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The Leading Floriculture Magazine

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Floriculture is published six times a year and circulated to personnel in the Horticulture Industry, foreign missions and Kenyan Embassies abroad, Flower Growers, Exporters and Consumers, extension officers in the Ministry of Agriculture and counties, research offices and suppliers of agricultural inputs in Kenya.

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Lunatics Never Unite

Last year I was taken around a mental hospital by the officer in-charge. At one point he took me to a balcony overlooking a crowded ward where the most violent and dangerous lunatics were kept. They were one hundred of them, all watched over by only three guards with no weapons!

I was perplexed. I turned to the in-charge and asked "aren't you afraid these dangerous lunatics will gang up against the guards?" The in-charge calmly replied, "No, lunatics never unite".

I had learned a great lesson from a single statement. And this is the story of Floriculture Magazine: In unity lies strength.

Twenty years ago, a team of young aggressive upcoming professionals had a dream. A dream to unite the professionals in the sector. Through them, Floriculture Magazine was born. Over the years, the magazine has slowly grown to an honest mouth piece for the sector. Kudos Tom Ochieng, Victor Juma, Charles Njuki, Francis

Karanja, Anampiu Kithinji and Gervasio Kirigia. The industry will leave to cherish your foresight.

We still need to achieve unity of thought, unity of feeling, unity of purpose- to that extent will our strengths be joined and make us a force.

Masila Kanyingi
Editor

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Flower Farms Shine During the National Farmers Awards 2023

By Mary Mwende

This year's National Farmers' Awards gala dinner was held in Nairobi. The event, formerly known as Presidential Farmers competition Scheme, was first launched in 2013 as a Public Private Partnership (PPP) between the Ministry of Agriculture and Elgon Kenya Limited. It was presided over by the Principal Secretary, State Department of Crop Development, Phillip Kello Harsama, on behalf of the Chief Guest, Agriculture Cabinet Secretary Mithika Linturi. Mr. Harsama was assisted by his colleague in the state department of Livestock PS Harry Kimtai and Elgon's Managing Director Dr. Bimal Kantaria. Individual farmers as well as companies were among the awardees of the day.

The event, which is a part of Corporate Social Responsibility (CSR), from the Elgon Kenya Group, is held annually with this year as a re-launch three years after covid-19 pandemic. Its main aim is to recognize the agricultural champions including the youth, women and the physically challenged people in the agriculture sector as well as flower farms with outstanding performance.

According to Dr. Bimal, the sponsors of the event were not part of the judging committee and thus assured the farmers and growers of a credible and thorough exercise purely based on merit where the government through a committee hand-picked winners after a keen scrutiny. Others who partnered with Elgon Kenya to make the event a success were; Bayer E.A, Excel Crop, FMC, Arista Life Sciences, UPL and BASF.

In a speech read by PS Harsama on behalf of the CS Agriculture, he pointed out the Public Private Partnership model as a proof that the private sector could actually apportion resources and join forces with the state towards a common goal.

"Promotion of agribusiness is a top priority for the government and I am glad this partnership is anchored on the major goal which is to promote agribusiness and encourage participation and adoption of commercial farming as a choice career," read the speech. He went on with the speech as he extolled the event organizers on addition of extra categories in the event from the inceptive three, which laid emphasis on soil conservation and farm management to the agro-dealers and SMEs.

"For instance, the inclusion of the agro-dealer category recognizes the important role they play in the supply of agricultural inputs and in addition the complementary role of advising farmers on good agricultural practices,"read PS Harsama.

Harsama also lauded Dr. Bimal Kantaria for his notable presence and efforts specifically in the agriculture sector. Dr. Bimal on the other hand, announced that Elgon Kenya had gotten into a partnership with the University of Nairobi to put up an agricultural innovation and technology hub at Kabete in memory of his late father. Additionally, he said that Elgon Kenya had also introduced an internship programme project where the company was going hire twenty interns from the University of Nairobi for a period of six months at a monthly stipend of twenty-five thousand shillings per intern.

The categories for the farmers awards were as follows; The first category was Floriculture farms with more than thirty hectares of land, the second was flower farms with less than thirty hectares of land, then the special category, Women in Agriculture, Youth in Agriculture and the final one was the physically challenged person in Agriculture category. The winners received Trophies, Certificates and Vouchers.

In the category of floriculture farms with more than thirty hectares of land, the trophy was scooped by Oserian, followed by Sian Roses, Bliss flora then Everflora Limited. Flower farms with less than thirty hectares of land featured; Exomnic Horticulture, Equinox Horticulture, Ol-Njorowa Ltd, Larmona Ltd and Crazan Flowers-Shantara-St Farm respectively scooped the prizes.

The Special Category recommendation breeders/ Propagators was awarded to Fides Kenya Limited as Nirp-East Africa came in second.

Pictorial

Registration

Unveiling

A Breeder receives an award.

Dr. Bimal Kantaria gives remarks during the event

PS Harsama gives an award to Larmona Ltd General Manager Vijay Bhosare for emerging top in the floriculture farm less

PS Harsama (Centre), Dr. Bimal Kantaria (Left) awarding a winner

Vice Chancellor UON - Prof. Stephen Kiama

Equinox Horticulture Ltd receives an award for emerging top in the flower farms less than 30 Ha category

Dr. Bimal Kantaria gives an award to Sian Agriflora team

KFC CEO - Mr. Clement Tulezi

Audience keenly following speeches

It was all joy as participants danced

Dr. Esther Kimani of PCPB giving her remarks

Group photo for all winners and stakeholders

Baiju Kantaria with representatives from different Agrochemicals companies

Not a Rosy Affair!

Valentine's Day 2023 in a Nutshell…

The global economy is increasingly at a risk of sliding into recession according to recent surveys. Consumers are faced with generation-high inflation rein in spending while central banks are tightening policy aggressively. Spiralling costs of farm inputs like fertiliser in the back drop of global disruptions have also seen flower exporters grapple with higher input costs.

This year's Valentine's Day, florists and retailers were in the middle of a rush, but all over the world, the holiday was different compared to last year, which was filled with optimism. This year, the weather seemed to have been a major challenge in Latin America and Africa, delaying production. Pre-books seemed to be in later than usual, and for some, they were even lower. Prices at the Dutch auction were lower than expected. Production and transportation costs were high and the florist and, eventually, the end consumer felt it.

