March - April 2024

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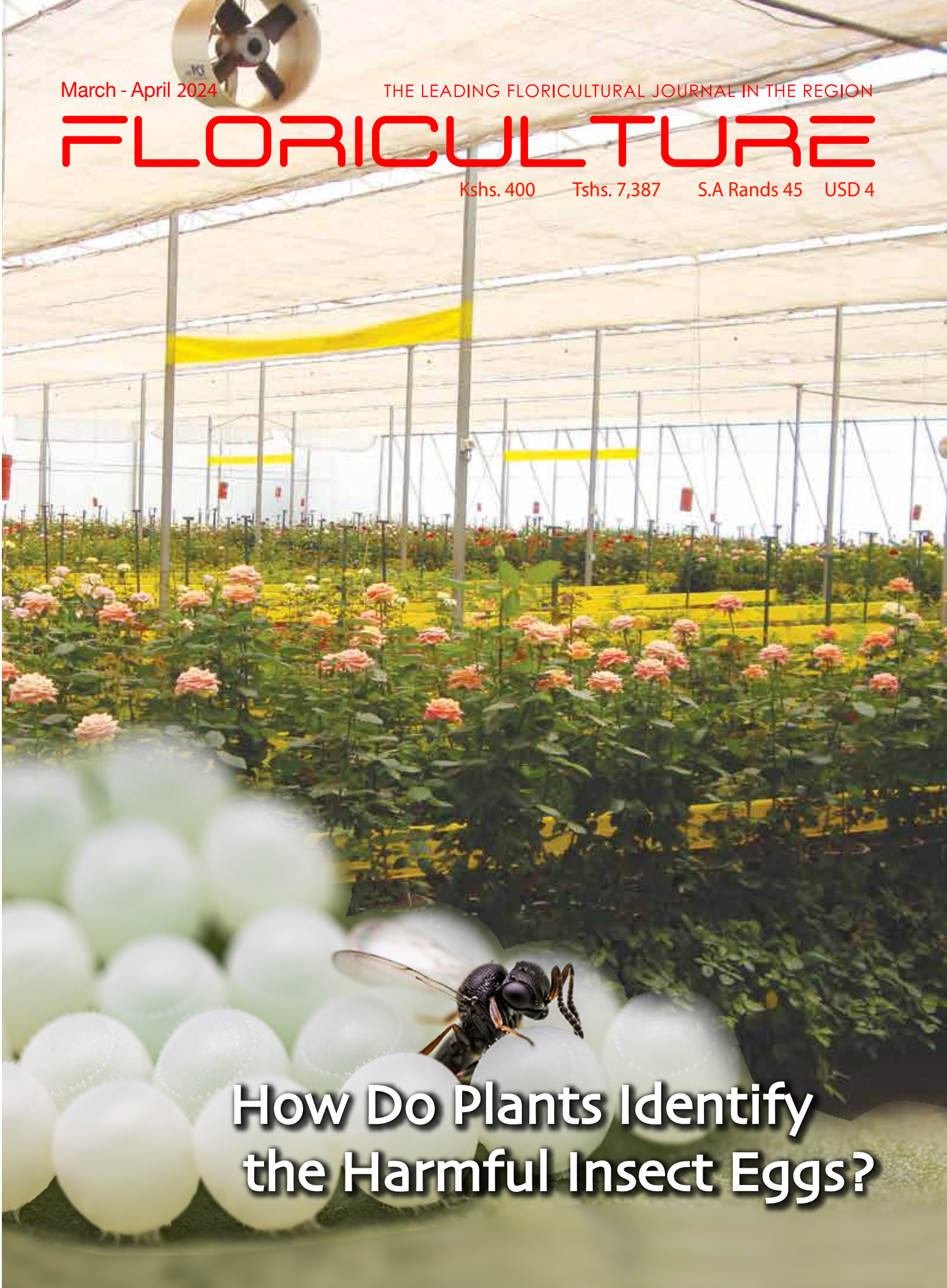

How Do Plants Identify the Harmful Insect Eggs?

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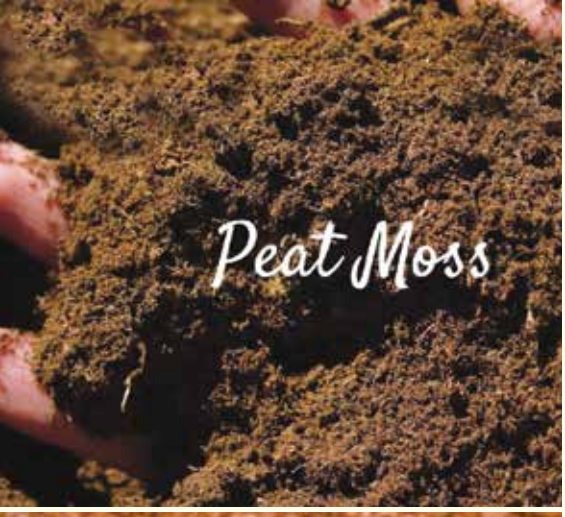

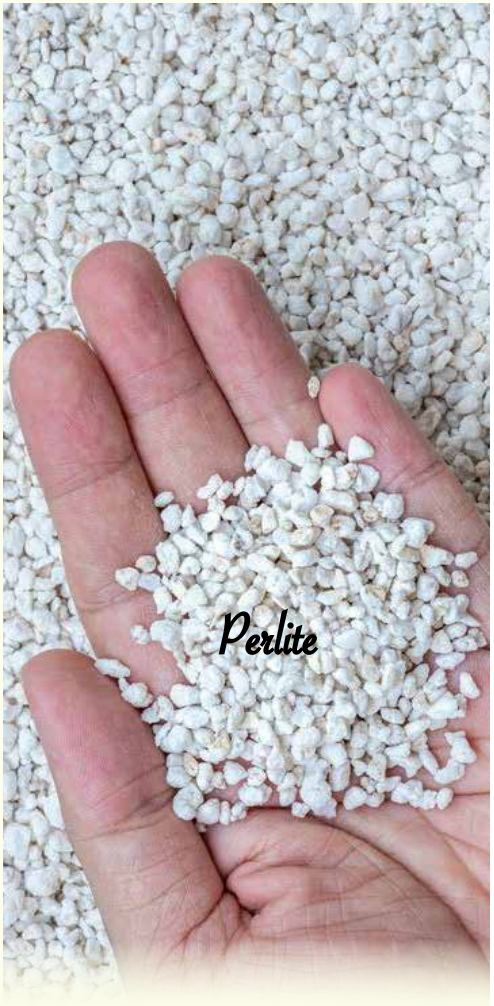

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Floriculture

March - April
2024

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Just Keep Going, Keep Walking

Our industry has faced a lot for the last two years and it needs a motivational speaker. I'm never one but allow me to share wisdom from the Ninja village. A powerful lesson that stuck in my head through the years was something I first read from The Grandmaster's Book of Ninja Training by our grandmaster, sōke Masaaki Hatsumi, and I quote: People create all their barriers for themselves. It's really such a foolish thing to do. We create our own obstacles and lose our own way in the search for truth.
The character for the word nin in ninja means 'to endure' or 'to persevere'. It combines the character for knife on top of the character for heart; it means to go on despite having your heart under the knife! Thus, a ninja is somebody who perseveres with his heart's intentions even under threat or pressure. This ninja philosophy is really simple to remember, and is summed up in 2 words: keep going.

Life is an ever-flowing process and somewhere on the path some unpleasant things will pop up - it might leave a scar - but then life is flowing on, and like running water, when it stops, it grows stale. Go bravely on, my friend, because each experience teaches us a lesson. Just keep going, keep walking, and the obstacles disappear!
And this is my message to the industry I adore.
Keep going....

Masila Kanyingi
Editor

How Do Plants Identify the Harmful Insect Eggs?

New NWO/STW VIDI-research by Wageningen University & Research, tries to enhance the plant's recognition of harmful insect eggs, in order to promote crop resistances and biological control of pests.

Insect eggs

Various plants possess a unique first line-of-defence that helps them get rid of enemies before they can become destructive: egg-killing. For example, some butterfly eggs can trigger a so-called hypersensitive response in the plant. This response leads to a programmed cell death of the plant tissue around the egg and, thus, leads to desiccation or dropping of the egg. This way, the plant prevents the eggs from hatching. Consequently, less caterpillars will damage the plant. On top of that, it appears that many of these plants make themselves more attractive to parasitic wasps that kill the harmful eggs. So, the first line-of-defence is actually a double line!

Research purpose

The purpose of our research is to find out how plants recognize herbivore insect eggs, and subsequently activate this double line-of-defence. Are there specific signals or components that elicit this egg-killing? If these signals are known, it may be possible to enhance the existing egg-killing capabilities of plants. By switching on relevant genes via application of so-called chemical elicitors, it has been shown that the natural resistances of plants against pathogens may be enhanced. Also, their attractiveness to biological control agents against feeding insects can be enlarged.

Act before harm

Exploiting the natural egg-killing capabilities of plants is a very promising route to reduce crop losses in the future. In general, biological control through natural enemies of the harmful herbivores, as well as exploitation of the genetic variation in resistance traits among wild relatives, are two promising sustainable strategies to reduce pests. However, such traits often allow the pest to continue feeding and act when damage has already occurred. Killing the insect egg before the pest can cause harm is therefore an extra attractive option. However, to effectively do this, we need to study their underlying mechanisms.

'Smart' moths and butterflies cause major damage

We study caterpillars of the so-called lepidopteran insect species: butterflies and moths. They are major pests in forests, stored grains, and fibre and food crops. Domestication of plants has, unintentionally, led to reduced natural defence against these animals. For example, the bitter taste due to mustard oils in several cabbage species (Brassicaceae), is unfavourable for human consumers. It is, however, also a natural defence against insects. By selecting cabbages that have less of this unfavourable taste, we are stuck with cabbage crops that are more susceptible to insects.

The classic way to combat these insects is through insecticides. But many pest insect species have appeared 'smart' enough to develop resistance to these insecticides. Most herbivore insects have developed enzymes that reduce the toxicity of the insecticide, or the toxicity of the plant itself and thus have adapted to their host's resistances. Some insects have become invasive too, causing increasing problems.

Genetic potential

In some plants, genes are identified that cause resistance against insects that feed on their bast. Similar genes that cause resistance against feeding caterpillars are not known to date. There is, therefore, an urgent need to explore this field. How do insects overcome the plant defence mechanisms? And how do plants prevent caterpillars to do harm and to act at the beginning of plant attack: during egg-laying?

The sooner the better

For many herbivorous insects, in particular lepidopteran species, the egg stage is the first phase of colonizing a new host plant. From the plant's point of view, this is the first and therefore likely the best moment

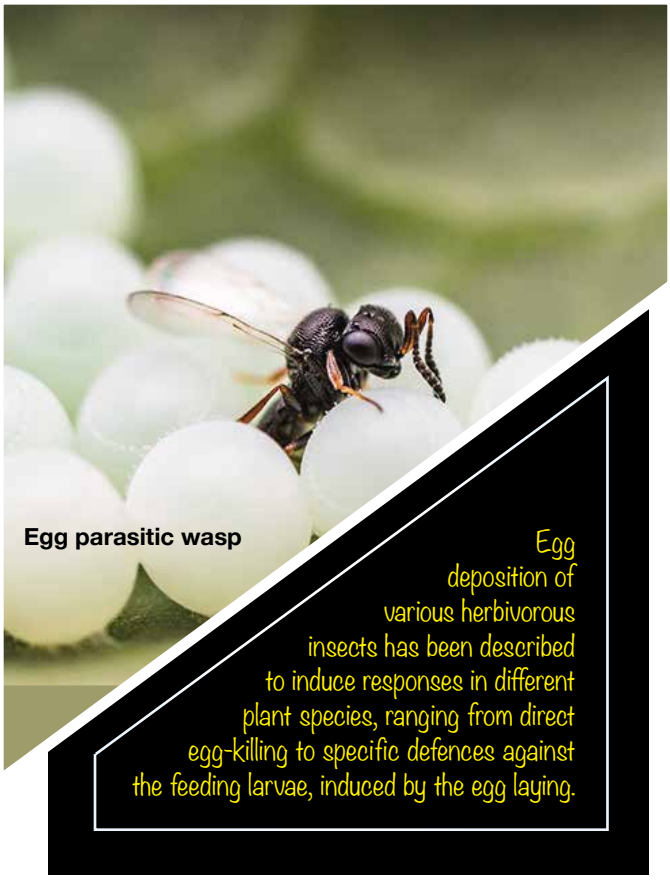
to defend itself. Egg deposition of various herbivorous insects has been described to induce responses in different plant species, ranging from direct egg-killing to specific defences against the feeding larvae, induced by the egg laying. Plants are also known to attract egg parasitoids (e.g. Trichogramma wasps) through the release of volatiles (see also the WUR programme BINGO).

To further this research in early defence against pests, our aim is to identify different mechanisms that will help us to understand the 'race of arms' between lepidopteran pests and crop plants.

Unravelling an insect egg-killing plant trait

Before our NWO/STW Vidi project Pest killing plants: Unravelling a programmed cell death response lethal to insect eggs, eggs of different lepidopteran species and also of the Colorado Potato beetle have already been observed to trigger a necrosis in various plant species. This so-called hypersensitive response is a form of programmed cell death, activated in plants and animals in response to pathogens25. When triggered by insect eggs, larvae do not hatch due to desiccation and dropping of the egg.

In previous studies we have shown, that eggs of cabbage white butterflies (Pieris spp.), trigger a similar hypersensitive response in black mustard plants (Brassica nigra), wild relatives of cabbage crops. We observed, however, a phenotypic variation in this response, both between and within plant populations. Different genotypes can express no, mild or strong necrosis when infested by eggs of the cabbage white butterflies. Moreover, we showed that black mustard plants expressing a hypersensitive response also become more attractive to egg-killing parasitic wasps, through the emission of plant volatiles.



This synergistic use of two egg-killing defence types was shown to lead to butterfly egg mortalities up to 80% in nature. This 'double defence line' is a rather unique way to combat pest insects and highly promising to be applied in crop protection.

The VIDI project aims to unravel the genetic basis and molecular mechanisms of the hypersensitive response necrosis induced by insect egg deposition. We will study the interaction between turnip rape (or Chinese cabbage, Brassica rapa) and specialist cabbage white butterflies (Pieris spp.). Of this cabbage species, many variations with accompanying genomic and genetic data are available. The egg-killing hypersensitive response through necrosis is a common trait in B. rapa. Together with its short generation time and high economic value, it makes this cabbage a highly suitable model plant. Because the necrosis resembles a resistance response to pathogens, we will also look at the role of insect symbionts, such as bacteria, transferred via the egg and their possible role in triggering egg-killing responses.

