in October 2018, rejected DSV's \$1.55 billion proposals and subsequently deepened ties with French shipper CMA CGM.

DSV's largest shareholder will be Ernst Göhner Foundation, which currently holds Panalpina's 46percent stake. Thomas A. Gutzwiller, the member of the board of trustees and chairman of the independent Panalpina Committee of Ernst Göhner Foundation, said, "In view of the ongoing industry consolidation and resulting opportunities and risks, we have carefully considered various options for Panalpina with an open mind. Our trustees unanimously concluded that the proposed combination

under the umbrella of DSV provides the best opportunities for Panalpina to meet future market challenges from a position of strength and to create value for all stakeholders.

As an entrepreneurial foundation with a philanthropic purpose, we feel very comfortable with the announced solution both in terms of quality and security as well as earnings potential. In this spirit of continuity, Ernst Göhner Foundation looks forward to supporting DSV Panalpina as the largest shareholder."

The combination with Panalpina is expected to increase DSV's annual revenue by close to 50 percent, which will rank the combined companies in the industry top four with a proforma revenue of approximately DKK 118 billion and a combined workforce of more than 60,000 employees. The combined company will have own operations in more than 90 countries.

At the same time, the air & sea division will be substantially strengthened and will be among the largest providers globally with close to 3 million containers (TEU's) and more than 1.5 million tonnes of air freight transported yearly. Contract logistics capabilities are increasingly important due to complex supply chains and changing distribution channels. The solutions division will be strengthened and Panalpina will bring additional warehousing capacity of more than 500,000 square metres.

# Critical Issues In Plant Nutrition In Floriculture



*In my line of work I visit hundreds of flower farms a year; the flourishing, the ticking over, and the ones in dire straits. A lot of my hard work is dealing with farms that suddenly run into problems. "Ruth, please come and visit our farm as soon as possible, our production has suddenly dropped to half" is a common call..*

**By Ruth Vaughan**

My advice to flower farmers on the critical issues in plant nutrition in floriculture would be as follows:-

## **Start With The Basics**

Start with the basics and know what you are dealing with. A solid 'risk' assessment before you even buy the farm is recommended. Dig soil pits to look for soil layers, compaction zones, soil depth, underground water or solid rock. Is the soil type even across the farm? Where does the water go when it rains? Does it hail in this area? What are the day/night temperatures and what is the annual rainfall? Look at the aspect and slope of the farm, will you need special drip lines? Do a complete soil analysis, nematode count, pathology screen and irrigation water analysis. Now you know what you are dealing with and can work out the economics. It's better to get a shock now than after your investment.

## **Know Your Soil**

Before planting in the soil, balance the cations with the soil recommendations from the complete soil analysis and add organic matter, deep rip the soil to break up compaction zones, do not turn the luscious topsoil over and bury it.

This will hold you in good stead further on down the line, when your beginner's luck is over. Buy a fertigation system that can handle your water volumes and your water quality. Plan a proper irrigation program based on the plant size, plant type and production. Take quarterly samples for a 1:2 soil grown flowers analysis so that you know what's happening in the soil and can deal with it before it becomes a problem. Back this up with some leaf analysis to make sure there is no 'hidden hunger' in the crop limiting your production. Identify problems early before they hit your bank balance.

## **Media, Nematode & Pathogen Analysis**

Before planting in media do a media analysis, nematode count and pathogen screen. The nice certificate of testing that comes with your coco-peat does not account for the conditions the coco-peat has traveled or been stored in. The fine pumice or gravel from your neighbour's quarry could have toxic salts, silts and nematodes.

Do bi-annual nematode counts. You can't see nematodes with the naked eye, and by the time your plants go yellow, you will have lost much of your production and quality. It is also easier, cheaper and more environmentally friendly to treat low nematode levels. Once levels get out of control you have to resort to the big guns, in the red and orange zones of your audit guidelines. Nematodes severely affect plant nutrition.

## **Know Your Water**

Water testing is crucial. Borehole water tends to have a more constant quality and tests are advised twice a year. Surface water quality can vary dramatically depending on rainfall and evaporation. Rain water

is best – plan to catch as much of this as possible. Water quality has a major impact on your plant production and health and the way you manage your irrigation.

Water can have high sodium, you might opt for a reverse osmosis system or mix with rain water to bring this down. You have to monitor the sodium levels in the soil. Plants can tick along happily with a small amount of sodium in the soil but when it reaches a critical levels you will get a rapid decline in production and plants will become very susceptible to diseases. Work with humid acids and calcium products in conjunction with leaching to flush the sodium out. If you didn't follow the initial guidelines you might find this a problem. Water saturated underground soil, bedrock, compaction layers and unbalanced cations will all impede the leaching.

#### High Bi-Carbonates In Water

Water can have high bicarbonates – these



'lock' up phosphorous and micronutrients in the soil, creating a free lime deposit that raises the pH. Once the free lime has built up in the soil, it is very hard to deal with. Much better to treat the problem at source and acidify the water. Acidification can result in an increase in nitrates from nitric acid or phosphates from phosphoric acid and the fertigation program has to be adjusted to balance these. Quarterly drip analysis will check the Electrical Conductivity (EC), pH, nutrient, and bicarbonate levels of your drip water and ensure that everything is going to

plan. On-farm daily EC and pH measurement are advised.

Many a farm has 'tripped up' due to fertigation system faults that were not picked up soon enough. High levels of carbonates (hardness), in the water may interfere with the acidification due to a buffering effect and you will find that the pH goes up after the fertigation system. If this is a hazard, then a laboratory controlled acid titration is recommended, and you may have to put a pre-acidification unit into your farm.

#### Irrigate Sensibly

Get a soil water meter, or go around the farm often with an auger to check soil moisture levels. Water you see on the surface is not what the roots see underground. Over and under watering affect nutrient uptake and production.