Netherlands

As a result of the energy crisis, the supply of Dutch flowers and plants was less than in previous years. While this caused high purchase prices, it also caused concern: how much more was the consumer willing to pay? Another consequence was that trade is more actively looking for a cheaper product from Africa or South America, all in all a worrisome situation for the position of Dutch ornamental plant cultivation in the global playing field.

The red rose- the 'symbol' of Valentine's Day, supply from the Netherlands was a third smaller than last year, Michel van Schie, spokesman for Royal FloraHolland, told a Dutch broadcast. "This gap is partly filled by roses that are flown in." In addition, there was a run on everything red, and flowers were selling well across the entire range.

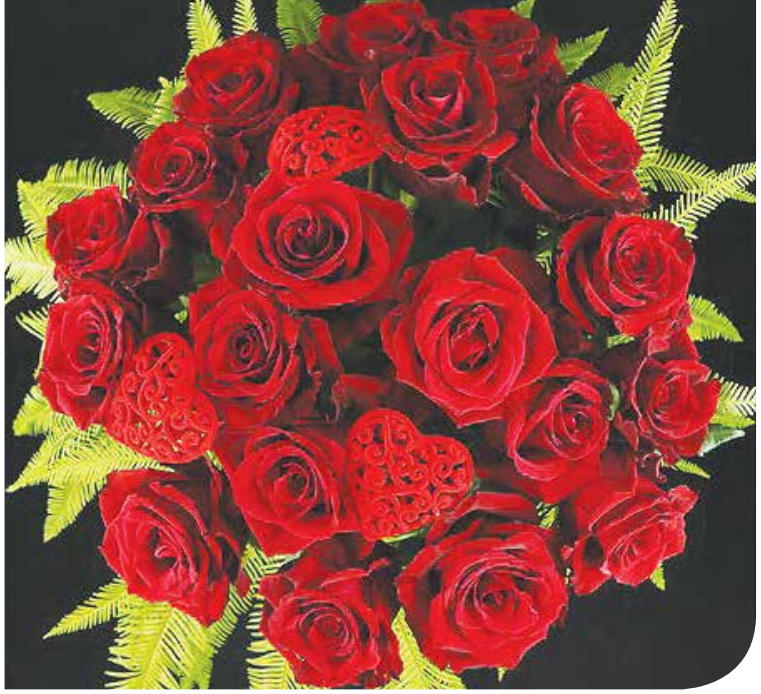
In the run-up to Valentine's Day, the demand is good, but the Dutch supply is scarce. At the auction in Aaslmeer, around 180 million roses were traded in the run-up to Valentine's Day. The price per stem was on average, according to auctioneer Menno Nan as he spoke to a Dutch broadcast. An excellent price, but not what the Dutch grower wanted for them. This was also because consumers were not willing to pay the price that was actually required.

Kenya

Over 70 per cent of Kenyan flowers are sold in the European Union through the Netherlands and United Kingdom, says KFC. During Valentine's season flower orders start going up from mid-January to around the 8th of February. "Today, the industry is struggling. The margins are shrinking by the day. Growers are struggling to supply the market and maintain Kenya's position as a key producer of cut-flowers", said Clement Tulezi in a twitter post . The run-up to Valentine's Day was a challenge for many Kenyan growers.

On top of the high costs, production was down at many farms due to the weather. Nights are cold and very dry, and this is delaying production. This year, already one flight for Valentine's Day was cancelled due to short supply", said Sachin Appachu of Bliss Flora.

The prices at the auction were not as expected, about 15% lower,



but fortunately, they increased days to the Valentines Day. “However, last year was better in terms of volume of sales and revenue.” “This season the prices of inputs have remained high. The global recession on major markets and pressure on fuel and gas has seen people reduce spending on ornamentals like flowers; they have to make a choice between buying food or flowers, ”he added.

The Kenya Flower Council (KFC) had warned that freight costs would remain high well during Valentine’s Season, offering no relief to Kenyan flower exporters who were confronting reduced demand from key markets and high input costs as inflation rages across the world.

Mr. Tulezi said Kenya suffers a shortage of cargo capacity of about 2,000 tonnes. “Nothing has improved (in terms of cargo capacity),” Mr Tulezi said. “The industry is really struggling.” “We see shipping by sea as an alternative,” he said. “We are pushing out about 15 containers every week.”

“Per-kilogramme freight costs are averaging at $2.9 (Sh301),” Tulezi said whereas Straight roses fetch between $1.9 (Sh235.6) to $2 (Sh248) in European supermarkets. He reiterated an earlier request to the State to allow licensing direct access to international markets from Nairobi by foreign airlines in a bid to lower the costs. Again, the flower sector is also seeking the fast-tracking of Value Added Tax (VAT) refunds by the government of between Sh12 and Sh13 billion. Adding that refunds have compounded the liquidity challenges facing flower exporters. “Some growers are owed upto Sh1.2 billion,” he said.

United States

While certain flowers, such as roses, are available all year, others, such as tulips, daffodils, and poinsettias, are very seasonal.

Valentine’s Day is still the second largest “floral holiday” for the U.S, Prince & Prince market survey estimates and forecasted $3.6 billion dollars in U.S. consumer floral purchasing for Valentine’s Day 2023. Most shipments come from Colombia and Ecuador, most going to Miami and New York. The most popular flowers remain roses, mixed bouquets, and chrysanthemums. This year, American transported 50% more flowers out of Europe than in 2022, or more than 417 tonnes, for the Valentine’s Day peak. The airline uses its trucking network and widebody planes to deliver Dutch tulips and roses to the United States and abroad through LHR and CDG.

And as everything is getting more expensive, also the prices for flowers for the end consumer were expected to be higher. “Prices have gone up 15-20% for this holiday,” Michael Cherry, owner of Hayes Florist in Florida, told the media. “Mainly because of fuel charges and supplies, prices went up 25-50% post-Covid, and that was mainly the supply chain in China. All of the supply raised for stands, for flower arrangements, and funerals.” He also added that freight charges for flowers imported from South America had gone up, forcing florists to increase their prices.

Colombia

Most of the flowers sold in the U.S. are imported, and many come from Colombia. Nearly 6 billion stems per year are being produced, of which 700 million are shipped to the U.S. for Valentine’s Day, according to Asocolflores. But Colombia sends flowers to many more countries, more than 100 countries all over the world, and 80% of the airfreight exports of this country are even flowers.