The project is supported by five breeding and seed companies: Hazera, Syngenta, Bayer Crop Science, Rijk Zwaan, and Keygene.

Valentine's Day: The Origins

By Jaap Kras

In the 1920s and after the Second World War, a significant portion of Western Europe embraced Anglo-American culture. Brits and Americans seemed to step into the cultural leadership the Germans had fulfilled before. Just remember how, in 1939, even Marlene Dietrich became an American citizen.

Before the war broke out, 12-stem tulip bunches were popular with buyers, but under Anglo-Saxon influence, Dutch horticulturists began incorporating ten stems in the bunch.

More recently, quintessential Dutch traditions have increasingly merged with American holidays. For example, Saint Maarten is celebrated every 11 November with children going door to door with self-made lanterns in their hands and singing songs in exchange for candy.

Still, it increasingly contains elements of Halloween, which is celebrated on 31 October.

Meanwhile, the feast of Sinterklaas has been celebrated for centuries in the Netherlands. It continues to be a cornerstone of Dutch culture and a very important family gathering, with gifts exchanged on 5 December. But here, there's also an Anglicised shift toward present giving at Christmas.

In case you don't remember, Valentine's Day is on 14 February each, and this year, it occurs on a Wednesday. It is by far the best example of how a popular American holiday has spread to Europe as a fun and commercial event.

The origins of Valentine's Day on 14 February are misty and miscellaneous. However, it was the English poet Geoffrey Chaucer (1343-1400) who depicted free, romantic love and Saint Valentine by describing a tale where birds search for partners with the help of Lady Nature on Valentine's Day. In his poem called Parliament of Fowls, he wrote, *"For this was on Seynt Valentynes day. Whan every foul cometh ther to chese his make."*

Valentine's Day marks the start of a bumper selling season, which is swiftly followed by International Women's Day on 8 March, Mothering Sunday in the UK – which this year falls on 10 March, Easter (31 March-1 April), Mother's Day in Spain on 5 May, Mother's Day in many countries such as Germany, Netherlands and the USA on 12 May, Mother's Day in France on 26 May, and Sweden's National Day on 6 June. After which, the industry enters a much slower-selling summer season. The first five months of the year generate 50 per cent of the turnover and perhaps 100 per cent of the profit. For many a wholesaler, the primordial task is to break even over the seven months that make up the rest of the year.

Jaap Kras is a horticultural consultant, a PBR expert, an industry veteran and former owner and publisher of FloraCulture International.

A Pleasing Valentine Season

"Weather has been the main challenge this year, but all in all, we were pleased with this year's Valentine's Day season," says Andrew Wambua, Managing Director at Mzurrie Flowers. It was been a busy period.

Andrew Wambua, Managing Director at Mzurrie Flowers

Higher demand

Wambua points out that this year's Valentine's Day season demand was higher than last year. According to Wambua, Mzurrie sold all its reds directly, and received more inquiries that could not take. "And also for the other colors, we saw a high demand."

Not flushing the crop

Valentine's Day is an important holiday for Mzurrie, but they do not 'flush' their crop. Wambua says: "We don't do a big flush as we have year-round deals with our direct customers, and hence, we try to avoid flushing for just this one event. We only do 40-50% flushing of the reds."

Growing demand for colors and mixed bouquets

Although red is still the most important color, Wambua notices a growing demand for pink, white, and cerise roses, as well as for mixed bouquets.

Most of Mzurrie's roses go directly to the UK, The Netherlands, Norway, Switzerland, Sweden, Russia, and the Middle East.

Weather rather than airfreight challenges

According to Wambua, the weather was this year's main challenge: "We got rains in January, which brought some growing challenges such Downey Mildew and slowed growth," he says. He also elaborates on the methods that Mzurrie took in response to these challenges: "We strictly maintain high hygiene conditions in the greenhouses and integrated pest management practices. In addition, we ensured that our trucks arrive at the airport early in the morning".

Airfreight capacity challenges, however, were unexpectedly mitigated, says Wambua. He explains: "We expected the airfreight capacity to be a challenge, but luckily, the freighters brought extra capacity, which mitigated capacity issues. The only problem was long queues at the airport for the lorries/trucks waiting to offload flowers".

Valentine's Day 2024 in a Nutshell...

It has been a pleasing holiday for many, that the demand on the free market or auction clock started quite late, that there was a lack of red roses at certain moments, and that the weather and logistics in some countries caused several challenges. And with Valentine's Day falling on a Wednesday, expectations of high sales were met.

Netherlands

At the auction clock at Royal FloraHolland, the purchase peak was on Friday. However, the highest prices were registered at the last minute. Due to different reasons, the demand increased quite late, and the pricing fluctuated, with some outliers. There was a shortage of red, explains auctioneer Edwin Chrispijn. But in the end, they seemed to have been satisfied with this year's results.

Kenya

In Kenya, the weather seems to have been the main challenge this year. "This year in first week of January weather in Kenya was not good, it was rainy and humid. So, all growers were worried about Valentine's flush. But, fortunately, the weather improved from the second week of January, and there were no quality issues for the Valentine's sale", says Santosh Kulkarni, Managing Director at PJ Dave Flora. In general, he was pleased with the sales but noticed that the clock prices were lower than in 2023.

The reason? "Maybe because of an oversupply of red roses to the clock and the economic situation of Europe.

Also, Andrew Wambua of Mzurrie Flowers, who only sells its roses directly, told us about the weather challenges in an interview. He also mentioned that he noticed an increase in demand for colored roses and mixed bouquets and that they expected the airfreight capacity to be a challenge but that the freighters brought extra capacity, which mitigated capacity issues.

Latin America

Also, in the other large flower-producing countries, namely Colombia and Ecuador, they had to deal with several challenges. Unlike Kenya, of where most flowers go to Europe, many of their flowers go to the United States for this holiday. According to Jorge Ortega of Matina Flowers, a Colombian rose farm, expectations were very high for this year's Valentine's Day. "Many farms in Colombia and Ecuador were eager

to have a successful season in order to recover from the awful second semester of sales in 2023", he says. But Valentine's Day is always a season full of challenges, he continues.

Colombia

When looking at production in Colombia, the first challenge, as usual, says Ortega, was the weather. We experienced a very dry and sunny season before Valentine's Day, so the risk of frost was constant.

"Another factor that did not help the season at all was that many airlines started changing V-day freight prices from the start of week 3. As a result, many customers weren't able to buy additional boxes for the whole week due to the high cost of freight, which did not allow farms with earlier productions to move the product.

Ecuador

Also, in Ecuador, the Valentine's Day season seems to have been a satisfying one. Valentine's season has been quite positive in Ecuador but did not go without any challenges. "I see the entire value chain satisfied with the results although there were inconveniences, especially concerning the weather that in the end didn't affect the results," says Boris Mantilla of SoBella Flowers, a broker company.

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Logistics also suffered setbacks, he continues. “KLM announced a pilot strike, some flights were canceled.

United Kingdom

In the UK, Valentine’s Day, however, doesn’t seem to look so rosy. One of the leading wholesalers at New Covent Garden Market said this morning that Valentine’s Day trade had not met with expectations this year due to the spiraling cost of living in the UK.

“It’s certainly not been as buoyant as usual,” says Graeme Diplock, Managing Director of Green & Bloom Flowers, at New Covent Garden Flower Market. “It’s busy, without a doubt, but it just feels about 75% of what we’d

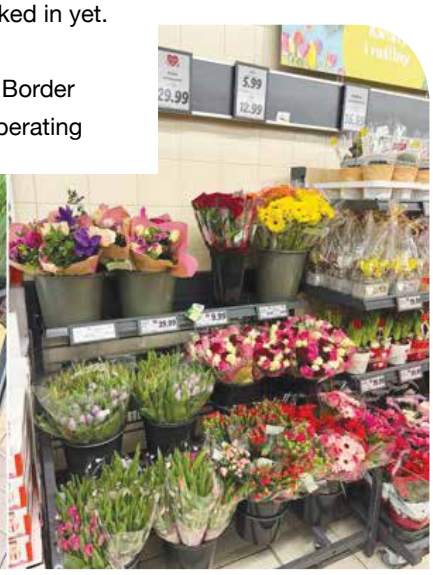
expect it to be.” The main post-Brexit challenges to date have been the increasing administrative burden on small companies, sporadic delays, and additional costs, which, of course, when combined with increasing operational costs generally, leads to higher prices. The impact of additional post-Brexit border checks is something that concerns the flower market’s traders, but it hasn’t really kicked in yet.

The new Border Target Operating Model is very likely to cause some unwanted, unpredictable, and what they see as unnecessary delays as it gets rolled out, and obviously, that could prove to be disruptive to trade.

But, media reports that the market is short and prices are skyrocketing are wide of the mark, though. “Prices are definitely strong – the Dutch market has kept them high – but there is no shortage of product at all,” says Graeme. “The retailers and customers don’t see that impact anyway; we’ll be the ones who are affected when a product doesn’t turn up on time.

“The only thing we’re a bit short of is customers. Roses are, of course, still selling more than anything else, but the drop-off in demand has been for every product. It’s the same across the market, and I can only put it down to the rising cost of living. Everything, not just flowers, costs more at the moment, and people are nervous about spending.

“So while Valentine’s Day trade has been OK, it hasn’t been putting the icing on the cake, which is what we really like it to do.”



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"Flowers are a key Fairtrade product and are popular among consumers, particularly around fixed annual events such as Valentine's Day. ,"

Fairtrade Roses from Kenya have Smaller Environmental Footprint

Fairtrade roses from Kenya have a smaller environmental footprint when compared to roses produced in Holland, even when factoring in transport to Europe, according to a recently released report.

The report, titled Life Cycle Assessment Cut Roses, found that Fairtrade cut roses from Kenya – whether transported to Switzerland by air or sea – have a lower impact across all the environmental areas analyzed, including cumulative energy demand, greenhouse gas emissions, and freshwater eutrophication, a pollution process where lakes or streams become over-rich in plant nutrients.

For the Dutch roses, the most significant factors are cumulative energy use (electricity and natural gas combustion) and greenhouse gas emissions, both of which are driven by greenhouse lighting and heating in the Netherlands, which is not necessary in Kenya. Specifically, the cumulative energy demand

for Kenyan roses transported by ship is 22 times lower than that of conventional Dutch roses, while the energy footprint for Kenyan roses transported by air is 6.4 times lower than for Dutch roses.

For Fairtrade Kenyan roses, air transport has the greatest impact, specifically on greenhouse gas emissions. That said, greenhouse gas emissions of Fairtrade roses transported by plane from Kenya to Switzerland are still 2.9 times lower than emissions for Dutch roses, while for ship transport, the difference increases to 21 times lower for Fairtrade Kenyan roses.

In Kenya, there are 48 Fairtrade-certified flower and plant producer organizations that employ more than 38,000 workers. They produce approximately 2.6 billion stems per year.

Commissioned by Fairtrade Max Havelaar Switzerland and the Migros-Genossenschafts-Bund (MGB), the study examined the three stages of production, packaging, and transport of roses to Switzerland. The key figures for the agricultural production of Dutch roses were compiled from existing literature. The Fairtrade roses production data were collected directly from five Fairtrade producer organisations in Kenya.

This is a follow-up to a similar 2018 study aiming to measure updated production practices and impacts.

Some other key findings include that Fairtrade Kenyan roses shipped by sea fare better in comparison to Dutch roses on water use (65 percent less), terrestrial acidification (4.3 times less impact), and freshwater eutrophication (18 times less impact). Comparing impacts on biodiversity loss, both types of Fairtrade roses have less impact than Dutch roses, with those transported by air having a smaller footprint than ship transport due to longer ground transport by lorry from ports rather than closer airports. Pesticide use is the only factor that was higher

for Kenyan roses than Dutch roses, though the study data set was limited.

The study also suggests that reducing packaging could further improve the Kenyan rose's footprint. In comparison to the Fairtrade production assessed in 2018, the amount of plastic for packaging decreased, but a further reduction of paper and cardboard would improve resource consumption and transport weight.

Flowers are a key Fairtrade product and are popular among consumers, particularly around fixed annual events such as Valentine's Day. According to the latest data, around one billion Fairtrade flower stems and young plants are sold each year, with workers in 2022 earning more than €7.5 million in Fairtrade Premium to invest in improving their lives and communities.

For more information:
Fairtrade International

Approval of FloriPEFCR By European Commission

Front row from left to right: Jeroen Oudheusden (FSI), Albert Haasnoot (Royal FloraHolland) en Roline Broekema (project leader Wageningen University & Research).

Consumers and trade across Europe are increasingly demanding demonstrably verifiable sustainably grown flowers and plants. Reliability and transparency of Royal FloraHolland's platform is therefore an absolute must for the reputation of the sector. This is where growers and buyers find each other and do business with peace of mind. To meet this growing demand for reliable insight into the environment impact of floriculture products, a consortium of lots led by Royal FloraHolland and Wageningen University & Research has developed the FloriPEFCR for the European floriculture market / horticulture market. The FloriPEFCR is now the new standard method for environmental footprint calculations for flowers and plants.

The FloriPEFCR (Floriculture Product Environmental Footprint Category Rules) allows you to calculate the environmental impact of cut flowers and pot plants using 16 environmental indicators. This calculation is done according to a European Commission recognised, accredited Product Environmental Footprint standard, under which FloriPEFCR falls. Following the submission on 29 September 2023 of the final version of FloriPEFCR to the European Commission (EC), the project management has been interrogated considerably on the content by the Technical Advisory Board and the Environmental Footprint Team of the EC in recent months. This questioning has now been successfully completed and from now on we can calculate, compare and monitor the environment impact for a cut flower or pot plant in an unambiguous way.

Festive celebration approval

During the festive presentation on 14 February 2024, in the presence of representatives of project partners and tool builders, among others, the final approval was celebrated. Project leader Roline Broekema of Wageningen University & Research, under the watchful eye of the consortium partners and Technical Secretariat chairman Albert Haasnoot (Royal FloraHolland), symbolically handed the FloriPEFCR booklet to Jeroen Oudheusden (Executive Officer Floriculture Sustainability Initiative). This moment marks the starting point for the next step of the FloriPEFCR.

Next step

Now that the FloriPEFCR has been endorsed by the EC, the entire floriculture sector can get to work to realise the ultimate purpose | goal of the FloriPEFCR: to show in an unambiguous and verified way the environmental impact of a floriculture market / horticulture market in order to use this insight to reduce the environmental impact of floriculture products. FSI will support the lots by developing a benchmark for tools that promote unity of both methodology and data verification and exchange. In 2024, Royal FloraHolland will develop a vision for the use of footprint information. In doing so, Floriday will be committed to exchanging this information. Through the practical application of footprint information, we will reduce the sector's ecological footprint and collaborate to increase trust and transparency.