#### Be Aware Of Changes

Recently, Kenya has been in a major drought situation and rain water reservoirs are emptying. These are being topped up with borehole water. The reservoir water quality is changing weekly, and should be monitored through this transition period until water quality stabilizes. Borehole water may have a high pH and EC and high levels of some nutrients and toxic ions. An increase in EC means that the 'space' between water EC and the irrigation EC shrinks and you don't

get so many fertilizers on your crop. You will see a decline in production and leaf yellowing. A rapid increase in pH due to what I call "the bouncing bicarbs", can have two negative effects:

- 1) Your machine cannot handle this and high levels of bicarbonates hit the soil causing phosphate and micro-nutrient lock up.
- 2) Your machine can handle it and you suddenly have a deluge of nitrates or phosphates going into in the crop. Both

results in production collapse, soft growth and leaf drip. Some borehole water have high magnesium or potassium and if you do not adjust your feeding program, your soils will tighten up and oxygen and water infiltration will stop – again yellow leaves and leaf drop. Monitor water quality regularly and adjust your fertilizer program.

#### Take The Guess-Work Out Of Farming

Analyze, analyze, analyze. It will save you money in the long run. Plan the analysis that you need in advance and budget accordingly. Read and use your analysis results. Don't file them in the drawer until the next audit. Audits are meant to guide you and there is a reason they recommend you do these analysis! If you don't understand anything, just ask! Or get a professional consultant in.

#### Seek Independent Analysis And Advice

The man selling iron chelates will most probably find an iron problem in your crop. The man selling nematocides will always find a few nematodes that need treating. That's their job.

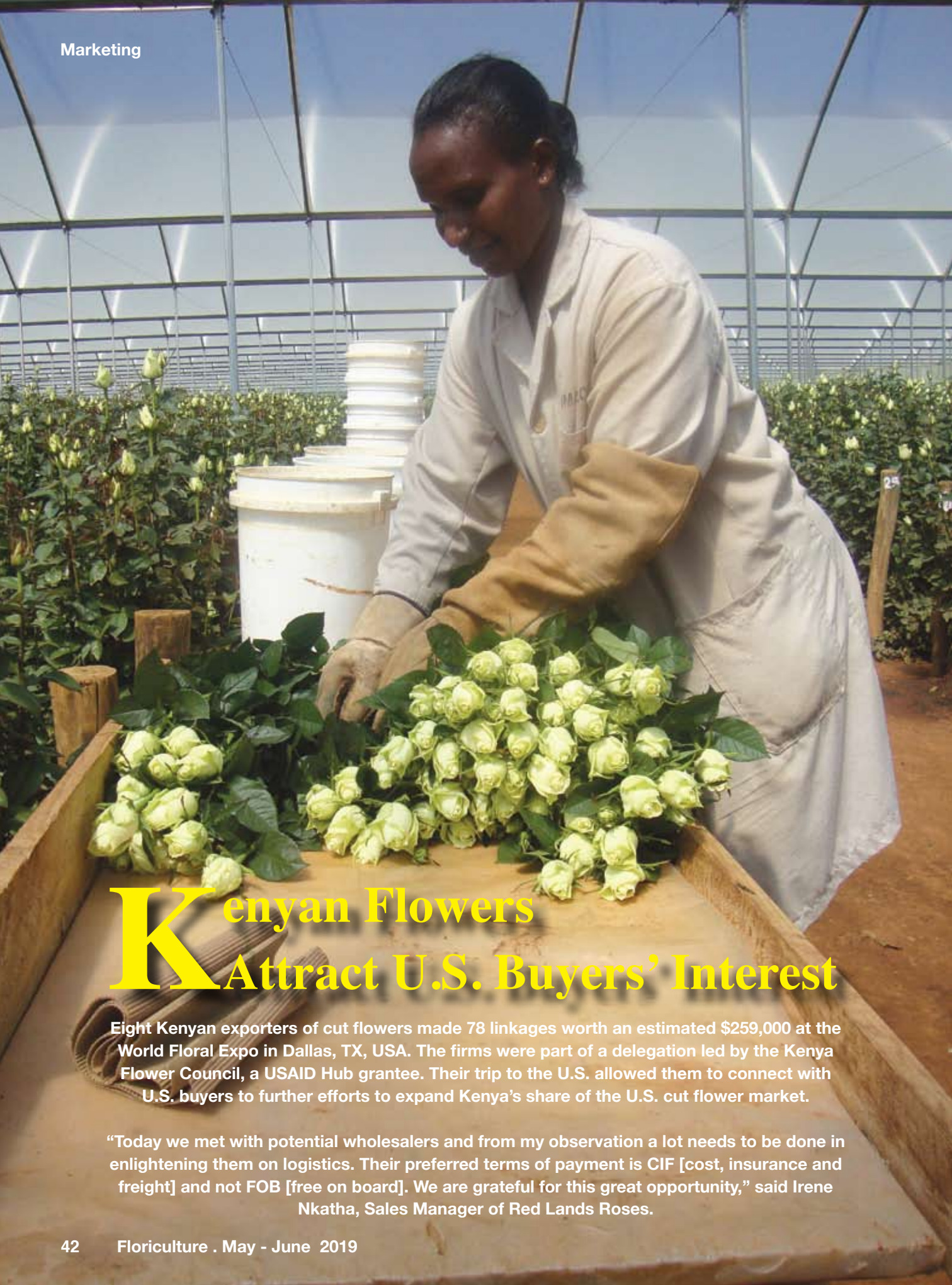
#### Read And Follow Dosing Instructions

The suppliers have done extensive tests on their products before they write the labels and go to market. A little bit of something, used properly can have a brilliant result. Don't be tempted to over-use or over apply products. I have seen some catastrophic results from product over use.

If all goes well – analyze so that you know what you are doing right and can replicate it. If all goes wrong – don't over complicate things, go back to the basics, call in the professionals, and recover faster!

#### About Ruth

**Ruth Vaughan is the Technical Director at Crop Nutrition Laboratory Services Ltd. (CROPNUTS). Ruth is also a contributing author to Kenya's leading horticulture magazines such as the HortFresh Journal, HortiNews and Floriculture. Ruth is a great believer in soil health, organic matter, biochar and carbon sequestration as a way to alleviate climate change and increase food security. Loves visiting farmers and seeing all the different farming methods**



# Kenyan Flowers Attract U.S. Buyers' Interest

Eight Kenyan exporters of cut flowers made 78 linkages worth an estimated \$259,000 at the World Floral Expo in Dallas, TX, USA. The firms were part of a delegation led by the Kenya Flower Council, a USAID Hub grantee. Their trip to the U.S. allowed them to connect with U.S. buyers to further efforts to expand Kenya's share of the U.S. cut flower market.