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The Kenya Flower Council (KFC) had warned that freight costs would remain high well during Valentine’s Season, offering no relief to Kenyan flower exporters who were confronting reduced demand from key markets and high input costs as inflation rages across the world.

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The weather has been the main challenge, delaying the production of roses and decreasing the production of other crops like hydrangeas. “The production was about 24% lower due to the dry weather, Catalina Arango of Flores Del Este told us. But demand was high.

Ecuador

Also, in Ecuador, the weather has been one of the major challenges. “First, it was ahead by the end of December, and all the crops stopped at bay, then beginning of the month of January was late by which the late peak came out; all this experienced most flower farms located in Pichincha and south towards Cotopaxi”, Naranjo Roses said. In addition, growers faced the aftermath of the volcano’s ash fall. According to Expoflores’ data, there is an increase of 5.54% in total export volume. Also at Naranjo Group , their exports increased.

“We exported around 5 million stems, growing 20% compared to last year’s Valentine’s Day. And there were not so many problems for cargo for this Valentine’s Day season, Carlos Gomez, Director of the board of Directors at Naranjo, adds. “It could be handled with better prices and with great efficiency.”

Also, Rosaprima, who had to deal with Ecuador’s unpredictable weather, said that they were pleased with this year’s Valentine’s Day.

Canada

Even though, the big rush was expected at florists, a Saskatchewan florist told the media that more lovers shopped early, steadily demanding flowers despite inflation. Quinn Brown, co-owner of Quinn and Kim’s Flowers, said they saw a lot more advance orders and offered more options for shoppers on a budget, but that it was hard not to notice the impact of inflation in all aspects of the business.

India

India’s floriculture industry, which grows flowers including roses and tulips for both domestic and international markets, deems the December to March window as its peak export period. The Valentine’s Day rush results in a significant demand for cut roses which are exported around the globe. Talegaon, near Pune, is an important growth centre for flowers with many in the region exporting flowers.

Praveen Sharma, president of Indian Society of Floriculture Professionals, said Indian growers and exporters were at an advantage this season in view of the ongoing Ukraine crisis. “Most European growers have taken a break given the uncertainties in the markets, and the fuel crisis has seen many growers take a break,” Sharma said. Due to the fuel crisis, the cost of growing roses has increased and the economic disturbance has led to uncertainties in the markets. Rose growers in Europe have to spend extra to maintain ambient temperature during the winter months.

Japan

Valentine’s Day in Japan used to be celebrated with chocolate, but nowadays, due to the efforts of the Flowering Japan Council, it is also a flower holiday. Nobu Kaishita of Chrysal Japan Limited explains how it changed over the years, and how ‘Flowers Valentine’ is now becoming a culture in Japan as well.

Since 2010, the general incorporated association, Flowering Japan Council, has been playing a central role in developing the ‘Flower Valentine’ movement, in which men present flowers to women. Nowadays, there is no distinction between men and women, and ‘Flower Valentine’ has expanded as a day to give flowers to friends and even to yourself.

According to a survey, the percentage of customers purchasing flowers on Valentine’s Day ranged from 13% at Aoyama, UNIQLO, to 25% at Hibiya, and 5% at Aeon.

Germany, UK and France

In January, flowers, with a contraction of 3% to 331 million euros, performed worse than plants, with a growth of 1% to 194 million euros. “Germany, the United Kingdom and France in particular recorded a contraction for the flowers,” reports Wesley van den Berg, manager of Floridata. “Trade to most export countries outside our top 3, on the other hand, experienced growth,” said director Matthijs Mesken of the VGB.

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2022 Year in Review: Trends to Watch in 2023

Mr. Okisegere Ojepat- CEO FPCK

Reviewing 2022, there were several themes that emerged in the business world. This article highlights six top stories in the fresh produce sector in Kenya that made a significant impact on how the sector will perform and grow in 2023.

1. Kenya's fresh avocado exports allowed into China.

In 2021, China identified agricultural imports from Africa as one of the areas for trade growth. To mark this, in 2022, President Xi Jinping promised to import US$300bn of African agricultural produce by 2025. Till 2019, China had locked out the fresh produce from Kenya due to the prevalence of fruit flies locally. However, following the successful completion of a rigorous Pest Risk Analysis by the Kenya Plant Health Inspectorate, (KEPHIS) and the National Plant Protection Organisation of China (NPPO), the parties identified quarantine pests of concern to China, and found systems of control before export.

The deal to export avocado to China was agreed upon in April 2019 between President Uhuru Kenyatta and Xi Jinping. Yet, it required Kenya to export only frozen avocados, which most exporters could not handle owing to the high cost of freezing and post-harvest maintenance demanded.

At the end of July, KEPHIS confirmed that the (NPPO) had finally approved 15 orchards, nine packhouses and one fumigation facility. This led Kenya to export its first avocados to China led by the major player Kakuzi. In total, Kenya exported Sh7 billion worth of avocados to China in the three months leading to October.

2. GMOs create doubts in Kenya's fresh produce to Europe

The European Union still accounts for the largest ratio of Kenyan horticultural exports taking in 45% of the sales majorly comprising cut flowers, French beans, snow peas and a variety of Asian vegetables. However, genetically modified crops (GMOs) are yet to be fully adopted in Europe, which has a zero-tolerance policy for unapproved GMOs, and stringent regulations on products originating from or containing GMOs.

On the 3rd of October 2022, President William Ruto announced that his government had authorised the cultivation and import of genetically modified crops (GMOs) and animal feeds and lifted the ten-year-long ban.