Ornamental Horticulture in Kenya: The Stats

As seen in the charts featured below, the three years after Covid-19 struck show fluctuating figures. The Kenyan flower industry has had to face and solve various challenges, leading to interesting solutions and new opportunities.

Kenya is the world's fourth largest exporter of fresh-cut flowers after The Netherlands, Colombia and Ecuador. The industry spans approximately 4,500 Ha, and although roses compose the lion's share of the product mix, many other flower types are also produced, such as carnations, lilies, chrysanthemums, statice, hypericums, gypsophila, scabiosas, eryngiums, craspedias, ornithogalum, and alstroemerias, as well as many kinds of cut foliage.

Kenyan flowers reach more than 60 countries worldwide, but the primary market is by far The Netherlands, with a share of 48% (many of these flowers are then distributed across the EU). Nonetheless, Kenya has positioned itself as the first world exporter of roses to Japan and Australia. It has significantly increased access to a series of attractive, emerging markets, for example, Saudi Arabia and the UAE.

The following charts provide a snapshot of Kenyan flower exports over the past decade:."

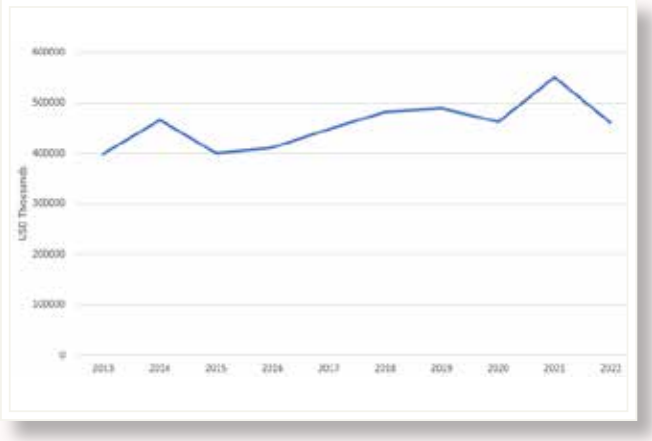

Fig 1. Total cut flower exports from Kenya 2013 – 2022 based on value, figures in USD 1000s. Source: ITC Trademaps, UN Comtrade 2023.

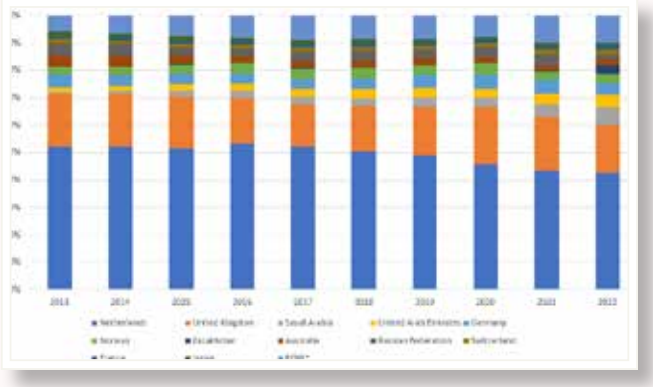

*Fig 2. Kenyan cut flower exports by destination 2013 - 2022 (based on value, USD 1000s). Source: ITC Trademaps, UN Comtrade 2023. * Rest of the world.*

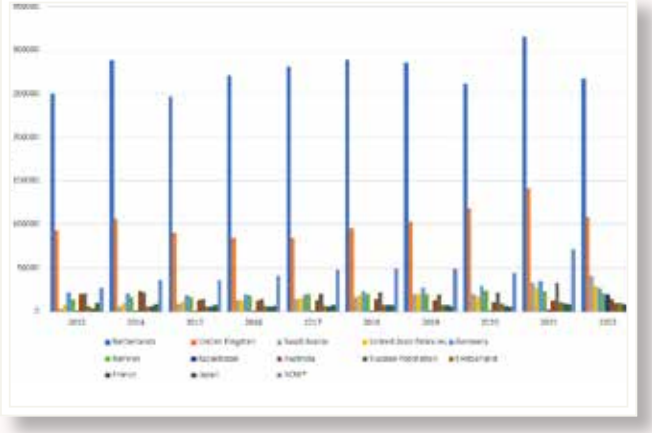

Fig 3. Percentages of Kenyan cut flower exports reaching main destinations 2013 - 2022 (based on value, USD 1000s). Source: ITC Trademaps, UN Comtrade 2023.

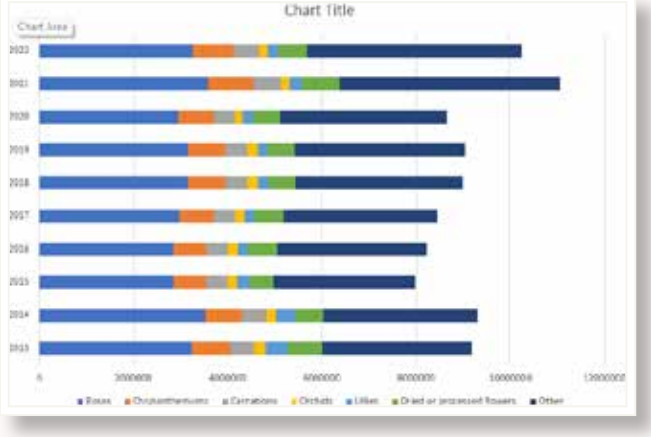

Fig 4. Evolution of the product mix exported from Kenya 2013 – 2022. Based on value, figures in USD 1000. Source: ITC Trademaps, UN Comtrade 2023.

Spray Roses in the Picture at De Ruiter E.A

De Ruiter East Africa (DREA) recently hosted an Open House at their test facilities in Naivasha, Kenya. The breeder welcomed growers to see the existing assortment and new introductions.

The entire assortment was on display, but the focus this year was on spray roses in particular. There were two main reasons for doing so; sales & marketing manager at DREA Rohit Patil told us, “demand is growing and De Ruiter’s genetics in spray roses is getting better and better.”

In the spray roses segment, three novelties were presented:

• Pink Dimension®: Very popular among the growers, first commercial plantings had taken place.

• Constellation® : Variety from E.G Hill’s, DREA was representing them in East Africa. Garden type opening, received a lot of attention in 2023, among the florists. Soon it would be available in Auction and Direct market.

• Cute Bubbles® : Recently introduced variety with high production.

In addition, there were three new introductions in the standard assortment:

• Anne-Laure®: New white variety, mutation of famous variety Pomarosa®. It is a tall, productive, and big-bud variety. It is being planted in Kenya and becoming popular among the growers.

• Lucette®: Newly introduced variety with a bold yellow color, productive. This variety works for both retail and wholesale segments.

• Emira®: Another newly introduced variety during IFTF 2023 received a positive response from traders and growers. It is becoming popular because of its high-yielding and large bud-size characteristics.

Last but not least, since De Ruiter was well established in reds, was not a surprise that two new reds - one for the retail segment, the other for wholesalers - would also make their appearance.

Primarily, growers from Kenya visited, but growers from Uganda, Rwanda, and Ethiopia had also been invited. In addition to De Ruiter, Andermatt, a supplier of Biological crop protection products, and Chrysal, a supplier of sustainable pre- and post-harvest solutions, was also be on-site to present their products.

For more information: www.deruiter.com


Constellation en Cute Bubbles


Pink Dimension


Anne-Laure, Emira, Lucette

SWITCH®

Top of mind fungicide against botrytis.

Switch offers:

- Outstanding long lasting protectant and curative control.
- Better control of post-harvest botrytis infections leading to improved flower vase life.
- Excellent Integrated Pest Management (IPM) fit.

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Efficient and Cost Effective Sea Freight

January 2024 marks four years since Clement Tulezi joined the Kenya Flower Council as CEO. Working in Kenya's flower industry fits him like a glove. In a previous interview with Floriculture, he said, "Every day is fulfilling. There are no dull moments. The dynamism and day-to-day demands of the industry keep us on our toes."

Florinews: What was the biggest challenge brought by the pandemic?

Clement Tulezi: "Shipping and distribution, without any doubt. Before the pandemic, the transport of flowers was largely done via airfreight – between air cargo and passenger planes- and the capacity and costs were adequate. But with Covid-19, everything changed. Passenger flights stopped altogether, and freight costs on the few remaining cargo flights skyrocketed. Even now, when things are back to normal, airfreight from Kenya is still high - probably the highest in the world at U$2.2 per kg (before the pandemic, it was U$1.5)."

How has the industry addressed this?

"The situation brought back to the table a conversation that had started 15 years ago but which had not been truly necessary at the time: sea freight. The need for an efficient, cost-effective transportation option has spurred a series of interesting initiatives, in particular the Sea freight logistics working group, a public/ private initiative launched in 2021, which brings together a variety of stakeholders and sectors: cut flower exporters, sea carriers like Kühne & Nagel or Maersk; service providers like Flowerwatch (providing postharvest and quality cut flower management) or Chrysal (cut flower food); flower, vegetable and fruit growers and exporters; the Dutch Embassy in Kenya and the Kenyan Government. The Kenya Flower Council chairs the initiative and is in charge of its coordination."

How will this initiative be funded, and what does it comprise?

"Funding of €25 million over five years has been sourced from the European Union under the Trademark Africa Project and the Business Enhancement and Export Enhancement Programme (BEEEP)."


Mr. Clement Tulezi, CEO, Kenya Flower Council

What is the overall goal of this project, and how is it being developed?

"The project has been conceived on a stepwise basis. The first stage comprised research on optimum conditions for transporting different flower types, ensuring perfect conditions for

moving flowers from farm to consumer: this primarily focused on achieving a perfect, uninterrupted cold chain and evaluating the benefits of using controlled atmospheres.

A second stage currently under development seeks to establish export supply hubs and deals with consolidation since only a few exporters are able to fill a shipping container fully, and it has become apparent from the first stage that it is much preferable to pack a single type of flower (sometimes even a single variety) at a time. Further, work

with government agencies is underway with a goal of making necessary procedures like phytosanitary inspection the most efficient possible, completing it before containers are packed and other measures striving to avoid opening containers at any time in the distribution chain."

The overall goal is to ship 50 per cent of Kenyan flower exports by sea in seven years' time. This is ambitious, as currently, that proportion stands at four per cent. However, the robust network of stakeholders working towards this end gives me much confidence."

> We are ready to expand market access and are making strides in Asia (Japan, China, Malaysia) and the Middle East (particularly the Gulf countries). We are solving challenges posed by demanding markets, for example, Australia, which has stringent phytosanitary requirements.

What are some specific hurdles encountered?

"Ground transportation, for one. Flowers ship out from the port of Mombassa, currently a good 15 hours of driving away, in refrigerated trucks."

What about the main achievements and new goals as the project moves forward?

"We have really developed sound knowledge on maritime transport of cut flowers. When and how to ship, achieving optimum storage/ shipping conditions, adapting flowers for final sale, and ND OTHERS. Complaints about quality have really gone down – rejections are below ten per cent. Also, the carbon footprint of sea freight is much lower than air freight's.

Another initiative underway is taking advantage of the existing rail transport network and making it efficient in relation to energy, time, and cost through solar power. Trains could take only seven hours to Mombassa, and powering them with solar energy is a very feasible option. We are looking into this with Flying Swan, a Dutch company with all the necessary expertise and funding from the EU."

Will sea freight eventually replace airfreight as the preferred mode of transport for cut flowers exported from Kenya?

"In all honesty, I don't think so. These are complementary transport options. Airfreight is needed for a last-minute or quick fulfilment of market orders. Sea freight requires careful planning and scheduling, and delivery can take 30 days (still, the flowers arrive in perfect condition). However, joint work with other exporting sectors – especially avocados and mangoes going to the same markets- will allow us to build up volumes and enhance logistics and could reduce shipping times to as little as ten days."

How about markets for which maritime transport is not feasible – particularly the USA?

"Before the pandemic, many of our members focused on entering the US market. This was accompanied by an effort from the Kenyan Government to establish at least five direct Kenya Airways flights to New York per week, which could offer sufficient and dedicated cargo capacity for flowers.

The pandemic disrupted these plans, and flights disappeared;

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currently, flights to New York operate only three times a week, with no cargo capacity specifically dedicated to flowers. In fact, most of the cargo space is taken up by garments assembled in Kenya! Nevertheless, some Kenyan exporters such as Flamingo flowers have strengthened their presence in the USA, even shipping consumer-ready bouquets."

Do you have any further thoughts on the present and future of the Kenyan flower industry?

"We have come a long way. Our industry has matured and can meet stringent requirements imposed by strict European consumers; we go to great lengths, some even beyond what is strictly necessary, such as measuring MRLs (Minimum Residue Levels), something that is not required in non-food products such as flowers.

We are ready to expand market access and are making strides in Asia (Japan, China, Malaysia) and the Middle East (particularly the Gulf countries). We are solving challenges posed by demanding markets, for example, Australia, which has stringent phytosanitary requirements.

We are well aware that, together with expanding market access, we need to diversify products and presentations. We have started growing more flower types, including many fillers and summer flowers, some of these in the open field. We are improving packaging, promoting bouquets, and working on logistics. This is strictly within sustainability parameters, which are extremely important to us. There is much to do, but the future is optimistic.

The overall goal is to ship 50 per cent of Kenyan flower exports by sea in seven years' time. This is ambitious, as currently, that proportion stands at four per cent. However, the robust network of stakeholders working towards this end gives me much confidence."