"Today we met with potential wholesalers and from my observation a lot needs to be done in enlightening them on logistics. Their preferred terms of payment is CIF [cost, insurance and freight] and not FOB [free on board]. We are grateful for this great opportunity," said Irene Nkatha, Sales Manager of Red Lands Roses.



**K**enya is the leading global exporter of cut roses to the European Union with a market share of 38 percent. Yet, the country only has a 1 percent market share in the U.S. where it competes against major suppliers such as Colombia and Ecuador which have lower logistics costs and shipping times. With high-quality flowers, a strong trade association and large U.S. market, however, there is an opportunity for Kenya to expand duty-free exports of flowers to the U.S. under the African Growth and Opportunity Act (AGOA).

The exporters' participation in World Floral Expo advanced recommendations in the Kenya National AGOA Strategy and Action Plan, 2018-2023, designed to increase exports in the cut flowers sector. During their trip to the U.S., Kenya Flower Council and the firms were able to gather market intelligence, establish relationships with U.S. stakeholders and raise awareness of the Kenyan flower brand – all actions that will enhance Kenya's ability to penetrate the U.S. market. Higher flower exports will also contribute to Kenya's goal of raising exports to the U.S. by 20 percent annually to reach \$744 million by 2022, while also bringing more diverse options to meet U.S. consumers' demand.

"This is a very potential market for Kenya considering the number of visitors who are serious and willing to do business with us. We look forward to having more of such opportunities since this serves as a platform to market the Kenya flower brand," said Boaz Chemweno of Mzurri Flowers.

The Hub's grant with Kenya Flower Council aims to increase Kenya's share of the U.S. market for cut flowers by December 2019. The Hub and Kenya Flower Council work together to raise cut flower exports by boosting the visibility of Kenyan flowers in the U.S. market through targeted product promotion activities and by building the capacity of exporters to meet U.S. packaging and market entry requirements.



## Production Manager Mzurrie Flowers

# Paula Koros

I believe in customer satisfaction as my driving force enhanced by having a satisfied and well trained labor force that believes in a common culture based on the company vision, mission and core values.



**We are more focused on producing high quality and unique flowers and adopting new varieties such as garden roses.**

**There is also a vibrant research and development of new varieties from the field all the way to the market with high customer satisfaction.**

**Who is Paula Koros? Describe yourself as concisely as you may.**

I'm a BSc Horticulture graduate from Egerton University currently working with Mzurrie Flowers as a production manager in Molo River Roses. I have an experience of over 13 years in the flower industry. I also hold an MBA from Kabarak University and a post-graduate diploma in Human resource besides others obtained in the course of my career growth. Over the years, i've progressed from a supervisor to senior management.

**Ladies have a natural affinity for the world of flowers, and show much greater appreciation for it than men do. Even then, very few go about establishing their careers in the flower production industry, like you have done. What spurred you to do so? Any role model or someone who inspired you?**

Joining the Horticulture industry was not my choice, I was encouraged by my dad. By then, there were few ladies due to negative thoughts about the industry and agrochemicals being used. I had a few female role models in the industry.

**How long have you been working in the sector, kindly take us through your journey to your current position.**

I've been in the flower industry for over 13 years and still looking for more successful years. After college, I joined Sian group as a trainee and started as a junior supervisor in Maji Mazuri Flowers under able mentor and trainer Mr. Raphael Mulinge as the farm manager and grew to the level of a production officer. I later joined Molo River Roses as a production manager working with a very able and strategic leadership of Mr. Andrew Wambua, the General manager, from 2012 until now where I oversee both production and pack house departments.

**Briefly discuss the challenges you go through daily? What would you point out as your strongest attribute that has made you succeed? How do you rise up to the greatest challenge that your job presents?**

Growing is a dynamic as every day has its



Dynamic and Versatile

## Personal Profile

### From Page 44

own challenges ranging from unpredictable weathers, pests and disease, production volumes and market dynamics, unstable labor force and compliance requirements. To overcome some of these challenges has been through consultation with my seniors and peers in the sector, empowerment through trainings and field visits, research and development in liason with key players such as agrochemicals developers. On top, we encourage empowerment of our staffs through trainings and field exposure so as to appreciate and learn new ideas for productivity. My strongest attribute has been working as a team which has enabled us to accomplish our mission.

### **You have quite a lot of people looking up to you as a manager. Describe how you manage expectations, as well as go about goal-setting for your staff.**

I believe in customer satisfaction as my driving force enhanced by having a satisfied and well trained labor force that believes in a common culture based on the company vision, mission and core values. This I'm able to achieve by motivating the employees through merits based on monthly assessments and annual rewards and the company taking care of their welfare. A clear communication channel and engagements has been key during setting of targets and implementation.

### **As a woman in a position of leadership, have you felt that at times, the scrutiny was much more intense during tougher times, just by virtue of being a woman? How do you respond to this? Also, do describe the challenges that you face as a woman in leadership.**

Of course. I have experienced it not once or twice. When I joined the industry, people had an attitude that a degree is just a paper. There were also very few ladies in the managerial position and the field was dominated by men and semi-skilled workers who had acquired skills through experience. Generally, I can say the scrutiny is going down as I have grown and



improved on my competence with time and looking forward to more challenges and growth opportunity.

### **Kenya is a major player in the global flower industry, what are the most prevalent challenges that get in the way of building the flower sector?**

Besides Kenya being a key player in the global flower industry, compliance with legal and market requirements, freight cost and global economic dynamics have been a major constrain to the growth of the industry. Also many farms are struggling with water sustainability which is limiting future expansion and growth.

### **Despite the country being a major player in the global flower industry, do you get the notion that at times, the Kenyan government does not accord the industry with the requisite seriousness that an industry of its size and profitability should command? If so, what can the government do to improve and offer sufficient support?**

Floriculture industry is a key source of foreign return and major employer in the agricultural sector after tea. Despite this, flower farms are viewed as business entities and lack full

support of the government. There are many regulations and certifying bodies which need to be reduced. In addition, there are many levies on agricultural inputs leading to an overall increase in the cost of inputs.