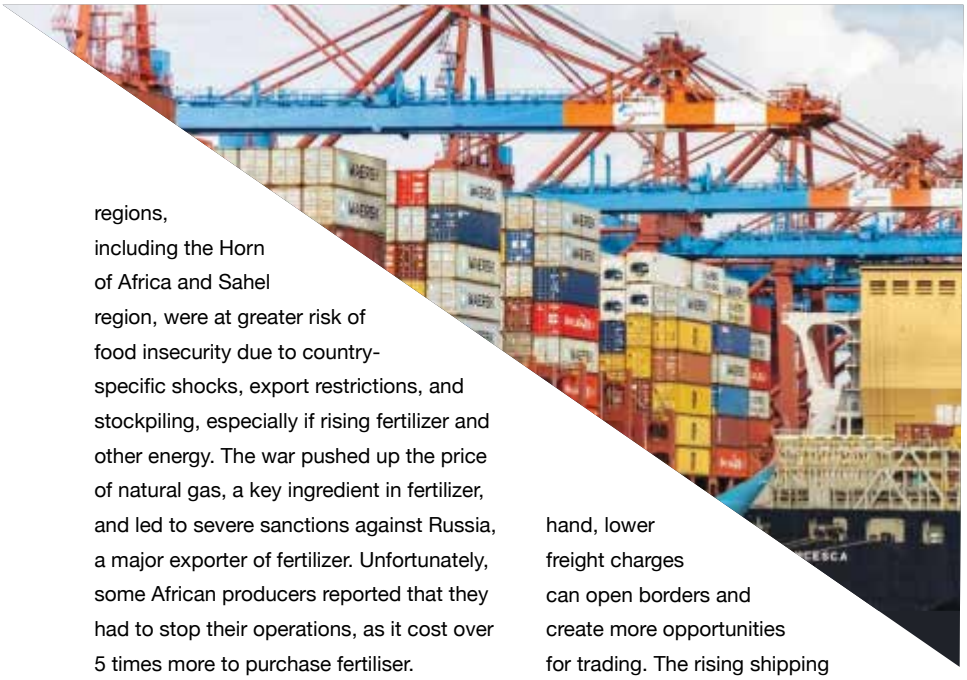
As a result, some European buyers of Kenya's horticultural produce raised concerns about the impact this authorisation had on the fresh produce ecosystem. Locally, this meant that exporters were forced to carry out extra certification to confirm that their products had not been enhanced by the technology. According to the CEO of the Fresh Produce Consortium of Kenya, Okisegere Ojepat, they have received many queries from buyers in Europe, on whether what they are receiving is still GMO-free, asking to be shown proof through additional certification.

3. The impact of the war in Ukraine on fresh produce trade

By 2022, the African continent was yet to fully recover from the socio-economic repercussions of the COVID-19 pandemic. And, when the unfortunate Russia-Ukraine invasion happened in February of 2022, it posed another major threat to the global economy, with many African countries being directly affected. Although, Russia and Ukraine's

agricultural imports (mainly fruits, coffee, and tobacco) from the African continent are marginal, averaging only $1.6 billion in the past three years, the impact on freight was grand. The sanctions imposed on Russia by Western countries further exacerbated commercial flows between Russia and Africa due to the closure of vital port operations in the Black Sea.

As it stands, Russia remains one of the world's biggest exporters of fertilizers, and in 2022, concerns worldwide grew about a possible shortage of fertilizer. This would lead to rising food prices, with knock-on effects on agricultural production. Some regions, including the Horn of Africa and Sahel region, were at greater risk of food insecurity due to country-specific shocks, export restrictions, and stockpiling, especially if rising fertilizer and other energy. The war pushed up the price of natural gas, a key ingredient in fertilizer, and led to severe sanctions against Russia, a major exporter of fertilizer. Unfortunately, some African producers reported that they had to stop their operations, as it cost over 5 times more to purchase fertiliser.



4. Kenya and South Korea agree on Free Trade Agreement

In November 2022, Kenya and South Korea agreed on a roadmap that would lead to a free trade agreement between the two countries. In bilateral talks between South Korean Trade minister Dukgeun Ahn and his Kenyan counterpart Moses Kuria, the two agreed to enter into Free Trade Agreement negotiations, with plans to implement the agreement starting in January 2023.
Even as the negotiations progress, the two ministers agreed to conclude a Trade and Investment Promotion Framework that will be signed by 31st January 2023. The deal will address the challenges that hinder the smooth flow of trade, especially on Kenyan products such as coffee, tea, avocados and avocado products, cut flowers, nuts and fresh vegetables.

5. Rise in the cost of logistics and a shift to sea-freight.

The increase in freight rates is now a clear criterion to be taken into consideration, as regardless of the product, logistics have a strong impact on trade. If the cost of logistics is too high, it can slow down and even destroy trade activities. On the other hand, lower freight charges can open borders and create more opportunities for trading. The rising shipping costs and logistical disruptions throughout 2022 threatened the economic sustainability of many fruit and vegetable exporters and similarly affected other Southern Hemisphere countries.

In the past year, fresh fruit and vegetable exporters expressed their challenges with using air to transit their produce and conveyed their opt-in to use sea freight. In Kenya alone, the capacity to use air was cut down by an estimated 25-30% due to the rise in the cost of freight and the unavailability of cargo planes. Cumulatively, this caused many fresh produce traders to cancel orders and adopt extreme measures of discarding even up to a quarter of high-value produce. Last year, many exporters had to make major decisions on how to ship their produce to markets, either by air or sea. For most, the decision to use airfreight is guided by the need for a quick transit time. However, for many, the air is an already expensive mode which costs premium amounts of between 12-16 times more than the sea, leading to more adoption of sea freight in 2022.

6. Adoption of new technology and accelerated digitisation

Blockchain, digital applications, GIS, AI/ML models and IoT-enabled solutions can transform cold chain logistics, by improving supply chain visibility and enhancing trust between partners. In 2022, cold chain logistics increasingly became dependent on digitisation for real time monitoring and traceability. For example, the use of GPS enabled sensors in the refrigerated containers are providing real time temperature updates throughout the end-to-end journey of the commodities. Last year, such solutions to deliver better visibility and intelligence around production lifecycles, grew in importance, with a variety of solutions enabling exporters to optimise and facilitate efficiency by:

- Giving real-time temperature and humidity data.
- Accurately record inconsistencies in operation performance that can result in product loss or recalls, hence preventing loss and improving product quality.
- Getting ahead of potential damages, by monitoring in real-time via a cloud interface for laptops or mobile web apps, E-Mail and SMS alerts
- Maintaining consistency in cooling by detecting temperature fluctuation.
- Optimise handling and cooling.
- Increasing workforce productivity by cutting manual errors and data loss, saving intervention time.

A Cry for Better Business Climate

Cut flower exporters in the country have raised concerns over increased water charges and payroll costs that have raised the cost of doing business, eroding their competitiveness.

The exporters say the increasing taxes and charges, logistical difficulties and additional operational costs have drained gains they would accrue from high sales after exporting to outside markets owing to the strengthening of the dollar against the Kenyan shilling.