CHRYSAL CARES

Fresh flowers by sea

Chrysal Sea Freight Service

CHRYSAL

World's Flower and Plant Fairs

MARCH

5. BELGIUM
Florall is Belgium's leading horticultural trade show at Waregem Expo.
www.florall.be

8-10. USA
Santa Barbara International Orchid Show, Earl Warren Showgrounds, California.
www.sborchidshow.com

12-14. MEXICO
GreenTech Americas. Querétaro Centro de Congresos, México.
www.greentech.nl/americas

13-14. DENMARK
The Floradania Trade Fair aka Handelspladsen in Odense.
www.floradania.dk

13-15.NETHERLANDS
Tulip Trade Event.
www.tuliptradeevent.nl

13-15.VIETNAM
Hortex Vietnam at the Saigon Exhibition and Convention Center, Ho Chi Minh City.
www.hortex-vietnam.com

19-21. ZIMBABWE
HortiFlor Zimbabwe at Harare's International Convention Centre.
www.hortiflorzimbabwe.org

20-23. ETHIOPIA
HortiFlora Expo at the Millennium Hall in Addis Ababa.
www.hppexhibitions.com/hfe/

20-24. USA
California Trials.
www.growertalks.com/CaliforniaTrials

21 MARCH- 12 MAY. NETHERLANDS
Keukenhof, the world's largest spring gardens in Lisse.
www.keukenhof.nl

APRIL 2024

15-19. MOROCCO
CIOPORA Annual General Meeting will take place in the vibrant city of Marrakech.
www.ciopora.org/agm-2024

24-25. NORWAY
European Photonics Industry Consortium - EPIC meeting focusing on the latest advancements in photonics
www.epic-assoc.com/events

26 APRIL – 28 OCTOBER. CHINA
AIPH-approved B Category 2024 Chengdu International Horticultural Exhibition.
www.cdhortiexpo2024.com

MAY 2024

17-26. FRANCE
Floralies International Nantes at La Chabotterie en Vendée. AIPH-approved C Category International Horticultural Show.
www.comite-des-floralies.com

21-25. UK
RHS Chelsea Flower Show.
www.rhs.org.uk

23-25. CHINA
HortiflorExpo IPM Beijing at the new China International Exhibition Centre.
www.hortiflorexpo-ipm-china

JUNE 2024

4-6. KENYA
Iftex at Nairobi's Oshwal Centre.
www.hppexhibitions.com

4-7. NETHERLANDS
Dutch Lily Days.
www.dutchlilydays.nl

5-6. SPAIN
Biopesticides Europe 2024 in Barcelona.
www.wplgroup.com/aci/event/biopesticides-europe

5-7. USA
Floriexpo at the Broward County Convention Center, Fort Lauderdale, Florida.
www.floriexpo.com

11-13. NETHERLANDS
GreenTech Amsterdam, celebrating greenhouse horticulture's thriving tech. AIPH-approved D Category International Horticultural Trade Show.
www.greentech.nl

11-14. NETHERLANDS
FlowerTrials Open House event for the pot and bedding plant industry.
www.flowertrials.com

19-20. UK
HTA National Plant Show at NAEC Stoneleigh.
www.hta.org.uk/national-plant-show

JULY 2024

29 JULY-1 AUGUST. USA
Perennial Plant Association National Symposium at the Embassy Suites Asheville Downtown, Asheville, North Carolina.
www.perennialplant.org

AUGUST 2024

4-9. CHINA
International Peat Congress in Taizhou, Zhejiang Province.
www.ipc2024.com

7-8. USA
The Nursery Landscape Expo at the Henry B. Gonzalez Convention Center, San Antonio, Texas.
www.nurserylandscapeexpo.org

14-15. DENMARK
The Floradania Trade Fair aka Handelspladsen in Odense.
www.floradania.dk

21-22. NETHERLANDS
Plantarium Groen-Direkt Autumn Edition at the International Trade Center, Hazerswoude/Boskoop, Netherlands. AIPH-approved D Category International Horticultural Trade Show.
www.plantariumgroendirekt.nl

21-23. USA
Farwest Show at the Oregon Convention Center, Portland, Oregon.
www.farwestshow.com

25-31. CANADA
64th International Garden Centre Congress in Québec.
www.igca24.ca/registration

SEPTEMBER 2024

5-7. POLAND
31st Green Is Life, Expo XXI, Warsaw. AIPH-approved D Category International Horticultural Trade Show.
www.zielentozycie.pl

5-7.POLAND
The 76th AIPH Annual Congress will take place between at the AIPH-approved International Horticultural Trade Show: Green is Life, Expo XXI, Warsaw.
www.aiph.org/events

10-12. UK
GLEE at the NEC in Birmingham.
www.gleebirmingham.com

18. POLAND
Fresh Market at MCC Mazurkas Conference Centre, Warsaw.
www.freshmarket.eu

25-27. ITALY
Flormart at Fiera di Padova in Padua.
www.flormart.it

OCTOBER 2024

1-3. SPAIN
Iberflora at Feria Valencias.
www.iberflora.feriavalencia.com

2-4. NETHERLANDS
GrootGroenPlus at Zundert's at Treeport Rijsbergen/Zundert.
www.grootgroenplus.nl

17-19. USA
Global Produce & Floral Show, Atlanta.
www.freshproduce.com

21-23. SWITZERLAND
The 19th Annual Biocontrol Industry Meeting.
www.abim.ch

25-27. INDIA
The 17th International Flora Expo and 17th International Landscape and Gardening Expo are at Mumbai's NESCO convention centre.
www.floraexpo.com

KENYA

IFTEX 2024: Sustainability Advancements in the Global Cut Flower Industry

On Monday, June 3, 2024, a day prior to the IFTEX day, an international conference will be organized to discuss the latest developments in sustainability within the international cut flower industry and the urgency of addressing it to all flower buyers around the world.

It is imperative that a unified and unequivocal message is conveyed regarding the realities of cut flower cultivation and its sustainability. The cut flower industry's reputation is at risk due to the absence of a collective response thus far, compounded by the proliferation of misinformation.

The repercussions of this reputational challenge are growing steadily, and there is a legitimate concern that they may reach a critical point beyond recovery. Consequently, the global industry must take action promptly to rectify this situation before it becomes irreversible.

To this end, a conference discussion will be held at the conference hall of the Oshwal Center, the same venue for the 11th edition of IFTEX in Nairobi Kenya, one day prior to the official opening of IFTEX 2024, which is scheduled at 11:00 am on Monday June 3rd.

For more details visit: www.hppexhibition.com

NOVEMBER 2024

5-7.NETHERLANDS
Trade Fair Aalsmeer at the Royal FloraHolland flower auction in Aalsmeer.
www.tradefairaalsmeer.royalfloraholland.com

6-8. NETHERLANDS
IFTF at Expo Greater Amsterdam.
www.hpp.nl

DECEMBER 2024

9-12. USA
Great Lakes EXPO at the DeVos Place Convention Center, Grand Rapids, Michigan.
www.glexpo.com

Advantages of Biocontrol

There are many advantages of biocontrol compared to chemical pest control. Here, we look at five of the main ones.

By Chrissy Sihdu

Plantwise Plant Doctors promote the benefits of natural biopesticides to a female farmer in Cambodia. Credit CABI

We're focusing on two types of biocontrol – also called bioprotectants. Firstly, biopesticides include pheromones, micro-organisms and natural substances. Natural substances can be things such as minerals and oils. Secondly, macrobials or invertebrate biocontrol agents. This includes beneficial organisms such as insects and mites.

1: They lower negative impacts on human health

From farmers and field workers to residues in food products, chemical pesticides pose many health issues to people. Biological approaches can deliver on pest control while maintaining the safety of both consumers and workers.

Low or no toxicity is a significant advantage of biocontrol. This is especially true when considering the harmful residues that chemicals can leave on the crop. While biocontrol has little to no toxicity, every chemical has residue limits. Growers cannot exceed them by law. They can even have their produce rejected when residues are too high.

Using biocontrol products also lowers the health risks to the farmers themselves. Handling and spraying toxic chemicals can have serious negative consequences. Using biocontrol eliminates these risks. Low or no toxicity means biocontrol also has very short or no pre-harvest intervals. (These are the time periods at which pest control applications must stop before harvesting starts). Chemicals often have long pre-harvest intervals to give them time to disperse. If growers find a pest shortly before harvesting, they can use biocontrol to manage pests, even if they can't use chemicals.

2: They have minimal impact on the environment

Closely linked to this is another significant advantage of biocontrol – it's environmentally friendly. Chemical pesticides have harmful residues that can seep into the soil or run off into water sources and harm wildlife. They control and kill pests. But they also indiscriminately kill beneficial organisms and upset the delicate balance of nature.

Bioprotectants, on the other hand, are natural products and degrade quickly. Any negative effects are transient. They come from the very environments in which they're meant to be used. They've co-evolved with beneficial

The greyback cane beetle is the worst insect pest of sugar cane. CSIRO developed the biopesticide, Biocane, as an alternative to chemical pesticides. The active ingredient is the naturally occurring fungus, metarhizium. Credit: CSIRO

organisms, such as ladybirds, mites and pollinators like bees. Bioprotectants control pests naturally without disturbing biodiversity or ecosystems.

3: They slow down pest resistance

Here is a lesser-known advantage of biocontrol. It slows down resistance to plant protection products. With chemicals, there's a risk that the pest becomes used to the chemical. It can build up resistance to it which means that the chemical no longer kills or controls the pest.

With biocontrol, you can replace a singular mode of action with multiple modes of action. Each time, the pest must find a new way to fight the biocontrol, slowing down resistance.

Growers can use different modes of action to manage pests. Fungi, for example, can grow inside pests and suffocate them. Substances like natural oils can confuse or smother pests. Beneficial insects can actively seek out pests and attack them.

4: Some bioprotectants actively seek out pests

Here's the fourth advantage of biocontrol. Macrobials – insects and nematodes (microscopic worms), for example – can move around to find the pest. With chemicals, growers have to rely on applying the chemical to exactly the right location and trust that the pest will come into contact with the chemical.

This means macrobials can find pests even if they're 'hiding'. For example, growers can mix nematodes into the ground. The worms then search out slugs. Growers don't need to just 'hope' the slug will discover a slug pellet. Beneficial mites can seek out pests that hide under leaves or find them during certain times of the day.

Insecticide chemical damage on leaves. Douglas-fir tussock moth control project. Credit: USDA Forest Service, Region 6, State and Private Forestry, Forest Health Protection.

5: They help growers align with environmental and health regulations

A significant advantage of biocontrol is its compatibility with environmental and health regulations. Bioprotectants also align with integrated pest management (IPM) and organic certification schemes. And they can support biodynamic agriculture.

Growers are under pressure to find alternatives to chemical pest control. Some regions of the world such as the EU are very serious about reducing chemical pesticides. Growers need to keep their businesses competitive and sustainable. By avoiding chemicals, they can achieve higher food production standards. They can also reach stricter international markets. This can help to future-proof their businesses and livelihoods.

Courtesy 0f CABI Bioprotection Portal blog.

Choosing the Right Substrate

Floriculture, the art and science of cultivating flowers, is a link between nature and nurture. As a floriculturist, one of the most crucial decisions you'll make is selecting the substrate in which your flowers will grow. The substrate, often referred to as growing medium or soilless mix, plays a pivotal role in the success of your floriculture endeavors. It serves as the foundation for your plants, providing essential nutrients, water retention, aeration, and support.

Understanding the Importance of Substrate Selection

The substrate serves as the lifeline for your plants, influencing their growth, development, and overall health. Choosing the appropriate substrate is akin to selecting the perfect environment for your flowers to thrive. Several factors come into play when determining the ideal substrate, including:

1. Nutrient Content

Different flowers have varying nutrient requirements. Some may thrive in nutrient-rich substrates, while others prefer leaner mixes. Understanding the nutritional needs of your flowers is essential for selecting the right substrate.

2. Water Retention and Drainage

Balancing water retention and drainage is crucial for preventing waterlogged or parched roots. The substrate should have adequate porosity to allow for proper drainage while retaining enough moisture to sustain plant growth.

3. pH Levels

The pH level of the substrate directly impacts nutrient availability to plants. Certain flowers thrive in acidic conditions, while others prefer neutral or slightly alkaline soils. Choosing a substrate with the appropriate pH level is vital for optimal plant growth.

4. Aeration

Proper aeration is necessary for healthy root development and oxygen uptake. Compacted or dense substrates can impede root growth and lead to plant stress. A well-aerated substrate promotes robust root systems and vigorous plant growth.

Tailoring Substrate Selection to Your Floriculture Needs

Floriculture encompasses a diverse range of flowers, each with its unique requirements and preferences. Whether you're growing delicate roses, vibrant orchids, or hearty chrysanthemums, selecting the right substrate is paramount. Here's how to match your floriculture needs with the perfect substrate:

1. For Delicate Flowers

Peat Moss-Based Mixtures

Delicate flowers such as roses, gerberas, and lisianthus thrive in well-draining yet moisture-retentive substrates. Peat moss-based mixtures offer excellent water retention while maintaining good aeration. These substrates are typically lightweight and provide a stable environment for delicate root systems.

Additionally, peat moss tends to be slightly acidic, making it ideal for acid-loving plants. However, it's essential to monitor pH levels regularly and amend the substrate as needed to ensure optimal growing conditions.

2. For Orchids

Bark-Based Mixtures

Orchids, with their unique epiphytic roots, require a substrate that mimics their natural growing environment. Bark-based mixtures, typically composed of fir or pine bark, provide excellent drainage and aeration for orchid roots. These substrates also allow for airflow around the roots, preventing rot and fungal diseases common in overly moist conditions. Orchids prefer slightly acidic to neutral pH levels, making bark-based mixtures an ideal choice. However, it's essential to select the appropriate bark size and composition based on the specific orchid species you're cultivating.

3. For Hardy Flowers: Perlite-Enriched Mixtures

Hardy flowers such as marigolds, petunias, and zinnias thrive in well-draining substrates that provide ample aeration. Perlite-enriched mixtures, which combine peat moss or coir with perlite, offer excellent drainage and lightweight properties. Perlite, a volcanic glass that expands when heated, creates air pockets within the substrate, promoting root growth and preventing compaction.

These substrates are versatile and suitable for a wide range of flowering plants. They provide a balanced environment with sufficient moisture retention and aeration for robust plant growth.