To overcome the challenge of ever rising production cost, flower industries has to restructure their ways of operation and maybe move more toward organic and biological farming to complement conventional production system and learn to work with minimal production wastes to counter the diminishing return and encourage efficiency in the sector throughout the production and supply chain.

### **What makes your farm's produce unique, and separates it from the rest?**

We are more focused on producing high quality and unique flowers and adopting new varieties such as garden roses. There is also a vibrant research and development of new varieties from the field all the way to the market with high customer satisfaction. There is also a common culture among our staffs to strive toward customer satisfaction. We also strive to ensure a socially and environmentally responsible production system.



**What are some of your choice teamwork-enhancing strategies that you apply, as a team leader?**

Enhancing team spirit is critical to performance improvement. Recognising and rewarding best performing teams on a monthly basis has been a success towards inculcating a team conscious mindset among our employees.

**Five, ten years from now, how do you see the flower sector doing? Do you have any personal projections that you would like to share?**

The flower industry will continue to bloom for those who will overcome the challenges facing the sector. However, in my opinion there is likelihood of reduced growth due to rising cost of production, strict market regulations, volatile market price, taxation, inflation and rising competition with upcoming production from

other countries, climate change and emerging pests and diseases in the coming years.

**There are some flower farms that insist on gender equality, with regard to employment opportunities, and this is perhaps easier to apply seeing as how women have a natural affinity for the flower world. Do you have a similar dynamic in place?**

Yes. Mzurrie group, is an equal employer to all genders based on merits and so far it has the good number of women in management and semi-skilled level.

**What is your preferred style of working or management? Does it in any way empower or affect the daily output of your team?**

I believe in Kaizen principle of: *"I do you see, you do I see"*, we do together approach of

doing things where everybody is empowered and involved rather than giving out pure instruction in achieving the company objectives.

I'm also open minded and have a soft spot to employees and they are able to freely interact and air their issues to the management without fear hence creating a conducive environment to work in.

**Briefly detail how you maintain balance in your life, with regards to work versus personal living, especially as a holder of what must be, at the very least, an occasionally stressful position.**

With the level of responsibilities that I have at work that requires a lot of time and personal inputs, hence this calls for a well planned Personal schedule so that I don't miss out on both work and personal family life. To achieve this, I normally plan ahead before I close the day for timely job execution which allows me to meet my daily targets on time and give room for my personal time.

**A few words of advice to young girls, and basically youths at large, who desire to eventually hold positions of leadership similar to yours when they become career people.**

My advice to young girls is, nothing comes in a silver platter. You have to grow up the ladder of success through merit and hardwork. Most of all, you must have self respect for others to respect you and have patience in whatever you do.

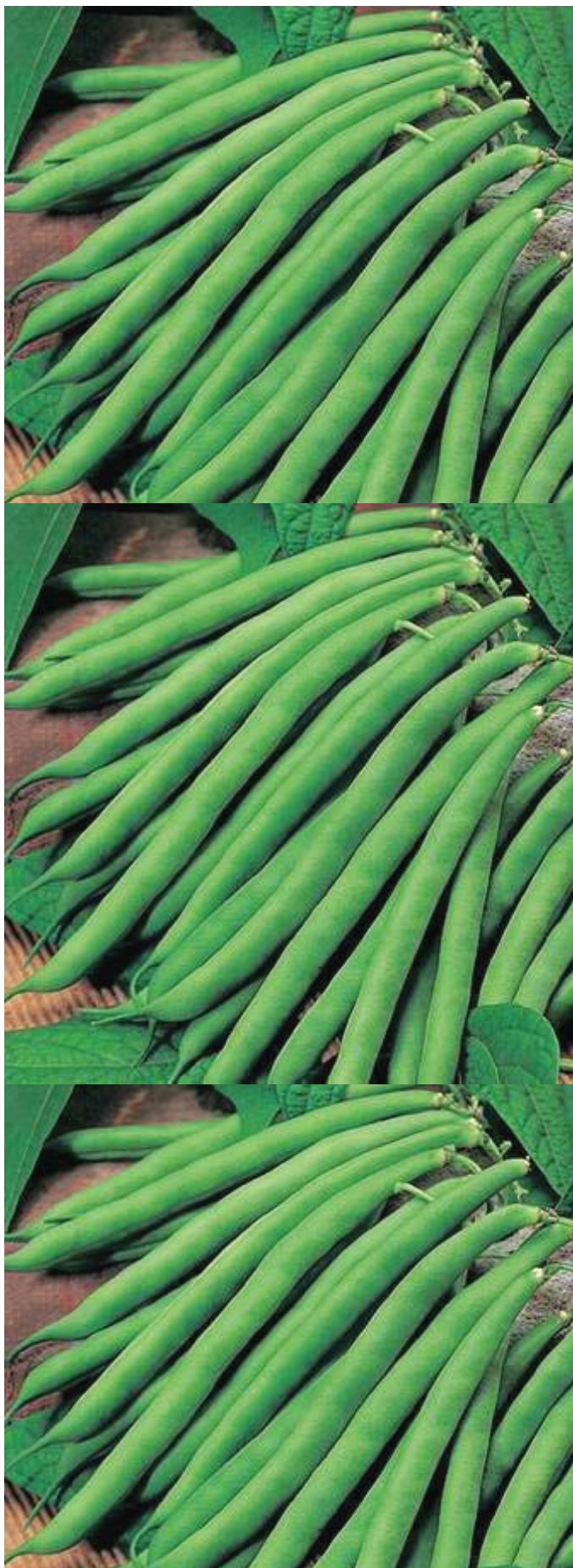
**What legacy do you want to leave behind in the agricultural sector?**

I want to be remembered as one among women role models and mentors to young ladies and youths in the flower industry in building up their future careers.

**Give your final comments**

I believe in integrity in all my undertakings. For any one to be successful, you must exhibit high level of integrity with or without third eye to grow as an individual. Always believe in your yourself and never give up to criticism, rather make it a challenge to improve on yourself always.





# French beans

French beans, also known as snap or green beans, and locally as mishiri, are a major export crop. Interest in the crop is fast-growing for both fresh consumption and processing (mainly canning and freezing). French beans contain protein, fat, calcium, iron, phosphorus, vitamins A, B, D and starch. French beans grow well in lower midland to lower highland zones of altitudes ranging from 1500-2100 metres above sea level.