Their main complaint is a recent increase in water charges from Sh0.5 to between Sh2 and Sh6 for irrigation and commercial use and an increase in National Social Security Fund (NSSF) contributions from Sh200 up to Sh1,080 on the employers' side. This increase, therefore, compounds the existing situation in the sub-sector. And energy cost is expected to increase soon.

The council laments that factors including high freight charges and many taxes on the sector last year saw Kenya's flower exports drop by 15,000 tonnes, from the 210,000 tonnes exported in 2021.

"On average, growers are paying up to 45 levies between the national and county governments. Current levies have a huge negative impact on the sector threatening jobs and livelihoods. The sector is willing to pay taxes, but too many levies that also have no public/users participation are posing a big challenge to the sector," Mr Tulezi said.

Indicating that many growers are in a cash crunch despite the government's holding of Sh12 billion in VAT refunds, the council also raised issues with a recent increase in NSSF contributions, which it says will have huge implications on employers' payroll costs.

"For our sector, this has a huge impact because flower farms are big employers, some employing over 10,000 people. This is a sudden increase in recurrent expenditure that cannot be absorbed in the current situation," said Mr Tulezi.

Potential growers

The sector says it has been neglected by the government despite its economic contribution, calling on national and county governments to lend their support.

It challenged the government to create more incentives to attract potential growers from the west, who will bring in more activity and create jobs.

The sector employs over 200,000 Kenyans directly, according to KFC, with an additional one million people directly engaged in the supply of goods and services.

"Today, the industry is struggling. The margins are shrinking by the day. Growers are struggling to supply the market and maintain Kenya's position as a key producer of cut flowers and ornamentals," Mr Tulezi said.

FSI Members Gear up for Increased Transparency & Accountability

FSI members including flower producers, traders, and retailers gathered at IPM Essen for the General Assembly of 2023. To reflect on the Floriculture Sustainability Initiative's 2022 achievements and actions to take towards a 'responsible and transparent supply chain'. Besides the annual measurement of Responsibly Produced & Traded volumes, the members will start measuring and reporting on Carbon Footprinting and Living Wage. The year started off with a concrete action taken by the members: the FSI Code of Conduct was presented and adopted during the General Assembly. Members will embed this Code of Conduct in their policies and communicate it to their supply chain partners.

90% Responsibly Produced & Traded volumes

FSI is a market-driven initiative, aligning international floriculture stakeholders to collaboratively drive responsible production and trade. Reporting on volumes is part of the FSI members' commitment and is centred around the certification requirements of the FSI Basket of Standards. By linking production and trade, responsible production and trading volumes increase every year.

Responsible Conduct: Carbon Footprint & Living Wage

Building on FSI's Responsible Production & Trade scope, the FSI 2025 strategy focuses also on Responsible Conduct. Under this scope, FSI has set two main objectives to achieve by 2025.

1) reduction of the carbon footprint for selected products by 2025.
2) Reduction of the living wage gap of workers farms by 2025.

To this end, the focus this year is for members to collect relevant data and analyze it using the various tools available. The role of FSI is to develop unified methodologies and stimulate the collaboration, and also competition, in the supply chain that is needed to reach the objectives together.

On the topic of Carbon Footprint, FSI stimulates environmental footprinting and is part of the technical secretariat working on the EU FloriPEFCR methodology: harmonized rules for calculating the footprint of plants and flowers. By focusing on a single methodology, we ensure comparability and verifiability of sustainability results and claims. FSI aims to stimulate the sharing of carbon reductions sharing of best practices.

On the topic of Living Wages, FSI works closely together with the IDH team on the IDH Living Wage Road Map. A five-step approach towards calculating and finally reducing living wage gaps in supply chains. Building on experience in other sectors, companies in the floriculture sector have an opportunity to also get started and calculate living wage gaps using the Salary Matrix. During the Assembly the first insights of a chain pilot were shared. More to follow soon!

Increased accountability & transparency

Record keeping and collecting data on important sustainability topics is an important step towards increased accountability & transparency. It enables FSI members to respond better to scrutiny that the sector faces: Blaming & shaming can be countered by knowing & showing, when data is used for information and better storytelling.

Welcoming new members and Board representatives

FSI welcomed eight new members during this General Assembly. Welcome: Wagagai, Selecta-one, RHP, Floréac, VALHOR, Forest Produce, MM Flowers and Heemskerk Flowers. Erling Ølstad, CEO of MesterGronn, was re-elected as board representative for the Retail Stakeholder Group. Lisa Staxäng, Board representative for CSOs on behalf of BSR-HERproject, passed over her duties to Joan Nyaki, Programme Coordinator at Women Win.

Call to Action

FSI and its members invite more enthusiastic organisations involved in the floriculture supply chain to join this progressive, inclusive and abundant journey, to share sustainable solutions that support the strategic ambitions.

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Chrysal Sea Freight Service

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CHRYSAL

The trend and prospect of high-quality development of greenhouse engineering Trinog Greenhouse

Greenhouse engineering is an important carrier for the development of facility agriculture, as well as a "workshop" or workshop for the development of industrialization, intelligence and digitalization of agriculture. In the past 20 years, the development of greenhouse engineering from low to high level, from a single space to a comprehensive decoration, configuration, from simple to multi-functional power, from labour-intensive to machine generation, automatic control as the characteristics of technology-intensive, and so on, experienced a continuous development, continuous breakthrough, continuous improvement, keep pace with The Times, and the development of modern agriculture both adapt to each other and promote the process.

Facility agriculture, represented by greenhouse engineering, has gradually become a new symbol of the development of modern agriculture, a new demonstration of agricultural high-tech agglomeration and a new benchmark for comprehensively improving labour productivity, land yield and overall benefit. The continuous promotion of industrial poverty alleviation and the effective connection of rural revitalization have promoted the rapid development of greenhouse project construction, which has shown several obvious trends of transformation and development at present:

Type of Greenhouse

From low-end and multiple types gradually to high-end high-grade type transformation. Greenhouse development has gone through the development of arch shed, single shed, terraced shed, glass greenhouse, its scale layout from small to large, its main business from small farmers to the new main body, its driving effect from the dotted to various demonstration parks, Its economic form from a number of main body fragmentation construction to unified planning, diversified investment, formation of specialization, base, market-oriented development of regional economic new forms, new economy.