4. For Hydroponic Cultivation

Rockwool or Coco Coir

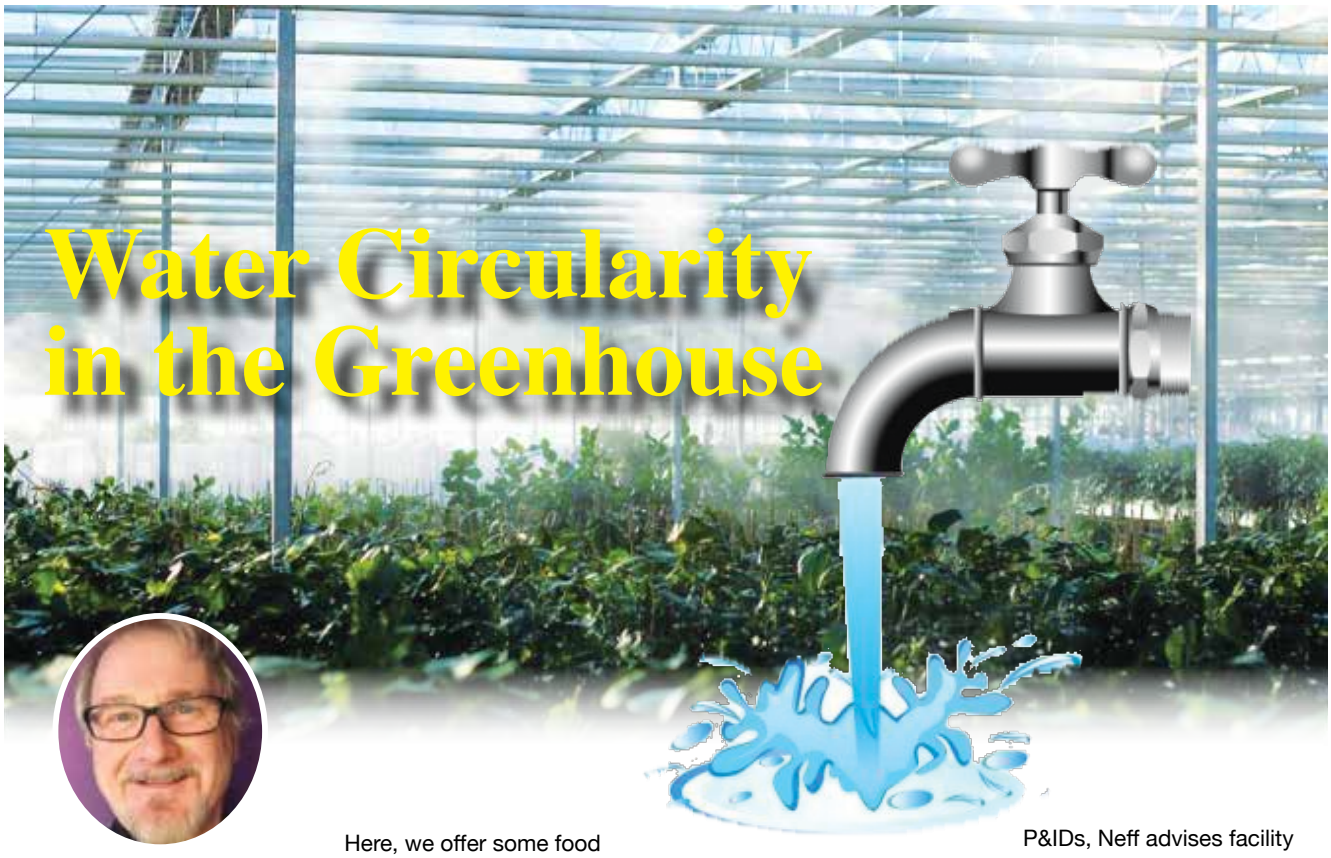
Hydroponic floriculture involves growing plants in nutrient-rich water solutions without soil. In such systems, the substrate serves as a support structure for the plants' roots while allowing for nutrient uptake and oxygenation. Rockwool, a mineral-based substrate made from volcanic rock, and coco coir, derived from coconut husks, are commonly used in hydroponic floriculture.

Rockwool offers excellent water retention and stability, making it ideal for hydroponic systems.

Coco coir, on the other hand, is renewable, environmentally friendly, and promotes healthy root development. Both substrates can be tailored to suit the specific nutrient requirements of different flower species grown hydroponically.

Selecting the right substrate is a critical step in ensuring the success of your floriculture endeavors. By understanding the specific needs of your flowers and matching them with the appropriate substrate, you can create an optimal growing environment for healthy, vibrant blooms. Whether you're cultivating delicate roses, exotic orchids, or hardy annuals, there's a substrate tailored to your floriculture needs. Remember to consider factors such as nutrient content, water retention, pH levels, and aeration when choosing the perfect substrate for your flowers. With the right substrate and proper care, your floriculture endeavors are sure to flourish.

Water Circularity in the Greenhouse



By Robert Eddy

As global water scarcity intensifies, commercial greenhouse operations must pivot towards innovative solutions that not only conserve this precious resource, but also bolster operational efficiency. Advanced irrigation systems, rainwater harvesting, and intelligent water recycling mechanisms emerge as pivotal components for successful water circularity in greenhouse operations.

First approaching those conversations, however, can be difficult, as ever-shifting operational priorities keep greenhouse growers busy. But water circularity is not just an ideal to be targeted down the road, it's an investment in your business's, and the industry's, future.

Here, we offer some food for thought and advice on integrating water circularity principles in greenhouse operations to help increase water efficiency and profitability.

Review Plans and Data

The first step in evaluating potential water-saving opportunities is to map out the current water system. Reviewing updated plumbing and instrumentation diagrams (P&IDs) will help greenhouse operators understand currently installed equipment and how water flows through the facility.

"Question 'Why do I need that piece of equipment?'" he says. For example, reverse osmosis (RO) purification systems are staples in research facilities, but can create a lot of waste discharge and often use a lot of electricity, increasing production costs.

Unless there are high levels of bicarbonates or other elements toxic to plants, most operations do not need to treat their incoming water with RO systems, with other filtration strategies able to more efficiently meet the facility's needs.

"If you can remove a piece of hardware out of the whole system, that can help things as well," Neff says. "When you have more hardware, you're adding more complexity to the system, more things that break down. The last thing a facility manager wants is more complexity."

In addition to reviewing P&IDs, Neff advises facility operators to also collect water usage data via flow meters. While the facility's water meter will divulge how much water the entire facility uses in a given period, installing additional flow meters around the facility will offer a more granular view of how the facility uses that water. P&IDs will show where flow meters are installed, or where they may need to be added. Flow meters are relatively inexpensive and can greatly increase the visibility into any facility's water use.

Larger greenhouse operations may also want to invest in leachate monitoring systems and/or testing of fertigation runoff, Neff says. "If it's going to a storage pond or a tank before it gets dumped, take a sample and send it off to the lab," Neff says. "Then you can determine how much

fertilizer you're basically throwing down the drain with that leach that could potentially be treated and then reused."

Water circularity upgrades can make any CEA facility more efficient, but justifying those costs can be more difficult for smaller operations. "It's hard for companies to profitably design a system for a very small grower with a very small amount of water to recirculate," says Al Zylstra, Division Manager at RII member Dramm. Certain equipment can only be made so small, meaning fixed purchasing and installation costs can make the return on investment too long for mom-and-pop operations.

Rather than looking to install new expensive equipment, Zylstra suggests operators audit their facility's water usage by comparing ideal water usage against actual figures. "Based on plant demand, what is your ideal water use in a greenhouse facility? How many 4-inch pots, how many 6-inch pots, 10-inch pots is it?" Zylstra says. "What is the crop, how much of it are you growing, and how much water does each plant take per day on a warm, sunny day? By doing that water audit, you can come fairly close to identifying how much waste you have in your water systems."

Prioritizing Water Efficiency Upgrades

Once P&IDs are reviewed and current water usage measured, most operations' next step will be making upgrade plans. Deciding where to start can lead to passionate conversations: should the most cost-effective solutions be implemented first? Or the ones with the highest water reduction/circularity potential?

Both Zylstra and Neff suggest operators take into account the local and state water regulations and how those are evolving as governments prioritize water-saving policies.

"It's important to not only know what the regulations are, but to dig into their depths. Because, eventually, the questions that will have to be answered for the design team relate to that," Zylstra says.

Consider Controls and Automation Upgrades For Rapid Results

Anecdotally, overwatering has been and continues to be the "sin of our industry," Zylstra says. "Overwatering leads to excessive leachate that needs to be treated and drained."

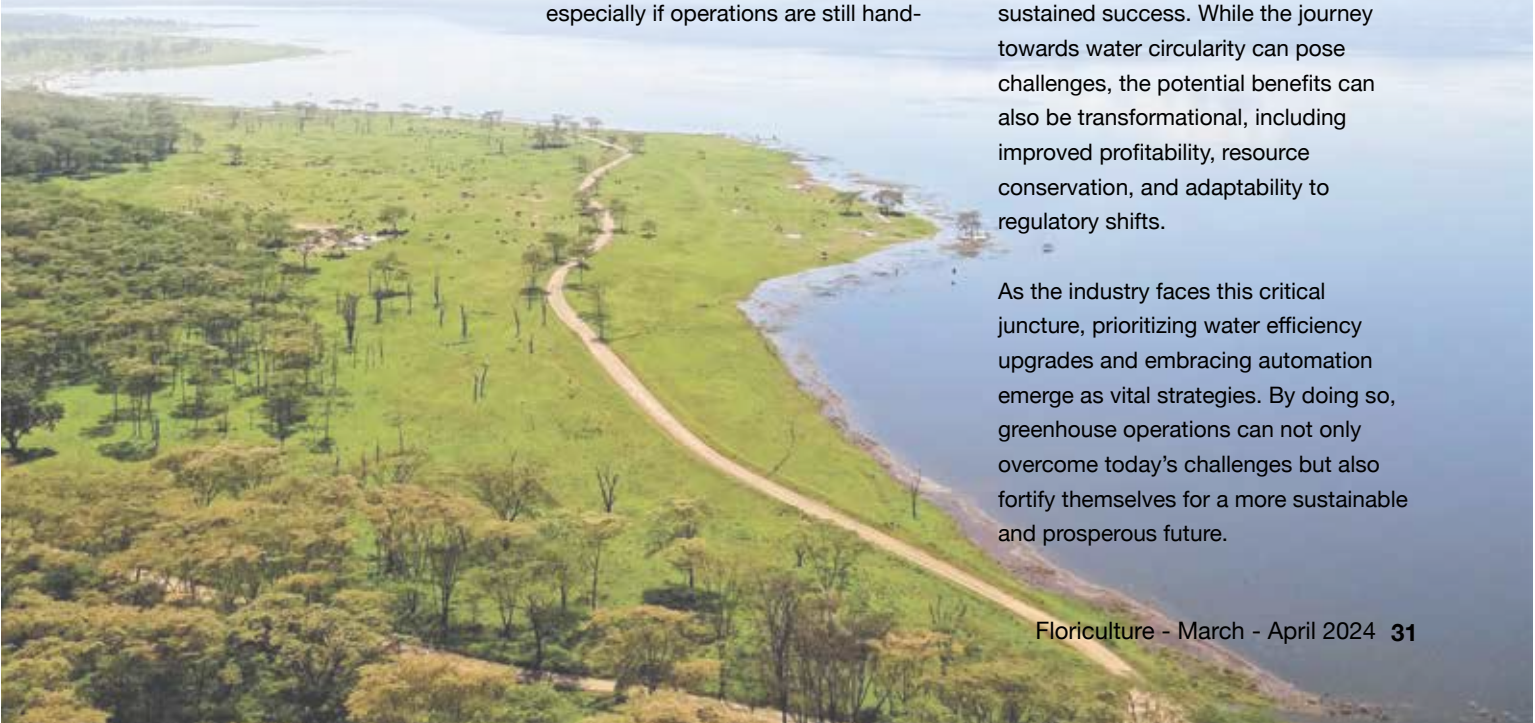
Overwatering can happen easily, especially if operations are still hand-watering crops. According to RII's Water Circularity Best Practices Guide, "[as] much as half the water applied by a hose without a shutoff at the nozzle end doesn't make it into a pot, wetting the floors and aisles instead."

Automating irrigation and fertigation tasks can be an early system upgrade that greatly improves water usage by reducing waste and only offering crops the exact amount of water needed when it is needed. "Automated control of your irrigation goes a long way towards reducing use," Zylstra says. Before purchasing a state-of-the-art control system, Neff suggests looking closely at the systems operators currently have.

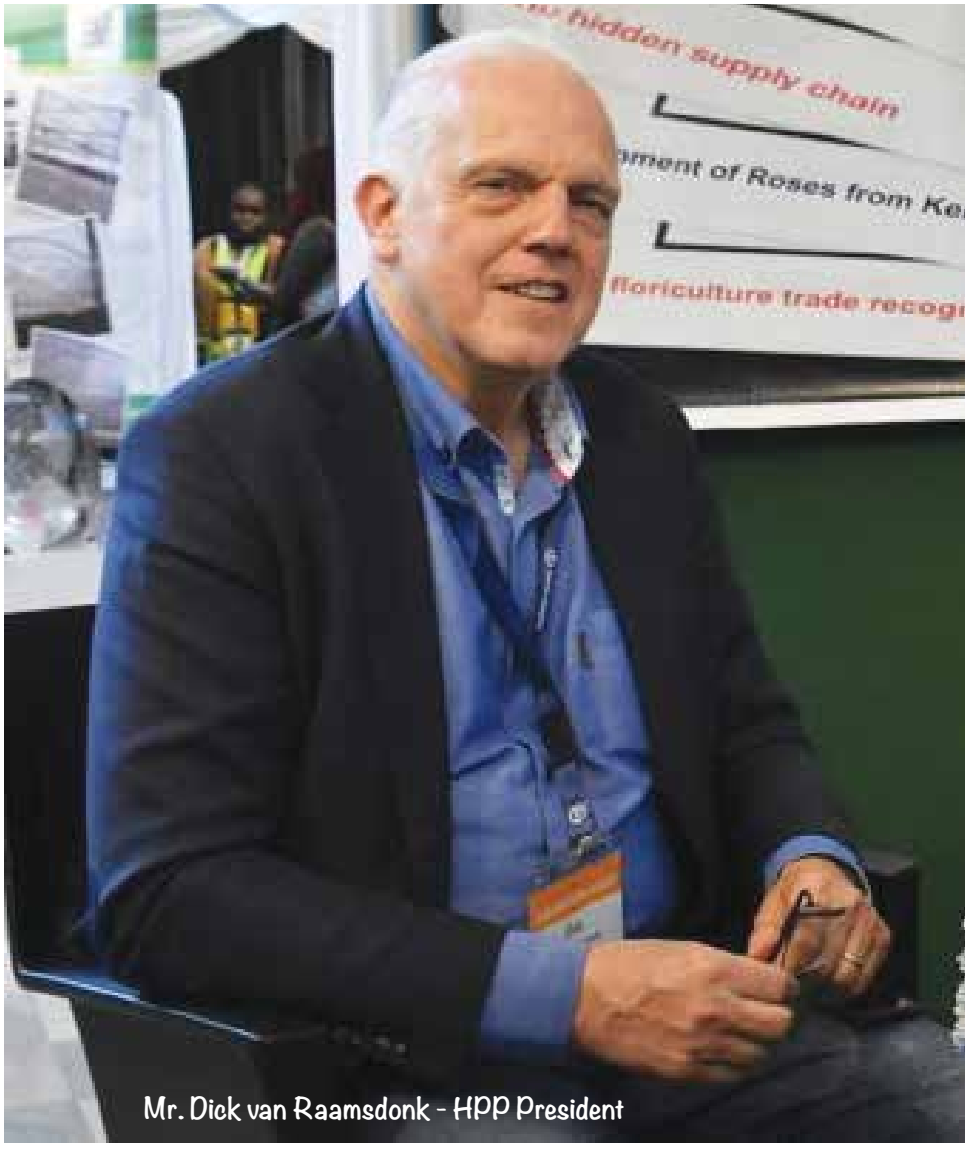
"Most facilities are not utilizing their control system to the maximum, and that's where you should start," he says. "Rediscovering forgotten automation features, such as flow monitoring of incoming and outgoing water, can help avoid unnecessary spending, downtime due to installation, and equipment calibration costs."