Rain-fed cultivation is possible in areas with well-distributed, medium to high annual rainfall of 900-1,200mm per annum. However, to maintain continuous supply especially during the off-season, irrigation is essential. Up to 50mm of water per week is required. French beans can grow in different soil types, ranging from sandy, loam to clay. The optimum temperature for production is 20-25°C. However, the beans survive in temperature ranging from 14-32°C depending on the variety. Seedlings will not tolerate temperature lower than 10°C. They, however, grow well on friable (easily crumbled), silty loam to heavy clay soils, which are well-drained and high in organic matter.

## Soil Test

The optimum soil pH is 6.5 to 7.5, but the beans can tolerate a low pH of up to 4.5. Below a pH of 4.5, plant growth is impaired through limitation of development of the rhizobium bacteria that are responsible for the nitrogen fixation in the galls formed on the bean roots. It's advisable to carry out a soil test before planting. Various varieties are grown mainly for export, and they are determined by the market preference.

French beans are sown directly into the seed bed. The land should be ploughed and harrowed properly just before planting. With irrigation, French beans can be grown all-year round but the main export season is from October to May. Spacing should be single rows of 30x15cm (a seed per hole) or double rows of 60x30cm. The spacing will depend on the variety, soil fertility, water availability as well as climate. It is advisable to plant in blocks of about four rows separated by a path of about 50cm.

## Fertiliser And Manure Application

The seed rate required is 25-60kg/ha (10-24kg/acre) of certified seeds depending on the variety. Apply 200kg/ha (80kg/acre) DAP along the rows before planting. Contact between fertiliser and seed should be avoided by mixing the former thoroughly with the soil in the planting furrow. Apply 150kg/ha (60kg/acre) Calcium Ammonium Nitrate (CAN) for top-dressing twice. First when two to three leaves appear and the second at the beginning of flowering.



### Supporting French beans

Climbing varieties that grow to about 1.8m (6ft) high need to be supported. This is done by use of trellises, poles, or other means at least 200cm (8ft) high.

### Pests And Diseases

The main diseases french beans include rust, angular leaf spot, root rots, bacterial blights, anthracose, bean common mosaic virus, powdery mildew and downy mildew. To control these diseases, farmers are advised to use crop rotation, tolerant varieties, field hygiene, health certified seeds, and recommended insecticides and fungicides.

### Harvesting

Picking of pods begins six to eight weeks after planting, depending on the area and variety, and continues for about one to two months. The pods are carefully picked, and not pulled from the plants, and should have the stalk attached to them. Picking should be done at regular intervals depending on buyer specifications.



Harvesting may be done twice a week for the fine beans and three times a week for the extra fine beans. This continues for around three weeks. One gets yields of nine to 15 tonnes/ha and six tonnes/acre in 2½ months.

### Categories

- 1) Extra fine pods: Are very tender, turgid, seedless, with no strings, and free from any defects. The width of the pods (maximum diameter) should be less than 6mm and the minimum length of 10cm.
- 2) Fine pods may have small seeds and be short with soft strings, be turgid and tender. The width of the pods should be between 6-9mm while the length of 12-14cm is recommended.
- 3) Bobby beans comprise those which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above. Beans should be reasonably tender and seeds should not be too large.

“ Avoid use of excess nitrogen as it may promote vigorous vegetative growth at the expense of pod production. Foliar feeds are recommended to boost crop development and production. The choice of the fertiliser depends on the fertility of the soil and variety requirements. Farmyard manure is also recommended especially where soils are low in organic matter. It should be applied in planting furrow and worked into the soil at the rate of 10 tonnes/ha. A kilo of seeds requires 4-8kg of fertiliser depending on the variety and soil conditions..”

### Marketing And Exports Standards

The major market for French beans is the European Union. The export market in Kenya falls into two major seasons: The low demand season runs mostly from June to September every year. It is characterised by lots of supply from those who produce with the long rains and low demand from the EU market as they can produce their own by then. The high demand season usually runs from September to around March. During this period, EU markets face winter and their only option is to import and that is when Kenyan farmers benefit from production.

### Challenges

It is advisable to observe strict hygienic standards while washing, processing and packing export products. The beans should not have chemical residues.

Rejection of the produce if they do not meet the set quality standards

Poor disease and pest management can lead to poor quality produce.

Picking of pods begins six to eight weeks after planting, depending on the area and variety, and continues for about one to two months. The pods are carefully picked, and not pulled from the plants, and should have the stalk attached to them. Picking should be done at regular intervals depending on buyer specifications.



# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
AAA- Flowers-Rumuruti	Roses	Rumuruti	Charles Njuki	0724 391 288	charles.njuki@aaagrowers.co.ke
AAA- Flowers -Chui Farm	Roses	Timau	Ravi Kumar	0759 500403	ravikumar@aaagrowers.co.ke
Farm-Sunripe		Naivasha	Antony	0711827785	naivasha@sunripe.co.ke
Africalla Kenya Ltd	Cuttings	Eldoret	Meindert	-	meindert@africalla.com
Africa Blooms	Roses	Salagaa	Ravindra Chaudhari	0723159076	ravindra.chaudhari@xflora.net
Afriscan Kenya Ltd	Hypericum	Naivasha	Charles Mwangi	-	-
Van Kleef Kenya Ltd	Roses		Judith Zuurbier		roses@vankleef.nl
Aquila Development Co	Roses	Naivasha	Abhay Marathe	0729776656	gm@aquilaflowers.com
Balaji Flowers	Roses	Olkalou	Vijay	-	-
Baraka Farm	Roses	Ngorika	Lucy Yinda	-	lucy@barakaroses.com
Batian Flowers	Roses	Nanyuki	Dirk Looj	0720102237	dirk@batianflowers.com
Beautyline	Flowers	Naivasha	Peter Gathiaka	0722676925	peter@beautyli.com
Big Flowers	Roses	Timau	Simon Blinco	0723234927	simon@maufloora.co.ke
Bigot Flowers	Flowers	Naivasha	Kakasaheb Jagtap	0722205271	jagtap.kt@bigotflowers.co.ke
Bila Shaka Flowers	Roses	Naivasha	Joost Zuurbier	0722204489	bilashaka.flowers@zuurbier.com
Black Petals	Roses	Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
Bliss Flora Ltd	Roses	Njoro	Appachu Sachin	0789101060	appachu7@yahoo.com
Blue Sky	Summer Flowers	Naivasha	Mike	0720005294	info@blueskykenya.com
Bloom Valley		Salgaa	Ramnath Sarbande	0780314387	ramnath.sarbande@xflora.net
Blooming Dale Roses Kenya Ltd	Roses	Nanyuki	Sunil	0718991182	info@bloomingdaleroses.com
Buds and Blooms	Roses	Nakuru	Shivaji Wagh	0720895911	shivaniket@yahoo.com
Carzan (K) Ltd	Summer flowers-	Salgaa	Mahesh		seb.chambers@carzankenya.com
Charm Flowers	Flowers	Athiriver	Ashok Patel	020 352583	ashki@charnflowers.com
Colour Crops	Hypericum	Nanyuki	Kennedy Wanyama	0716389472	colourcrops@tmu.com
Chestnut	Flowers	Mt. Kenya	Gabriel Kiai	-	gabriel.kiai@aaagrowers.co.ke
Colour crops	Summer Flowers- Hypericum, Veronica	Bahati	Patrick Kipkurui	0727806184	kipkirui89@gmail.com
Colour crops Naivasha	Flowers	Naivasha	Geoffrey Mwaura	0722200972	nva@colourcrops.com
Credible Blooms	Flowers	Rumuruti	Eliud Njenga	0722382859	eliud@pigeonblooms.com
Credible Blooms	Flowers	Ngong	Eliud Njenga	0722382859	eliud@pigeonblooms.com
Dale Flora	Roses	Mogotio	Ajay Sutar	0711102266	ajay.sutar24@gmail.com
Delemere Pivot	Vegetables	Naivasha	Daniel Ondiek	0720395963	daniel.ondiek@vegpro-group.com
Desire Flowers	Flowers	Isinya	Rajat Chaohan	0724264653	rajatchaohan@hotmail.com
De ruiters	Breeder Roses	Naivasha	Fred Okinda	0722579204	Fred.okinda@deruiter.com
Dummen Orange	Flowers Breeders	Naivasha	Steve Outram	0733 609863	s.outram@dummenorange.com
Elbur flora- kimman	Roses	Nakuru	Daniel Moge	0721734104	kimmanexp@gmail.com
Enkasiti Thika	Flowers	Thika	Tambe	0734256798	enkasiti@gmail.com
Equinox	Flowers	Nanyuki	Harry Kruger	0707266956	harry@equinoxflowers.com
Everest Flowers Ltd	Flowers	Mt. Kenya	-	-	-
Everflora Ltd.	Flowers	Thika	Bipin Patel	0735873798	everflora@dmbgroup.com
Evergreen Crops		Nairobi	Arun Singh	0721941009	arun@evergreencrops.com
Exotic Peninah	Roses/ Carnations	Athiriver	Dan	0734626942	dan@exoticfields.com
Fairy Flowers	Flowers	Limuru	Sylvester	0753444237	sylvesterkahoro@yahoo.com
Fides Kenya Ltd	Cuttings	Embu	Bernard Marindany	0726 366 752	B.Marindany@DummenOrange.com
Finlays -Tarakwet	Flowers	Kericho	Lelon Chepkwony		
Finlays Chemirel	Flowers	Kericho	Aggrey Simiyu	0722601639	aggrey.simiyu@finlays.co.ke
Finlays- Lemotit	Flowers	Kericho	Japhet Langat	0722 863527	japhet.Langat@finlays.co.ke
Fontana Ltd-Salgaa	Roses	Salgaa	Kimani	0733605219	production@fontana.co.ke
Fontana Ltd - Akina farm	Roses	Njoro	Mahindra Patil	0798254199	--
Fontana Ltd - Ayana Farm	Roses	Mau Narok	Gideon Maina	0721 178974	gideon@fontana.co.ke
Flamingo Holdings Farm	Flowers	Naivasha	Peter Mwangi	0722204505	peter.mwangi@flamingo.net
Flamingo Holdings-Kingfisher Farm	Flowers	Naivasha	Mr. Isaac Karanja	0720473502	kingfishercarnations@flamingo.net
Flamingo Holdings- Kingfisher Farm	Flowers	Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@flamingo.net
Flamingo Holdings-Siraji Farm	Carnations, Roses	Nanyuki	Peris Muturi	-	-
Flower City	Flowers	Nairobi	Pradeep Kumar	0790309600	info@flowercitykenyaltd.com
Flamingo Flora	Roses	Njoro	Sam Nyoro	0721993857	s.ivor@flamingoflora.co.ke
Flora ola	Roses	Solai-Nakuru	Lucas Choi	0721832710	lucas.floraola@gmail.com
Flora Delight	Summer flowers	Kiambu/ Limuru	Marco	0710802065	marcovansandijk@yahoo.com
Florensis Ltd	Cuttings	Naivasha	Anne Marie		annemarie@florensis.co.ke