Development of Engineering Technology in Greenhouse Construction

From small knocks, low-end materials, field manpower construction gradually to new materials, high quality, and packaged project construction direction change. Basic construction materials, from bamboo pole, stick, bow butt, iron wire rope binding gradually developed to replace steel pipe, steel pipe, galvanized steel pipe, column, beam and other main materials steel structure, plastic film from ordinary film to high-grade, special, multifunctional film development, new materials to promote the construction of greenhouse constantly update; In the construction technology, step by step on site selection, design, material supply, construction, accessories and another one-stop production road. The analysis of the situation gathered by the China Greenhouse Industry Conference in 2022 showed that, like the automobile industry, greenhouse engineering has formed a new industry with industrial chain, innovation chain, market chain, capital chain, multi-link and multi-chain connection. With one demand and multiple combined supply, new technology and new materials lead the construction of greenhouse engineering to improve, and the innovation of light industry manufacturing industry leads the innovative development of greenhouse engineering.

Use of Greenhouse Engineering Function

From seedling to production, from planting to aquaculture, from single to comprehensive, the development of three-dimensional space utilization, so that plants, animals, microorganisms three things a shelter, integrated production, the new demonstration of modern agriculture to a new height. Some places based on the shed seedling, promote the construction of special agricultural products base, and promote the new development of large-

scale,
regional,
special, high-
quality and efficient
agriculture.

Greenhouse Project Equipment Configuration of High Technical Level

The rise of the Internet of Things, the Internet, digital agriculture, and smart agriculture has fundamentally transformed and upgraded the modernization of greenhouse projects, and supported the high-quality development of greenhouse projects. And what's striking is that.

First, all kinds of practical small agricultural machinery into the shed operation, "by the machine instead of people", the labour force from the shed liberation, the productivity leap.

Second, the introduction of automation and automation control technology, in the limited shed space, the network technology, and digital technology effectively combined to achieve mechanization, automation, and intelligent production operations.

Third, the effective integration and use of temperature, humidity, light and other technologies, gradually realized soil cultivation to soilless cultivation, ground planting to three-dimensional multi-level planting, greatly improve the greenhouse space, natural conditions and other efficient use, and improve product quality

and economic benefits. Fourth, the use of new technology, new process, the concept of carbon reduction, carbon elimination into the construction of greenhouse, to promote the green development of greenhouse production. In some localities, greenhouse construction projects are planned together with power plants, cement plants and other enterprises with heavy tasks of carbon reduction and carbon reduction, and the two production projects are carried out together, seeking new ways to make contribution to the goal of "carbon peak and carbon neutrality" by using agricultural engineering, and opening up a new way of industrial integration, ecological harmony and green development.

Greenhouse Project Overall Operation and Comprehensive Benefits

Greenhouse project operation main body, mode, industrial development, yield rate, per mu benefit and so on have undergone fundamental changes. Greenhouse project construction and operation from one house to more than one house, from scattered management to multi-household joint or cooperative unified management; From the shed to a large area of shed joint construction or collective package rental business; From self-construction and self-operation to separate construction and operation or integrated operation, we have walked out of a new way of "materialization" management, "nanny" service and entrusted operation by professional companies. Continuous innovation in industrial management has begun a big leap from simple production to seedling cultivation, production, characteristic industries, base construction and the development of characteristic regional economy.

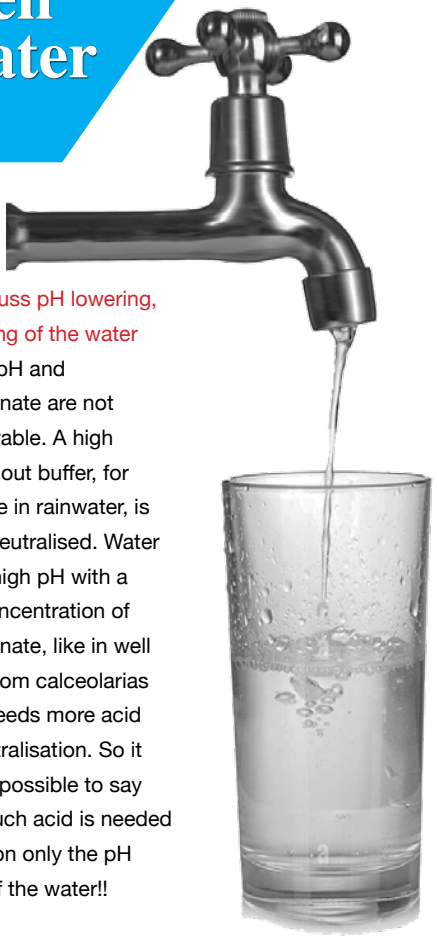
The greenhouse project has begun to lead the adjustment of industrial structure, industrial transformation, industrial integration, as well as the new exploration and demonstration of the development of digital agriculture, smart agriculture and high-quality and efficient agriculture. The greenhouse project has begun to be the carrier.

Integrate modern agricultural technology, modern production management mode and modern agricultural operation mode to make comprehensive efforts to promote the modernization of agricultural productivity and the new process of high-quality agricultural development. Greenhouse engineering makes agricultural benefit greatly improved, from the benefit per mu of "one mu shed ten mu field", to the benefit per mu of 50 thousand yuan, 100 thousand yuan, even 150 thousand yuan of new height, "factory" agriculture not only the "per mu on the hero" concept of agriculture but also per mu on the hero has become a reality. Greenhouse project makes people see the future agricultural development of new potential, new direction.

The Q&A

The use of well and surface water

Adjust the pH, the elements and the EC to avoid growth inhibition!



Do you adjust the elements in your well water and do you have a pH regulating system? With a good pH you will get a greener crop and 10-20% more growth.

Q. Which elements are useful in well/surface water?

A. These are; calcium, magnesium, sulphate and the micro elements. These elements are deducted from the feeding solution. For this reason some growers do not have to add calcium nitrate because the well water contains so much calcium.

Q Which salts are NOT useful?

A. These are sodium, chlorine and high amounts of sulphate. Above 1.5-3.0 mmol/l (40-100 ppm) growth inhibition can occur. Iron, manganese and boron can be high. Check if the amount is below the normal feeding solution concentration. High boron can cause leaf edges.