Initiating conversations on water circularity may appear daunting amidst dynamic operational demands, yet it is an indispensable commitment for sustained success. While the journey towards water circularity can pose challenges, the potential benefits can also be transformational, including improved profitability, resource conservation, and adaptability to regulatory shifts.

As the industry faces this critical juncture, prioritizing water efficiency upgrades and embracing automation emerge as vital strategies. By doing so, greenhouse operations can not only overcome today's challenges but also fortify themselves for a more sustainable and prosperous future.



IFTEX 2024: Crafting Memorable Experiences



Mr. Dick van Raamsdonk - HPP President

In the dynamic landscape of the international flower trade, events like the International Flower Trade Expo (IFTEX) serve as pivotal platforms for organizations to showcase their floral offerings, exchange ideas, and shape the future of the industry. These expos are not just showcases; they represent opportunities for creativity, engagement, and networking on a global scale. This year's IFTEX is scheduled to kick off on Tuesday, 4th June, 2024 and run through to 6th, June 2024. As exhibitors gear up to leave a lasting impression at IFTEX, a well-structured plan, meticulous execution, and thoughtful follow-up are essential components of their journey.

I. Setting Clear Objectives: Building the Foundation

Before the preparation for IFTEX, it's imperative to define clear objectives. Whether the aim is to introduce new floral varieties, expand market presence, establish partnerships, or boost sales, having a crystal-clear vision sets the tone for every subsequent decision. With defined goals in mind, organizations can tailor their strategies, focusing on what truly matters and avoiding distractions that may dilute their message.

II. Designing the Exhibition Space: Creating an Immersive Environment

The IFTEX exhibition space serves as a canvas where floral creativity flourishes. Every element—color schemes, layout, signage, lighting—contributes to the overall ambiance and message. The design should reflect the essence of flowers and the beauty they represent, blending aesthetics with functionality to captivate visitors. Incorporating elements of storytelling and sensory engagement ensures that the space resonates with attendees, drawing them into the world of flowers being presented.

III. Embracing Technological Innovations: Elevating Engagement

In today's digital age, technology plays a pivotal role in enhancing the IFTEX experience. Interactive displays showcasing floral arrangements, augmented reality experiences allowing visitors to virtually explore different flower varieties, and digital presentations on sustainable growing practices offer novel ways for participants to engage with the floral industry. Integrating technology seamlessly demonstrates the

> The IFTEX exhibition space serves as a canvas where floral creativity flourishes. Every element—color schemes, layout, signage, lighting—contributes to the overall ambiance and message. The design should reflect the essence of flowers and the beauty they represent, blending aesthetics with functionality to captivate visitors.

industry's commitment to innovation and sustainability, setting IFTEX apart and leaving a lasting impression on attendees.

IV. Meticulous Planning and Execution: Ensuring Seamless Operations

Logistical considerations are paramount in the IFTEX preparation process. From transportation of delicate floral arrangements to setup and breakdown of exhibits, meticulous planning is crucial to ensure everything runs smoothly. Collaboration with logistic partners, floral experts, and event management teams streamlines the process, allowing exhibitors to focus on showcasing their floral offerings without being bogged down by operational challenges.

V. Crafting Compelling Content: Weaving an Intriguing Floral Narrative

Content is the heart of IFTEX. Whether it's through breathtaking floral displays, educational presentations on flower cultivation techniques, or discussions on floral trends, each piece of content should contribute to the overarching narrative of celebrating flowers. Compelling content not only informs but also inspires and delights, forging a deeper connection between exhibitors and attendees.

VI. Maximizing Engagement: Before, During, and After the Event

Engagement is key at every stage of the IFTEX journey. Building excitement before the event through floral teasers and social media campaigns sets the stage for meaningful interactions. During the expo, interactive floral workshops, personalized consultations with floral experts, and networking sessions deepen the connection between exhibitors and visitors. Post-event follow-up ensures that relationships forged during IFTEX are nurtured, potentially leading to future collaborations and business opportunities in the global floral market.

VII. Effective Networking: Cultivating Professional Relationships

IFTEX provides unparalleled opportunities for networking within the

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global floral community. Beyond exchanging business cards, effective networking involves genuine conversations about floral innovations, market trends, and sustainability practices. Engaging with floral industry peers, potential buyers, and partners fosters relationships that extend beyond the expo floor, enriching professional circles and opening doors to new opportunities in the international flower trade.

VIII. Mitigating Challenges: Planning for Floral Contingencies

Despite meticulous planning, challenges may arise during IFTEX. Conducting a comprehensive risk assessment helps identify potential hurdles such as transportation delays, flower quality issues, or logistical hiccups, and devise strategies to mitigate them. Having contingency plans in place ensures a seamless experience for both exhibitors and attendees, allowing the focus to remain on celebrating the beauty and diversity of flowers.

IX. Celebrating Success: Blossoming Together

As IFTEX unfolds, exhibitors witness the culmination of months of hard work and preparation. The vibrant atmosphere, filled with the fragrance and colors of flowers, sets the stage for meaningful interactions and engagements. Exhibitors have the opportunity to showcase their floral masterpieces, share their passion for flowers, and inspire others, leaving a lasting impression on all those who

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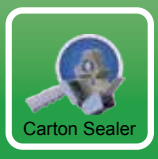
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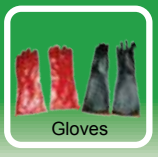
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immerse themselves in the floral wonderland of IFTEX.

X. Fostering Lasting Relationships: Blooming Beyond IFTEX

The journey doesn't end with the conclusion of IFTEX; it transitions into the realm of follow-ups and relationship-building. Timely and personalized communication ensures that the momentum generated during the expo is carried forward, potentially translating into tangible outcomes such as new partnerships, international collaborations, or expanded market opportunities in the flourishing world of flowers.

In retrospect, IFTEX is a multifaceted endeavor that requires meticulous planning, creative vision, and dedicated execution to celebrate the beauty and significance of flowers on a global stage. From setting clear objectives to fostering lasting relationships, each step of the IFTEX journey contributes to creating an immersive and impactful experience that blossoms in the hearts and minds of all those who partake in the floral extravaganza. As exhibitors prepare to showcase their floral treasures, they embark on a journey that has the power to transform businesses, inspire innovation, and cultivate a deeper appreciation for the natural beauty that flowers bring to the world.

Sixty Years
of NL-Kenya Bilateral Relations: Going Back in Time with Royal FloraHolland

In the spirit of #60yearsofNLKE, we are going back in time to explore the history of our strong ties. Below is the interview with Royal FloraHolland, an international cooperative and marketplace for floriculture based in the Netherlands that operates in Kenya.

How long has Royal FloraHolland been present in Kenya?
Royal FloraHolland Kenya was incorporated in 2006 as FH Services Kenya Ltd. We have been present in Kenya for 18 years.

Can you tell a bit about the history of the company?
In 2006, our office had 6 staff who offered services to growers by marketing flowers, providing freight solutions, processing grower invoices, and registering new members. Only a small number of roses were exported from Kenya to the Royal FloraHolland auction. As an auction, we mostly had roses from the Netherlands.

Today, we have over 100 member growers and 15 suppliers producing flowers across 3,401 hectares in various regions in Kenya, sending their flowers to the auction in the Netherlands and various destinations across the world.

Our office has grown to 28 staff who offer services such as our Global Sourcing and post-harvest services. We also offer financial services through our B2B platform Floriday.

What have been the most notable changes of working in Kenya over the past decades?
Kenya is now the key economic and commercial hub of East Africa. In recent years, it has emerged as one of the fastest growing economies in the world. Over the past decades there have been enormous strides made in the field of digitalization and e-commerce.

For our floriculture sector, there has been continuous improvement in cool chain management for flowers through improved road infrastructure and facilities such as cold rooms at the airport. This has enabled our growers to deliver quality products to customers across the globe. Furthermore, sea freight solutions are also now available to our growers.

Can you describe what is special about working in Kenya?
Kenya is the number one export country for flowers to the Netherlands. In 2022, Kenya exported € 390 million worth of flowers to Royal FloraHolland through our members and suppliers.

Farms in Kenya are often located at altitudes from 1,400 to 2,700 meters. At these altitudes, roses have thicker buds, with more exclusive varieties. Kenya is consistent and known globally for delivering an increasingly higher quality product.

Kenya has a diversified assortment of flowers, suitable for different destination markets and consumer preferences. For example, roses grown in different altitudes in the county appeal to different consumer markets. Italy, for instance, often requires long stems with large buds while the United Kingdom is suitable for flowers tailored to the retail segment (supermarkets). Southern Europe, on the other hand, has a lot more specialty stores e.g. the cash & carry businesses where florists come to buy their flowers. Growers in Kenya can meet the demands of these different markets.

Although the rose is by far the most popular product, more than 110 varieties of flowers are farmed in Kenya and exported to over 60 destinations globally, making it Africa's flower hub.

What do you wish to see in the coming 60 years for NL-Kenya relations?
The Netherlands and Kenya enjoy strong trade relations with agriculture, and specifically a vibrant horticulture sector, as a key driver. As of October 2022, the Netherlands exported €33M and imported €47M from Kenya, resulting in a positive trade balance of €14M between Kenya and the Netherlands.

We would like to see these partnerships grow even stronger, for example by improving access to data. For us, as a cooperative based in the Netherlands, export data is imperative as it allows us to make informed strategic decisions on behalf of our members not only in Kenya but globally.

Contact
For more information about this sector or any other agricultural questions feel free to contact us via NAI-LNV@minbuza.nl. For the latest updates on activities, new articles and more follow us on twitter on @NLAgiKenya and subscribe to our newsletter by sending us an email. In case of any non-agriculture questions for the Netherlands Embassy in Nairobi see, this website for contact information.

EU Implements Stricter Measures to Combat False Codling Moth

In response to the rising threat of False Codling Moth (FCM) infestation in flower imports, the European Union (EU) is enacting stringent measures to safeguard its agriculture and economy. Recent reports from Brussels indicate a concerted effort between the European Commission and the 27 EU Member States to address the potential risks posed by the introduction of FCM through cut flower imports, particularly roses.

The European Food Safety Authority (EFSA) published an opinion in October 2023 highlighting the risks associated with imports of cut roses, emphasizing the need for preventive measures. Discussions are ongoing to determine the appropriate regulatory actions, with a focus on countries known to harbor FCM, including Kenya, Ethiopia, Tanzania, Uganda, Zambia, and Zimbabwe.

Key proposals include the implementation of a systems approach, supervised by National Plant Protection Authorities (NPPOs), to ensure farms adhere to rigorous exclusion measures. Additionally, there will be a requirement for official export inspections by national authorities, ensuring a certain level of statistical confidence in the exclusion of infestations.

In anticipation of these regulatory changes, the EU is poised to increase the minimum percentage of plant health import inspections for roses from Kenya and Ethiopia to 25%. This adjustment, part of the annual review process under Commission Implementing Regulation 2022/2389, aims to fortify border controls and mitigate the risk of FCM introduction.

The implications of these measures extend beyond regulatory compliance. Flower exporters, particularly those from Ethiopia and Kenya, express concerns over the potential impact on delivery timelines and product freshness. Increased inspection frequencies and larger sampling sizes pose significant challenges, with exporters facing the prospect of recalling or dumping shipments that fail to meet regulatory standards.

The geographical prevalence of FCM, particularly in regions with conducive climates such as vineyards near Ziway (Batu) in Ethiopia's Oromia Regional State, underscores the urgency of the situation. Despite assurances from Ethiopian authorities regarding climate differences and infestation risks, the possibility of FCM developing resistance remains a looming concern for both exporting and importing nations.

Furthermore, the economic repercussions of FCM infestation loom large. With horticulture exports aiming for USD 742 million in revenues, the shortfall in the first quarter signals potential losses for exporters and disruptions to global supply chains. The Netherlands, a major importer of Ethiopian flowers, stands at the forefront of these concerns, prompting diplomatic engagements between Ethiopian and Dutch officials to address the looming threat.

As the EU moves forward with implementing stricter measures, stakeholders remain vigilant, emphasizing the need for collaborative efforts to combat FCM infestation effectively. The resilience of flower exporters and the integrity of global trade hinges on proactive measures to safeguard against the menace of False Codling Moth.

Training Kenyan Farmers on Fruit Fly Management

The embassy of the kingdom of the Netherlands, in collaboration with Kenya Plant Health Inspectorate Services (Kephis) and the county government of Embu under the Kenya Netherlands agriculture working group, are embarking on a journey to replicate these interventions aimed at supporting farmers from Embu to address these challenges.

The aim is to provide farmers in Embu with the necessary tools, knowledge, and resources to overcome these challenges and improve their agricultural practices. Through this collaboration, the two governments hope to promote sustainable farming methods, increase incomes, enhance food security in the region and increase export of mangoes to EU markets.

Through this collaboration, farmers from Kangari South Ward and Kieni south Ward in Embu County were trained on identification and Management of mango fruit fly and other pests, creation of pest free areas, opportunities along the value chain for the youth, and requirements for certification of fresh mango fruits for export to European Union countries.

According to Charles Wanjau - Horticultural Crop Officer; County Director's of Agriculture Office-Embu county, "these interventions and collaborative approaches are the solution in collectively supporting our farmers. We will create two pest free areas in these two wards, targeting 3,000 farmers. This will then be followed up by a scaling up programme across the county, based on the outcomes."

To make this possible, private sector players are key in commercializing IPM solutions. Charles Macharia-Managing Director-Koppert Kenya Limited, introduced Koppert to the farmers, highlighting the need to reduce the use of harmful chemicals, that may also contribute to rejection of fruit during export and also for the health of consumers. "Our pest management solutions are friendly for both the environment and consumers, we use naturally occurring solutions like baits and biopesticides to control these pests."

Catherine Ndwiga - Mango Farmer, Kieni South Ward owns a mango orchard that sits on 15acres. She noted the drop in her yields due to the fruit fly that has been a challenge "I used to harvest a lot of fruit, but over the years, this has dropped due to the fruit fly. The training that we have undertaken

today, is a game changer for me and my neighboring farmers. Kephis has trained us on the importance of ensuring that we reduce the population of the fruit fly. I now understand that I cannot do this alone. The fruit fly is able to travel distances of up to 10 kilometers. This means that we must work together as farmers to ensure that everyone adopts the interventions that we have been trained on, otherwise we will fail and continue to incur more losses."

The training also provided an opportunity for the youth to identify areas they can plug in along the value chain. Justine Mugendi a youth farmer from Kangari, runs a farm with 300 mango trees. He highlighted on the challenge of access to capital, and how best to involve the youth. "Normally, most farms are owned by our parents, we also have limited capital. Introducing these interventions require concerted efforts to address the pest and disease challenges, this will create an opportunities for the youth to establish service provision enterprises (SPE's) that can provide spraying, orchard management, and capacity building solutions to the farmers at a fee. As youth, we don't all have to focus on production, but we can explore other income generating opportunities."