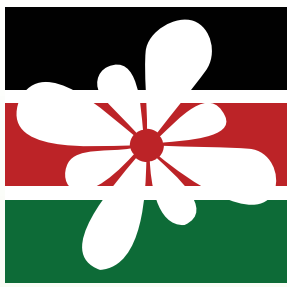
# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Florenza Ltd	Roses	Solai	Yogeesh	0737453768	farm.florenza@megasingroup.com
Fresh Gold Flowers Ltd	Flowers	Mt. Kenya	John Karimi	0721622294	karimi@freshgol Kenya.co.ke
Gatoka Roses	Roses	Thika	Herman Njuguna	0728 854 844	info@gatokaflowers.com
Golden Tulip	Roses	Olkalao	Umesh Choudhery	0739729658	umesh@bth.co.ke
Gorge Farm	Vegetables	Naivasha	Patrick Mulumu	0722498267	pmulumu@vegpro-group.com
Greenland	Vegetables	Nairobi	David Thurania	0780 666 810	jenem@greenland.co.ke
Groove	Flowers	Naivasha	John Ngoni	0724448601	grovekenya@gmail.com
Hanna Roses Ltd	Roses	-	Kadlag Palaji	0723149968	kadlag@hannaroses.com
Harvest Flowers Group	Roses	Murunguru	Paul Salim	0722 470 717	paul.salim@harvestflowers.com
Harvest Ltd	Roses	Athiriver	Paul Salim	0722 470 717	paul.salim@harvestflowers.com
Heritage Flowers Ltd	Roses		Shailesh Kumar	0722203750	hfl.srk@gmail.com
Highland plantations	Cuttings & Herbs	Olkalau			production@highlandplants.co.ke
Imani Flowers	Summer Flowers	Nakuru	Raphael Otieno	0792302466	raphael@imaniflowers.co.ke
Interplant Roses	Roses	Naivasha	Gavin Mouritzen	0733220333	info@interplantea.co.ke
Isinya	Flowers	Isinya	Rajesh	-	pm@isinyaroses.com
Karen Roses	Flowers	Nairobi	Peter Mutinda	0723353414	pmutinda@karenroses.com
Kariki Ltd- Thika	Flowers	Thika	Miriam	-	production@kariki.co.ke
Kariki Ltd - Nanyuki	Eryngiums	Nanyuki	Richard Fernandes	062-31023/6	bondet.production@karik.biz
Kariki Ltd - Naivasha	Hypericum	Naivasha	Peter Kamwaro	0721758644	hamwe.fm@kariki.biz
Kariki Ltd - Molo	Fowers	Molo	Joseph Juma	0725643942	production.fm@kudenga.co.ke
Kenflora Limited		Kiambu/ Limuru	Abdul Aleem	0722311468	info@kenflora.com
Kentalya	Cuttings	Naivasha	Linnnet	0733549773	lynette@kentalya.com
KHE Nairobi	Vegetables	Nairobi	Juliah Mwakisha	0720 901 224	grp.agronomy@khekenya.com
Kisima Farm Ltd	Roses	Timau	Craig Oulton	0722205828	craig@kisima.co.ke
Kongoni River Farm - Gorge Farm	Roses	Naivasha	Anand Patil	0728608785	anand.patil@vegpro-group.com
Kongoni River Farm - Liki River	Flowers	Nanyuki	Madhav Lengare	0722202342	madhav@vegpro-group.com
Kongoni River Farm - Star Flowers	Flowers	Naivasha	Prabakaran	0739906040	prabakaran@vegpro-group.com
Kongoni River Farm - Kongoni	Flowers	Timau	Oppaso Bandgar	07120070053	oppasobandgar@vegpro-group.com
Kongoni River Farm -Bemack	Flowers	Timau	Mangesh	0797 874583	
Kongoni- Galaxy	Roses	Naivasha	Kiran Nangare	0787787544	kiran@vegpro-group.com
Lamorna Ltd	Roses	Naivasha	Mureithi	0722238474	admin@lamornaflowers.com
Lathyflora		Limuru	Mbauni John	0721798710	mbaunij@yahoo.com
Lauren International	Flowers	Thika	Chris Ogutu/Carlos	0722783598	laurenflowers@accesskenya.co.ke
Laurel Investment	Roses	Nakuru	Rajendra Jadhav	0738359459	rajendra.laurel@bht.co.ke
Livewire	Hypericum	Naivasha	Esau Onyango	0728606878	management@livewire.co.ke
Lolomarik	Roses	Nanyuki	Topper Murry	0715 727991	topper@lolomarik.com
Longonot Horticulture		Naivasha	Chandu	0724639898	chandrakant.bache@vegpro-group.com
Magana	Roses	Nairobi	Nicholas Ambanya	0732 779 987	ceo@maganaflores.com
Mahee Flowers	Roses	Olkalao	Rao Venkatesh	0705401431	maheefm@eaga.co.ke
Maridadi Flowers	Flowers	Naivasha	Jack Kneppers	0733333289	jack@maridadiflowers.com
Maua Agritech	Flowers	Isinya	Madan Chavan	0738669799	production@mauaagritech.com
Mau Flora	Roses	Molo	Mahesh	0787765684	mahesh@mauflora.co.ke
Milenium Growers	Summer Flowers	-	Sushant Wankara	0731316000	sushant@marvelgreens.com
Mt. Elgon Flowers	Roses	Eldoret	Bob Anderson	0735329395,	bob@mtelgon.com
Mwanzi Flowers Ltd	Roses	Rumuruti	Ram	0722265845	-
Mzuurie Flowers - Maji Mazuri	Roses	Eldoret	Mark Juma	0727471034	mjuma@majimazuri.co.ke
Mzuurie Flowers - Molo River Roses	Flowers	Kilelwa	Andrew Wambua	0724256592	awambua@moloriverroses.co.ke
Mzuurie Flowers - Winchester Farm	Roses	Karen	Raphael Mulinge	0725848909	rmulinge@winchester.co.ke
Mzuurie Flowers - Winchester Farm	Flowers	Bahati	Raphael Mulinge	0725848909	rmulinge@winchester.co.ke
Nini Farms	Roses	Naivasha	Philip Kuria	0720611623	production@niniltd.com
Nirp East Africa	Roses	Naivasha	Danielle Spinks	0702685581	danielles@nirpinternational.com
OI Njorowa	Roses	Naivasha	Charles Kinyanjui	0723986467	mbegufarm@iconnect.co.ke
Oserian	Flowers	Naivasha	Christine Karambu	0702350689	christine.karambu@oserial.com
Panda Flowers	Roses	Naivasha	Geoffrey Kanyari		
Panocol International	Roses	Eldoret	Mr. Paul Wekesa	0722748298	paul.wekesa@panocol.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@pentaflowers.co.ke
Pendekeza	Roses	Nanyuki	Richard Siele	0722716158	tambuzi.sales@tambuzi.co.ke
PJ Dave Flowers	Flowers	Isinya	Sanjiv Dogra	0737576966	pjdaveflowers@wananchi.com



# FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
PJ Flora	Roses	Isinya	Santos Kulkarni	0738990521	santosh@pjdave.com
Kentalya	Cuttings	Naivasha	-	-	-
Plantech Kenya Ltd	Propagators	Naivasha	Idan Salvy	0702187105	idan@plantechkenya.com
Porini Flowers	Roses	Molo	Vivek Sharma	0731040498	gm@poriniflowers.com
Primarosa Flowers Ltd	Roses	Olnjorok	Shantaram	0701464049	production.p2@primarosaflowers.com
Rain Forest Farmlands Ltd	Roses	Naivasha	Mr. George Onguko	0725762099	george@durofarms.com
Ravine Roses Flowers	Flowers	Nakuru	Peter Kamuren	0722205657	pkamuren@karenroses.com
Redland Roses		Thika	Aldric Spindler	0733603572	aldric@redlandsroses.co.ke
Redwing Flowers	Flowers	Nakuru	Simon Sayer	0722227278	sayer@redwingltd.co.ke
Rift Valley Roses (K) Ltd	Flowers	Naivasha	Peterson Muchiri	0716589898	fm@riftvalleyroses.co.ke
Rimiflora Ltd	Hypericum	Njoro	Richard Mutua	0722357678	richard@rimiflora.com
Riverdale Blooms Ltd		Thika	Antony Mutugi	0202095901	rdale@swiftkenya.com
Roseto	Roses	Roseto	Aravind	0786157344	gm.roseto@megaspingroup.com
Savannah international	Geranium	Naivasha	Ignatius Lukulu	0728424902	i.lukulu@savanna-international.com
Selecta Kenya		Thika	Robert Khamala	0727 467 464	r.khamala@selectakenya.com
Sojanmi Spring Fields	Roses	Njoro	Ashesh Mishra	0792217088	ashesh@xflora.net
Schreus	Roses	Naivasha	Haiko Backer	-	-
Shades Horticulture	Flowers	Isinya	Ashutosh Mishra	0722972018	info@shadeshorticulture.com
Shalimar Flowers	Flowers	Naivasha	Dinka	-	-
Sian Roses - Maasai Flowers	Flowers	Isinya	Anthony Kipng'eno	-	-
Sian Roses - Agriflora (K) Ltd	Roses	Nakuru	Charles Mulemba	-	cmulemba@sianroses.co.ke
Sian Roses - Equator Roses	Roses	Eldoret	Nehemiah Kangogo	0725848910	nkangogo@sianroses.co.ke
Sierra flora	Roses	Njoro	Sharieff	0787243952	farm.sierra@megaspingroup.com
Simbi Roses	Roses	Thika	Karue Jefferson	067 44292	simbi@sansora.co.ke
Sirgoek Flowers	Flowers	Eldoret	Andrew Keittany	0725 946429	sirgoek@africaonline.co.ke
Solai Milmet/Tindress	Flowers	Nakuru	Vinoj J. Kumar	0737801646	solairoses@gmail.com
Subati Flowers	Roses	Subukia	Naren Patel	0712 584124	naren@subatiflowers.com
Subati Flowers	Roses	Naivasha	Naren Patel	0712 584124	naren@subatiflowers.com
Suera Flowers Ltd	Roses	Nyahururu	George Kimathi	0724622638	gkbuuri@gmail.com
Sunland Timau Flair	Roses	Timau	Ken Mwiti	-	info@lobelia.co.ke
Stockman rozen	Roses	Naivasha	Julius muchiri	0708220408	julius@srk.co.ke
Syngenta Flowers - Kenya Cuttings	Flowers	Thika	Kavosi Philip	0721225540	philip.munyoki@syngenta.com
Syngenta Flowers - Pollen	Flowers	Thika	Joseph Ayieko	0733552500	joseph.ayieko@syngenta.com
Tambuzi	Roses	Nanyuki	Richard Siele	0722716158	tambuzi.sales@tambuzi.co.ke
Terrasol	-	Nairobi	Jacques	0705 519 633	jacques@pvdhaak.nl
Timaflo Ltd	Flowers	Nanyuki	Simon van de Berg	0724443262	info@timaflo.com
Transebel	Flowers	Thika	David Muchiri	0724646810	davidmuchiri@transebel.co.ke
Tulaga Flowers	Roses	Naivasha	Steve Alai	0722659280	tulagaflower@africaonline.co.ke
Tulaga Flowers	Herbs	Rumuruti	Gideon Kariuki	0701153844	tulagamarmant@africaonline.co.ke
Uhuru Flowers	Flowers	Nanyuki	Ivan Freeman	0713889574	ivan@uhuruflowers.co.ke
Utee Estate	Flowers	Nairobi	Mane	0737 513 844	mane.uel@btfgroup.com
United Selections	Roses -Breeder	Nakuru	Jeroen Van Marrewijk	0700176556	jvanmarrewijk@united-selections.com
V.D.Berg Roses	Flowers	Naivasha	Johan Remeeus	0721868312	johan@roseskenya.com
Valentine Ltd		Kiambu/Limuru	Joseph Kariuki	0728 093 379	joseph.kariuki@valentinegrowers.com
Van Kleef Ltd	Roses	Njoro	Rathan	0787266007	rathan@vankleef.nl
WAC International	Breeder	Naivasha	Richard Mc Gonnell	0722810968	richard@wac-international.com
Waridi Ltd		Athi River	Julius Ruto	-	farmanager@waridi.com
Wilham Kabuku	-	Nairobi	Natarajan	0735 792 063	natarajan@eaga.co.ke
Wildfire	Roses/summer	Naivasha	Eliud Kimani	0727598349	roses@wildfire-flowers.com
Wilfay Flowers	Gypsophila/hypericum	Subukia	Makori	0723358644	makoriwilfay@gmail.com
Wilmar Agro Ltd	Summer Flowers	Thika	Alice Muiruri	0722 321203	alice.muiruri@wilmar.co.ke
Windsor		Thika	Pradeep Bodumalla	0736 586 059	farm@windsor-flowers.com
Xpressions Flora	Roses	Njoro	Brijesh Patel	0715469732	brijesh.patel@xflora.net
Zena - Asai Farm	Roses	Eldoret	Phanuel Ochunga	0722506026	pochunga@zenaroses.com
Zena Roses - Sosiani Farm	Roses	Eldoret	Jackson Mbanya	-	-



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- Antoine de Saint-Exupéry, The Little Prince

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