Q. Does well/surface water change?

A. Surface water is in summer often more salty because of low rainfall. Well water is more stable but can change in time in case the water comes from another layer. Check every 3-6 months with a handhold EC meter the EC if the value is still the same. You can also send a sample to the lab

Q. Discuss pH lowering, acidifying of the water

A. The pH and bicarbonate are not comparable. A high pH without buffer, for instance in rainwater, is easily neutralised. Water with a high pH with a high concentration of bicarbonate, like in well water from calceolarias soils, needs more acid for neutralisation. So it is NOT possible to say how much acid is needed based on only the pH value of the water!!

Q. Discuss acidifying with combined fertilisers

A. You can buy fertilisers for “hard” water, water with a lot of calcium bicarbonate. The acidifying effect is based on two principles; direct or through ammonium. The direct acidifying depends on the fertiliser and ranges between 0.5 to 2 mmol bicarbonate at 1 g/l. Check how much bicarbonate has to be neutralised. Ammonium is in the substrate reduced to nitrate and then the acidifying effect starts. This cannot be controlled completely. Also a lot of acidifying effect is of the different fertilisers and let them calculate how much acidifying is necessary and possible.

Q. What do we see in practice?

A. A high pH in the substrate/soil Plants which appreciate a low pH like Erica and Camellia start with a low pH in the potting soil but the watering is done with a high bicarbonate amount. The consequence is that the pH rises in the pot and the plants do not grow optima. This shows as a light green crop and sometimes even brown necrosis. Fast growing crop which take up a lot of nitrate so pH rises and also get water with high amounts of bicarbonate often also become light green.

The uptake of iron and phosphate is difficult. In both cases the start is good with normal growth but the more water is given the pH increases. In case of a dry summer with continuous watering the problem shows earlier compared to years with more natural rainfall. To salty in dry periods a lot of surface water is used and the EC of the surface water is often higher. The top layer of the substrate dries out fast so an accumulation of salts occur. This excess of salts causes yellowing of the leaves which can lead till brown necrotic spots.

nitrate is given which can cause excessive growth. High ammonium works antagonistic for the uptake of calcium. Ask your fertiliser supplier how high the

Q. What is your advice

A. An automatic pH regulation with acid is the best system to be sure to apply the right pH. If this is not possible choose acidifying fertilisers. In case of questions please ask your nutritionist.

The Q&A

We've Got it in the can!

The modern crop protection market not only makes big demands of active substances and their formulation: It also presents significant challenges in items of packaging design. The materials that are used must protect the product from the effects of external factors; but at the same time, they must also protect the user, and the environment, from the product itself. Floriculture Magazine spoke to an expert,

What are the challenges that packaging for crop protection must meet?

Crop protection products are used seasonally, so they must sometimes be stored for prolonged periods, and the packaging material must not change during this time. On the one hand, it must protect the environment and the user from the crop protection product, so it is essential that there are no leaks (for example of solvents). On the other hand, the crop protection product must retain its quality over long periods of storage, in spite of the various environmental factors that could degrade it, such as light, temperature and moisture.

The stability of our packaging is proven in stringent, specially-designed tests that closely relate to practical conditions. Among these are simulation of the type of accidents that can happen during transport or storage; these are very severe tests of the packaging! We need to be able to show that our packaging can withstand severe compression or extreme environmental conditions.

Besides durability and stability, ecological and economic considerations are also particularly important. One very important consideration is that our packaging must be easy to empty and to rinse out. Here, the requirements are particular demanding: every new container that is designed must be capable of almost complete empting less than 0.01% of the original contents should remain after a standard rising action dine under practical conditions.

The user has expectations too. Containers must be as light as possible and easy to empty and rinse; easy opening and secure re-closing of the packaging are also considered to be particularly important.

Where do you get your ideas for new types of packaging?

Most of the time, we receive suggestions from our colleagues in the Marketing Departments and Field Services. They know what the trade demands and what the users prefer, and are able to provide us with suggestions as to how we should be packing our new crop protection products. But we also obtain ideas for improvements, or even entirely new concepts, from our network of partners, including container- and packaging –material suppliers, production sites, and Research and Development departments.

How do you keep track of the many types of packaging you deal with and the concepts underlying them?

In order to manage our packaging and their associated concepts; we use an SAP-application that has been specially-adapted to meet our requirements. It offers a good platform to be able to exchange and balance the large amount of data we have to handle.

What are the steps involved in developing a new packaging?

The development of a new packaging takes roughly six to twelve months from the original order to final production. It is a process that involves many partners, from the original requester to the various expert functions. The process can be divided into five phases. First, the innovation/ creativity phase, during which our team's preliminary ideas and solutions are collected. In the second phase, we identify the suggestions that promise rapid realization, and deter mine provisional, time-plans and cost-estimates for them. In phase 3, we select the best of this suggestion, after having checked that certain legal and practical requirements have been met. Phase 4 involves applying for official approval, holding negotiations with suppliers and production site, and producing test batches. If the test batches look good, we proceed with phase 5- production line manufacture of the packaging.

But before a new packaging can enter the market, it has to undergo certain tests that are stipulated by the registration process. These are run in partnership with formulation Technology. We test the performance of the packaging per se, but we also investigate its suitability in connection with a particular plant protection product. The legally-required dangerous goods validation is done by an accredited Institute.

What is the philosophy underlying our work?

Packaging means thinking the process through to its end! We understand the packaging process as a closed concept. When developing a new packaging, a balance must be made between the numerous demands made of it. We aim to achieve this balance, and at the same time to take the user's preferences into consideration.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Rust diseases in ornamentals

By Daisy Ng'eno

Daisy Ng'eno

Rust diseases are common fungal infections that affect a wide range of floricultural crops, including Carnation, Roses, Chrysanthemums, Hypericums, Fuchsia, Geraniums, Gladiolus, Lilium, Marigold, Poinsettia, Snapdragons, Statice and Viola (including pansy). Rusts have the potential to negatively impact floriculture production. Rust fungi are obligate parasites, dependent upon a live host for growth and development, and seldom kill plants. However, rust infection reduces plant health and vigor, flower production, and aesthetic value.

Symptoms

Each type of Rust has its own distinctive symptoms and its own specific plant hosts. The disease often first appears as chlorosis on the upper surfaces of leaves. All rust fungi produce powdery masses of spores in pustules, typically on leaf undersides that are yellow, orange, purple, black or brown. Some Rust fungi produce pustules on upper leaf surfaces as well. Spores are easily spread on air or with splashing water. Lesions may coalesce resulting in large areas of necrosis; leaf distortion and defoliation often follow.