"We want to assure you of the continued commitment between the Kingdom of the Netherlands and the Kenyan government to improve trade relations. To achieve this, working with stakeholders and having farmers at the heart of the interventions, will be the winning formula in positioning the mango sub-sector. " - Elizabeth Kiamba, Agricultural Advisor (Embassy of the Kingdom of the Netherlands Nairobi)

So far, the breakthrough from these interventions have enabled Kenya to access new markets such as Jordan, UAE and china. About 360MT of vapor heat treated mango fruits were exported this year to Jordan. This was brokered by The Kenya Plant Health Inspectorate services (KEPHIS), whose mandate is to assure the quality of agricultural inputs and produce to prevent adverse impacts on the economy, the environment, and human health, has made this possible.

This is in line with the International Plant Protection Convention (IPPC) an intergovernmental treaty signed by over 180 countries, aimed at protecting the world's plant resources from the spread and introduction of pests, and promoting safe trade.

As stakeholders work towards improving this critical sub-sector. The Kingdom of The Netherlands has been and will continue its commitment towards scaling trade partnership with the Kenyan Government.

For more information about this sector or any other agricultural questions feel free to contact us via nai-Inv@minbuza.nl. For the latest updates on activities, new articles and more follow us on X (Twitter) on @NLAgiKenya and subscribe to our newsletter by sending us an email. In case of any non-agriculture questions for the Netherlands Embassy in Nairobi, see this website for contact information.

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Kakuzi Pledges

Commitment to ESG Standards and Supports

Smallholder Farmers Ahead of Avocado Export Season

Kakuzi PLC, a prominent agribusiness firm known for its commitment to sustainability, has announced a dual initiative aimed at enhancing Environmental, Social, and Governance (ESG) standards while supporting smallholder farmers as Kenya gears up for the avocado export season. With a dedicated investment of Sh250 million, Kakuzi is set to fortify its ESG practices across its supply chain. This investment underscores the company's dedication to meeting the expectations of global clients and local communities alike. Managing Director Chris Flowers emphasized the significance of ESG compliance in today's market, citing its importance to international fresh produce buyers.

Flowers stressed that adherence to ESG standards is not only crucial for maintaining competitiveness in the global market but also essential for the overall improvement of Kenya's agricultural exports. He highlighted the need for national compliance and capacity building among stakeholders, particularly those involved in export-oriented agribusiness ventures.

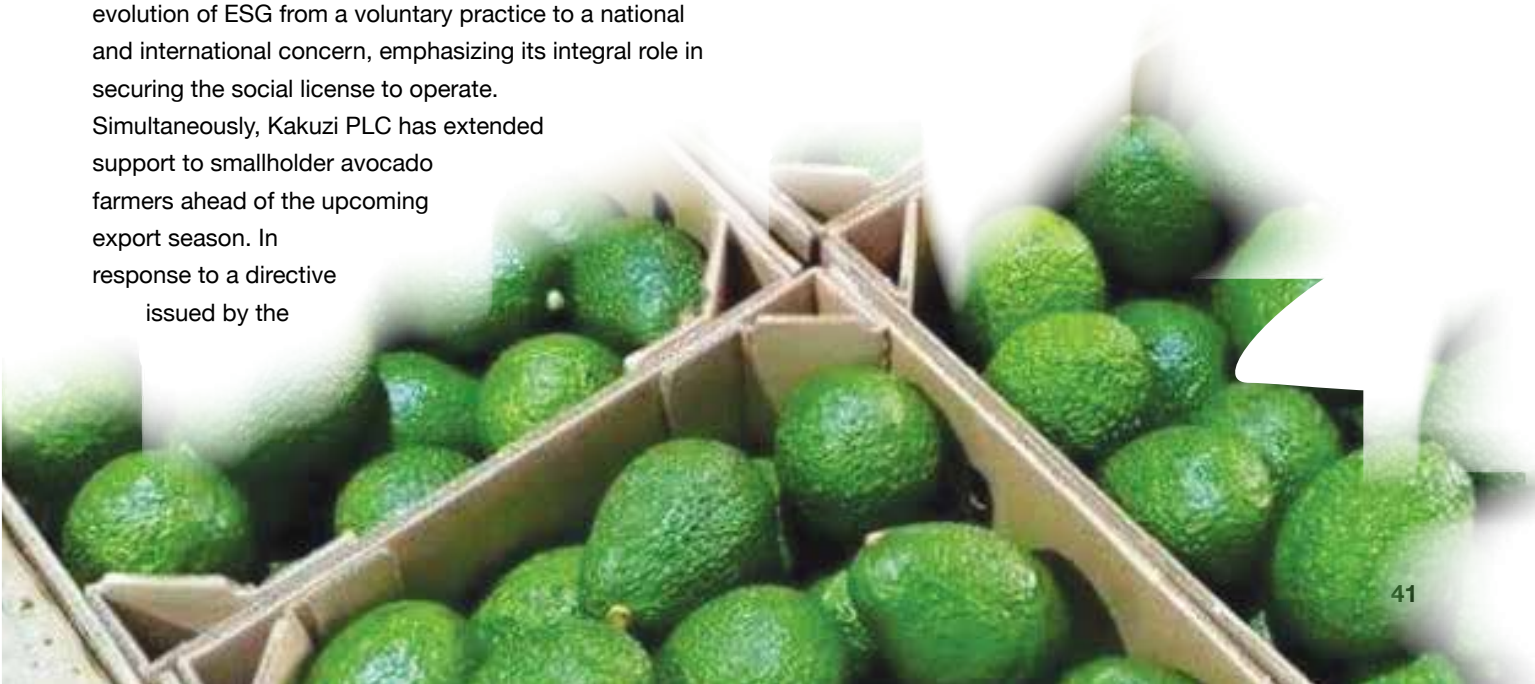
Speaking at the closure of the FRUIT LOGISTICA exhibition in Berlin, Germany, Flowers reaffirmed Kakuzi's commitment to upholding robust ESG standards. He emphasized the evolution of ESG from a voluntary practice to a national and international concern, emphasizing its integral role in securing the social license to operate.

Simultaneously, Kakuzi PLC has extended support to smallholder avocado farmers ahead of the upcoming export season. In response to a directive issued by the Agriculture and Food Authority (AFA), Kakuzi will provide complimentary maturity testing services to ensure compliance with regulatory and market standards.

Acknowledging Kenya's favorable position in avocado production, Flowers emphasized the need for stringent adherence to phytosanitary measures, environmental practices, and governance standards across the industry. Kakuzi has already conducted internal maturity testing at its GlobalGAP-certified facility, ensuring readiness for the avocado harvest season.

In alignment with AFA directives, Kakuzi will facilitate avocado inspections and ensure product traceability through collaboration with Horticultural Produce Marketing Agents (HPMA) and suppliers. Flowers reiterated Kakuzi's commitment to supporting smallholder farmers, emphasizing the importance of adhering to prescribed standards to maintain the high quality of Kenyan avocados in the international market.

As Kakuzi continues to champion ESG principles and support local farmers, its initiatives serve as a testament to its dedication to sustainability and community prosperity in Kenya's agricultural sector.



Koppert's Sustainable Growth: HAL Investments Partnership and Mirical's Triumph in Agricultural Innovation

Koppert secured a strategic investment from HAL Investments, injecting €140 million euros in preferred share capital to fuel its international expansion and strengthen its position as a global leader in biological solutions for agriculture. This funding will bolster production facilities, support working capital, and drive growth initiatives worldwide, including research and development, in-licensing, and mergers and acquisitions. René Koppert, CEO of Koppert, expressed enthusiasm for the partnership, emphasizing shared values and commitment to driving positive change in sustainable agriculture. With HAL's support, Koppert aims to accelerate its growth trajectory, delivering cutting-edge solutions and fostering success for customers on a global scale.

Koppert's Mirical, a groundbreaking biological solution, clinched the top spot at the Fruit Logistica Innovation Award Technology in Berlin. The innovative release system replaced plastic bottles with compostable corrugated cardboard strips, enhancing efficiency and sustainability while ensuring optimal conditions for beneficial bugs during transportation. This game-changing packaging not only improved bug distribution in crops but also simplified dosing and monitoring. Mirical, a generalist predator targeting various pests, garnered praise from growers since its successful launch in France, boasting improved performance and reduced application time by up to 50%. Koppert's commitment to innovation continues to reshape the agricultural landscape.

Marco van der Sar Appointed Chairman of MPS Board

On April 1, 2024, Marco van der Sar is set to assume the role of MPS board chairman, succeeding Gijs Kok. With a background in the green sector and experience at Royal FloraHolland and Dümmen Orange, Van der Sar aims to enhance sustainability efforts within the horticulture industry. He looks forward to collaborating with the board and growers to increase MPS's value to businesses. Gijs Kok's six-year tenure saw significant advancements in sustainability, and Van der Sar aims to build upon this foundation while adding his own insights. MPS, committed to global sustainability, operates in 52 countries, engaging over 3,500 growers worldwide. For details, visit www.my-mps.com.

New Management at DFG Africa

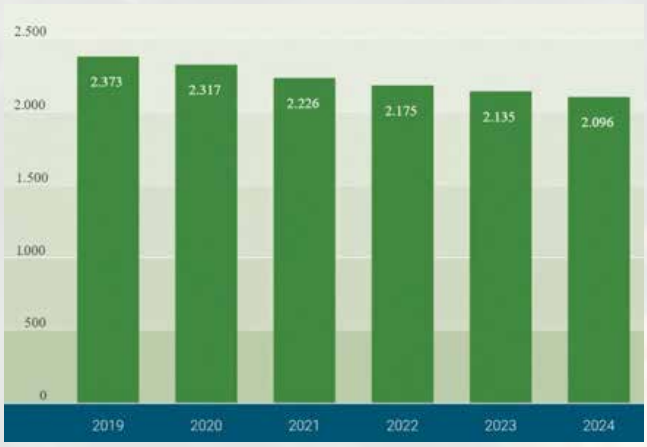
Dutch Flower Group Africa (DFG Africa) with a history of more than 20 years in Kenya, and with 40 employees, has a new management team effective February 1, 2024. Mercy Lang'at, previously operations manager, is now the general manager.

She reports to Marco Verheul, director strategic sourcing, and oversees Grace Mwaura, the supply chain manager, and Jelle Griffioen, managing Packed At Source Africa. With a focus on closer cooperation with Kenyan growers, growth in packed at-source activities, and increased sea freight logistics, DFG Africa is poised for future success.

Dutch Chamber of Commerce:

Number of flower growers decreased by 10% over the past five years

According to recent figures derived from the Dutch Chamber of Commerce (KVK), the number of flower growers (both greenhouse and open field) registered in its Trade Register is declining. Over the past five years, their numbers have decreased by more than 10%, from 2,373 to 2,096. The largest decline is observed in the Dutch province of South Holland, where 68 growers ceased operations over five years. Thereafter follows North Holland with a loss of 60 growers, which is a 10% reduction.



The main reasons for growers' ceasing their businesses include the energy crisis, staff shortages, changing laws and regulations, inflation, and the lack of a successor.

Source: The Netherlands Chamber of Commerce (KVK)

Petals in the Sky: LATAM Group's Valentine's Flower Triumph

LATAM group's air cargo subsidiaries transported nearly 25,000 tons of flowers from Colombia and Ecuador during the Valentine's season, marking a 36% increase from 2023. With 418 takeoffs, they doubled regular frequencies, utilizing two additional freighters. The company enhanced capacity with 21 freighter aircraft and invested in modernizing Miami hub's cold storage warehouses. Colombia exported 13,000 tons of flowers, while Ecuador nearly doubled its exports compared to 2023, totaling almost 11,500 tons. Claudio Torres Faini, LATAM Cargo Chile's International Commercial Director, credits collaboration and infrastructure for the successful season.

FLOWER & VEGETABLE FARMS IN KENYA

AAA- Flowers-Simba	Roses	Rumuruti	Sanjeev	0739360050	sanjeev@aaagrowers.co.ke
AAA- Flowers -Chui Farm	Roses	Timau	Phanuel Ochunga	07522506026	fanuel.ochunga@aaagrowers.co.ke
AAA-Simba Farm	Roses	Rumuruti	-	-	-
Across Agriculture Ltd	Herbs	-	Emily Chepkemoi	0729080186	chep28@gmail.com
Africalla Kenya Ltd	Cuttings	Eldoret	Meindert	-	meindert@africalla.com
Africa Blooms	Roses	Salgaa	Ramnath Sarbande	0798190511	ramnath.sarbande@xflora.net
Agriflora (K) Ltd		Nakuru, Njoro	Charles Mulemba	0721311279	cmulemba@sianflowers.co.ke
Aquila Development Co	Roses	Naivasha	Prashant Takate	0799356002	gm@aquilaflowers.com
Baraka Roses/ Mumi Flora	Roses	Ngorika	Paul Salim	0746766638	-
Batian Flowers	Roses	Nanyuki	Rakesh	0724631299	
Beautyline	Flowers	Naivasha	Peter Gathiaka	0721392559	peter@beautyli.com
Big Flowers	Roses	Timau	Gideon Waweru	0721178974	gideon@fontana.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
Bohemian	Flowers	Nakuru	Thambe Sabaji	0734 740202	-
Black Petals	Roses	Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
Black Tulip- Lemotit	Flowers	Kericho	Yogesh	0715817369	-
Bliss Flora Ltd	Roses	Njoro	Appachu Sachin	0789101060	appachu7@yahoo.com
Bloom Valley	Roses	Salgaa	Ramnath Sarbande	0798190511	ramnath.sarbande@xflora.net
Blooming Dale Roses Kenya Ltd	Roses	Nanyuki	Sunil	0718991182	info@bloomingdaleroses.com
Blooming Africa	-	Gilgil	Bert	0722204309	bert@blooming-innovations.com
Buds and Blooms	Roses	Nakuru	Shivaji Wagh	0720895911	shivaniket@yahoo.com
Carzan (K) Ltd KS	Summer flowers	Salgaa	Stanley Rotich	0721931710	stanley.rotich@marginpar.biz
Carzan (K) Ltd ST	Hypericum, solidago	Sobea	Thaddeus Adung'o	0716019094	thaddeus.adung'o@marginpar.biz
Carzan - Molo	Carnations	Molo	Charles Chelule	0728784081	charles.chelule@marginpar.biz
Chestnut	Vegetables	Naromoru	Gabriel Kiai	-	gabriel.kiai@aaagrowers.co.ke
Colour Crops	Hypericum	Nanyuki	Kennedy Wanyama	0716389472	colourcrops@tmu.com
Colour crops	Summer Flowers-	Bahati	Patrick Kipkurui	0727806184	bahati@colourcrops.com
Colour crops	Flowers	Naivasha	Geoffrey Mwaura	0722200972	nva@colourcrops.com
Credible Blooms	Flowers	Rumuruti	Eliud Njenga	0722382859	eliud@pigeonblooms.com
Dale Flora	Roses	Mogotio	Brijesh	0715469732	-
Desire Flowers	Flowers	Isinya	Rajat Chaohan	0724264653	rajatchaohan@hotmail.com
De ruiters	Breeder Roses	Naivasha	Ethen Chege	0720477717	-
Dummen Orange	Flowers Breeders	Naivasha	Bart Engels	0759069896	b.engels@dummenorange.com
Eco Roses	Roses	Salgaa	Madhukar Bhalerao	0799555440	Mbhalerao.eco@btfgroup.com
Elbur flora- kimman	Roses	Nakuru	Daniel Moge	0721734104	kimmanexp@gmail.com
Enkasiti Thika	Flowers	Thika	Satish	0735270236	enkasiti@gmail.com
Equinox	Flowers	Nanyuki	Harry Kruger	0707266956	harry@equinoxflowers.com
Everest Flowers Ltd	Flowers	Mt. Kenya	Japheth Chelal	0721770597	-
Everflora Ltd.	Flowers	Thika	Ghanshyam Dusang	0721638005	manager1@everflora.co.ke
Evergreen Crops		Nairobi	Arun Singh	0721941009	arun@evergreencrops.com
Exotic	Roses/ Carnations	Athiriver	Peninah Shimon	0737626533	-
Fairy Flowers	Flowers	Limuru	-	-	-
Fides Kenya Ltd	Cuttings	Embu	Jan Molenaar	0733331580	-
Fontana Ltd - Akina farm	Roses	Njoro	Mahendra Patil	0798254199	mahendra@fontana.co.ke
Fontana Ltd - Ayana Farm	Roses	Mau Narok	Osman	0712933710	osman@fontana.co.ke
Flamingo Horticulture Farm	Flowers	Naivasha	Peter Mwangi	0722204505	peter.mwangi@flamingo.net
Flamingo -Kingfisher Farm	Flowers	Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@flamingo.net
Flamingo - Osprey		Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@flamingo.net
Flamingo -Siraji Farm	Carnations, Roses	Nanyuki	Peris Muturi	0729050116	Peris.Ndegwa@flamingo.net
Flamingo - Ibis	summer, vegetables	Nanyuki	Abraham Gitonga	0722605942	-
Flamingo - Pioneer	Roses	Nanyuki	Gregory Sunguvi	-	-
Flora ola	Roses	Solai-Nakuru	Lucas Choi	0721832710	lucas.choi@floraola.co.ke
Flora Delight	Summer flowers	Kiambu/ Limuru	Marco	0710802065	marcovansandijk@yahoo.com
Florensis Ltd	Cuttings	Naivasha	Simon Mwangi	0721519470	simon.mwangi@florensis.com
Florenza Ltd 1 & 2	Roses	Solai	Vivek Sharma	0731040498	farm.florenza@megaspingroup.com
Fresh Gold Flowers Ltd	Flowers	Mt. Kenya	John Karimi	0721622294	karimi@freshgolgkenya.co.ke
Gatoka Roses	Roses	Thika	Herman Njuguna	0728 854 844	info@gatokaflowers.com
Golden Tulip	Roses	Olkalao	Umesh Choudhery	0739729658	umesh.gftl@btfgroup.com

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Groove	Flowers	Naivasha	John Ngoni	0724448601	groovekenya@gmail.com
Hanna Roses Ltd	Roses	Thika	Dinkar Wandhekar	0702418174	dinkar@eaga.co.ke
Heritage Flowers Ltd	Roses	Rumuruti	Sailesh Kumar	0722203750	hfl.srk@gmail.com
Highland plantations	Cuttings & Herbs	Olkalau	Mangoli Dickson	0792847884	production@highlandplants.co.ke
Interplant Roses	Roses	Naivasha	Gavin Mourittzen	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	0720674307	kariki.production@kariki.biz
Kariki Ltd - Nanyuki	Eryngiums	Nanyuki	Peterson Thuita	0724786004	bondet.fm@karik.biz
Kariki Ltd - Naivasha	Summer	Naivasha	Esau Onyango	0728606878	hamwe.production@kariki.biz
Kariki Ltd - Molo	Fowers	Molo	James Oluoch	0716333717	jame.oluoch@kariki.biz
Kenflora Limited		Kiambu/ Limuru	Abdul Aleem	0722311468	info@kenfloraa.com
Kentalya	Cuttings	Naivasha	Lynette	0733549773	lynette@kentalya.com
Kikwetu Flowers	Roses	Mt. Kenya	Rathan	0787266007	
Kisima Farm Ltd	Roses	Timau	Craig Oulton	0722205828	craig@kisima.co.ke
Kreative	Roses- Breeders	Naivasha	Bas Smit	0733607755	info@kordes-ea.com
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	Roses	Naivasha	Jagtap Shahaji	0792547633	japtag@vegpro-group.com
Kongoni River Farm - Kongoni	Flowers	Timau	Kadam	0721274413	--
Kongoni River Farm -Bemack	Flowers	Timau	Balasaheb Ingwale	0717181102	balasaheb@vegpro-group.com
Kongoni River Farm - Galaxy	Roses	Naivasha	Chandrakant Bachche	0724639898	chandrakant.bachche@vegpro-group.com
Kongoni River Farm- Longonot	Roses	Naivasha	Ravi Sathe	0715173603	ravi.sathe@vegpro-group.com
Lamorna Ltd (Herburg Group)	Roses	Naivasha	Vijay	-	admin@lamornaflowers.com
Lathy Flora & Fairy	-	Kiambu	John Mbaoni	0753888126	info@lathyflora.com
Lauren International	Flowers	Thika	-	0706804225	ravipalshikar.lil@btfgroup.com
Laurel Investment	Roses	Olkalou	Ravindra Palshikar	0740569286	ravi.lil@btfgroup.com
Lolomarik	Roses	Nanyuki	Topper Murry	0715 727991	topper@lolomarik.com
Lobelia	Roses	Timau	Ken Mwiti	0722475785	info@lobelia.co.ke
Maridadi Flowers	Flowers	Naivasha	Jack Kneppers	0733333289	jack@maridadiflowers.com
Maua Agritech	Flowers	Isinya	Kori	115355251	kori@mauaagritech.com
Mau Flora	Roses	Nakuru, Turi	Manju	0748254171	manju@mauflora.co.ke
Milenium Growers	Summer Flowers	-	Sushant Wankara	0731316000	sushant@marvelgreens.com
Molo Greens	Solidago, carnations	-			
Mt. Elgon Orchards	Roses	Tran Nzoia	Bob Anderson	0735329395,	bob@mtelgon.com
Mt. Kenya Alstromeria	Alstromeria	Meru	Miriam	0716162671	miriam@mountkenyaalstromerialtd
Mzuurie Group	Roses		Andrew Wambua	0724256592	awambua@moloriverroses.co.ke
Mzuurie Flowers - Maji Mazuri	Roses	Moi's Bridge, Eldoret	Mark Juma	0727471034	mjuma@majimazuri.co.ke
Mzuurie Flowers - Molo River Roses	Flowers	Kilelwa	Paula Koros	072241436	pkoross@moloriverroses.co.ke
Mzuurie Flowers - Winchester Farm	Roses	Karen	Kasoso Joseph	0725696509	-
Mzuurie Flowers - Winchester Farm	Flowers	Bahati	Joseph Kasoso	0725696509	jkasoso@winchester.co.ke
Nini Farms (Herburg Group)	Roses	Naivasha	Vijay Bhosale	0702662297	vijay.bhosale@herburgroses.nl
Nirp East Africa	Roses	Naivasha	Danielle Spinks	0702685581	danielles@nirpinternational.com
Ol Njorowa	Roses	Naivasha	Charles Kinyanjui	0723986467	mbegu@olnjorowa.com
Panda Flowers	Roses	Naivasha	Sundhar	0748436571	farm@pandaflowers.co.ke
Panocol International	Roses	Eldoret	Paul Wekesa	0722748298	paul.wekesa@panocal.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@pentaflowers.co.ke
Pendekeza	Roses	Nanyuki	James Kiiru	0708124381	tambuzi.sales@tambuzi.co.ke
PJ Dave Flowers	Flowers	Isinya	Pravin Yadav	0708920202	gm@pidave.com
Pj Dave	Roses	Timau	Shantaram	0732556256	fmrisingsun@pjdave.com
PJ Flora	Roses	Isinya	Santos Kulkarni	0738990521	santosh@pjdaveflora.com
Plantech Kenya Ltd	Propagators	Naivasha	Idan Salvy	0702187105	idan@plantechkenya.com
Porini Flowers	Roses	Molo	Shakti Vanjimuthu	0739676998	shakti@poriniflowers.com
Primarosa Flowers Ltd	Roses	Ol njororok	Peter G. Njagi	0723575461	opm@primarosaflowers.com
Rain Forest Farmlands Ltd	Roses	Naivasha	Boniface Kiama	0722780811	bkiama@fleurafrica.com
Ravine Roses Flowers	Flowers	Eldama Ravin	Peter Kamuren	0722205657	pkamuren@karenroses.com
Redland Roses	Flowers	Thika	Kadlag Palaji	0723149968	-
Redwing Flowers	Flowers	Nakuru	Simon Sayer	0722227278	sayer@redwingltd.co.ke

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FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Rift Valley Roses (K) Ltd	Flowers	Naivasha	Peterson Muchiri	0721216026	fm@riftvalleyroses.co.ke
Rimi Flora Ltd	Hypericum	Njoro	Richard Mutua	0722357678	richard@rimiflora.com
Roseto	Roses	Salgaa	Aravindra Hirario	07417791483	gm.roseto@megaspingroup.com
Sandpro Growers	Gypsophylla	Meru	Elly Okech	0727580266	elly.okech@sandprogrowers.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	Senthil	0791184851	senthil.adhikesavan@bidcoafrica.com
Sunripe Farm		Naivasha	Antony	0711827785	naivasha@sunripe.co.ke
Schreus	Roses	Naivasha	Haiko Backer	-	-
Shades Horticulture	Flowers	Isinya	Ashutosh Mishra	0722972018	info@shadeshorticulture.com
Shalima Group (k) Ltd	Flowers	Nairobi	Natarajan	0738 999149	natarajan@eaga.co.ke
Shalimar Shalimar	Flowers	Naivasha	Maurice Ojoro	0725155307	-
Shalimar- Kabuku Farm	Flowers	Thika	Mohan Raj	0724265777	kabukufm@eaga.co.ke
shalimar- Mahee Farm	Roses	Olkalou	Natarajan	0738999149	natarajan@eaga.co.ke
Shalimar- Mwanzi Farm	Flowers	Rumuruti	Ram	0797185821	mwanziflowersfm@eaga.co.ke
Sian Flowers - Maasai Flowers	Flowers	Isinya	Nancy Kurgat	0720780322	nkurgat@sianflowers.co.ke
Sian Flowers - Agriflora (K) Ltd	Roses	Nakuru	Charles Mulemba	-	cmulemba@sianroses.co.ke
Sian Flowers - Equator Roses	Roses	Eldoret	Nehemiah Kangogo	0725848910	nkangogo@sianflowers.co.ke
Sierra flora	Roses	Njoro	Oppaso Bandgar	720070053	farm.sierra@megaspingroup.com
Simbi Roses	Roses	Thika	Karue Jefferson	0733771652	simbi@sansora.co.ke
Sirgoek Flowers	Flowers	Eldoret	Andrew Keittany	0725 946429	sirgoek@africaonline.co.ke
Solai Roses	Flowers	Solai, Nakuru	-	-	solairoses@gmail.com
Sololo Agriculture	-	Eldoret	Andrew Tubei	0722728364	atubei@sianflowers.co.ke
Subati Flowers	Roses	Subukia	Naren Patel	0712 584124	naren@subatiflowers.com
Subati Flowers	Roses	Naivasha	Naren Patel	0712 584124	naren@subatiflowers.com
Subati Flowers (Suera)	Roses	Nyandarua	Naren Patel	0712 584124	naren@subatiflowers.com
Sunfloritech-Blue Sky	Gypsophilla	Naivasha	-	-	info@blueskykenya.com
Sunfloritech -Tulaga	Roses	Naivasha	A Duzai Rajan	0794572232	farmmgr.tulaga@btfgroup.com
Stockman rozen	Roses	Naivasha	Julius Muchiri	0722200890	julius@srk.co.ke
Syngenta Flowers - Kenya Cuttings	Flowers	Thika	Fred Okinda	0722579204	-
Syngenta Flowers - Pollen	Flowers	Thika	Joseph Ayieko	0733552500	joseph.ayieko@syngenta.com
Tambuzi	Roses	Nanyuki	Benard Maina	0721860080	tambuzi.sales@tambuzi.co.ke
Terrasol	Cuttings	Limuru	Benard Adwarh	0753444230	adwarh@terrasolkenya.com
Timaflor Ltd	Flowers	Nanyuki	Simon van de Berg	0724443262	info@timaflor.com
Transebel	Flowers	Thika	David Muchiri	0724646810	davidmuchiri@transebel.co.ke
Uhuru Flowers	Flowers	Nanyuki	Ivan Freeman	0713889574	ivan@uhuruflowers.co.ke
Utee Estate	Chrysanthemums	Nairobi	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
United Selections	Roses -Breeder	Ngata, Nakuru	-	-	-
V.D.Berg Roses	Flowers	Naivasha	Johan Remeeus	0721868312	johan@roseskenya.com
Valentine Ltd	Roses	Kiambu/Limuru	Joseph Kariuki	0728 093 379	joseph.kariuki@valentinegrowers.com
Van Kleef Kenya Ltd	Roses	Njoro	Judith Zuurbier		roses@vankleef.nl
WAC International	Breeder	Naivasha	Richard Mc Gonnell	0722810968	richard@wac-international.com
Waridi Ltd	Roses	Athi River	Kenneth Mbae	0722362865	farmmanager@waridi.com
Wildfire	Roses/summer	Naivasha	Patrick Mbugua	0721639306	patrickmbugua@wildfire-flowers.com
Wilfey	Gypsophila/hypericum	Subukia	Sammy Ndung'u	0720467551	-
Wilmar Agro Ltd	Summer Flowers	Thika	Alice Muiruri	0722 321203	alice.muiruri@wilmar.co.ke
Windsor	Roses	Thika	Pradeep Bodumalla	0736 586 059	farm@windsor-flowers.com
Xpressions Flora	Roses	Njoro	Ashesh Misha	0735873798	-
Zee Flora	Roses	Yatta	Kolekar	+251 929231520	-

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