Life cycle

Rust produces four spore stages, but only roses are affected. *Urediospores* ("repeating spores") are produced in yellow, orange, or brown pustules and spread the disease rapidly. Rusts usually spend the winter as teliospores, which require a dormant period before germination. Basidiospores are produced from germinating teliospores and start the initial infection. One infection is established, aeciospores are produced, often upon alternate hosts, in cup-shaped bodies that are easily seen. The aeciospores cannot reinfect the host upon which they are produced, only the alternate host, which produces the repeating spores (urediospores).

Rose rust

Caused by *Phragimidium mucronatum* first appears in the spring as bright orange pustules on leaf undersides, leaf stalks and branches. In the summer, small raised orange spots appear on the undersides of leaves with small yellow specks on the upper surface beginning on the lower leaves and moving upward. The spots may go

Geranium rust

> Rusts have the potential to negatively impact floriculture production. Rust fungi are obligate parasites, dependent upon a live host for growth and development, and seldom kill plants.

unnoticed until the plant begins to exhibit a generally unhealthy appearance and a loss of the lower leaves. Leaves may become dry and twisted before falling off.

Carnation rust

Caused by *Uromyces diantha*, this rust disease is characterized by small pustules of powdery, brown urediospores. These spores are carried over only on live plants. Resistant cultivars are available.

Chrysanthemum rust

Two species of *Puccinia* causes rust on chrysanthemums *P. chrysanthemi* and *P. horiana*. *P. chrysanthemi* is characterized by dirty-brown pustules and yellowish-green spots on upper surfaces of leaves. It causes minor damage in the field and is uncommon on greenhouse plants. Severe infestation may damage large areas of leaves and lead to defoliation and reduced flower production.

P. horiana causes Chrysanthemum white rust and the symptoms are white, pinkish or brownish pustules produced on leaf undersides with white, yellow, to pale-green lesions on upper leaf surfaces. Chrysanthemum white rust results in leaf distortion, discoloration, defoliation, and plant death.

Viola species rust

Caused by *Puccinia viola* and symptoms first appear as small, pale green spots on the upper leaf surface. As the fungus develops within the leaf, corky spots, blisters, or pustules containing rusty brown spores develop on leaf undersides.

Geranium rust

Caused by *Puccinia pelargoni-zonalis* is most serious on Florist's geraniums, but has also been reported on zonal geraniums and seedling geraniums. Geranium rust occurs throughout due to the ease with which it is spread on infected cuttings. This rust spends its entire life cycle on geranium (autoecious). Symptoms first appear as small, circular, yellow spots on the top of leaves opposite the pustules on the lower leaf surface. The spots on the lower leaves enlarge to blister-like pustules of rust to cinnamon brown spores which often develop in concentric rings.

Management of rust diseases

Purchase only disease-free plants or cuttings. Frequently remove all rust-infected leaves and badly infected plants and destroy by burning, rapid composting, or burying At the end of the growing season, carefully clean up and destroy all crop debris. Sterilize benches and propagation rooms with an appropriate greenhouse disinfectant. Keep the humidity within the greenhouse at less than 80%. Practice only surface watering and avoid splashing water onto foliage. Space plants to allow for good air circulation. A combination of cultural and chemical control is often required to control rust diseases. Chemical control recommendations Daconil, Ortiva, Ortiva Top, Score, Solvit and Thiovit.

To find out more about rust disease in your horticulture crops here.

Syngenta East Africa
Ornamentals Advisory Blog 19.03.2021

Yellow Leaves on My Roses

Leaf yellowing is symptomatic of a variety of problems, most of which can be pigeon-holed into four main categories that is, enviro-mechanical problems, nutrient deficiencies, pest damage, and disease damage. Its one of the symptoms that can be noted whenever a plant lacks or have had too much of something as it grows. When for example there is excessive fertilizer, irrigation, chemicals and nutrients the leaf tissues turn yellow whereby growth may become stunted. Other symptoms that go together with yellowing include reduced growth, scorched margins, fall of leaves and failure of blooms to open completely.

Enviro-

Mechanical Problems

Heat Stress: This problem is brought about by Heat Stress where it is frequently noticed after wet and relatively cool weather, especially when the transition from spring to summer temperatures is sudden. Exposure of this new growth to direct sun can cause scorching of leaf

This can be treated by applying anti-transpirants/anti-desiccants. Plant roses where they will receive protection from the hot sun and Mulch heavily around root zones to stabilize soil and near-surface air temperatures.

Water stress: There is Water stress that is, use of excessive irrigation, too much rain or improper drainage. Water displaces air in the soil. As a result, roots cannot support the rapid transpiration required during hot summers. Conversely, if too little water is applied, a drought condition exists.

This can be treated by improving drainage, reducing irrigation schedule in excessive water conditions and increasing irrigation schedule in drought conditions.

Although roses can survive a wide range of pH, they prefer their soil slightly acidic (6.5) to near neutral (7.1). This can be treated by doing

a quality soil test, performed at least biannually and this will help determine not only the soil's pH but the available nutrients it contains.

Growers who apply excessive amounts of water-soluble fertilizers to their roses frequently develop soil salt stress, especially in locations where soils tend to be heavy and/or where irrigation or rainfall fails to leach these salts beyond the root zone. Fertilizers containing high amounts of nitrate of soda, muriaate of potash, potassium nitrate and ammonium nitrate can cause the highest accumulated salts which build in the soil and competes with rose roots for moisture. The result is yellowed leaves and eventually plant death. Rain water and some water supplies can also contain dissolved salt ions in some locations. The chief culprit for causing salt stress is the chlorides.

This can be treated by Irrigating deeply (where drainage is good) to leach accumulated salts from the root zone but if drainage is unsatisfactory, consider adding gypsum before leaching. For containered

roses, flush potting soils frequently and Change out the soil every three to four years.

Chief among reasons for yellowing leaves is “suffocation” caused by spraying – Phytotoxicity. When chemicals and/or their surfactants clog leaf pores (the “stomata”), plant tissues cannot transpire moisture and essential gasses, they cease producing chlorophyll, cell walls deteriorate, and the leaves yellow and eventually fall from the plant. Further, some roses are, by their nature, less tolerant of spraying than others. Rugosas and their near “cousins” - roses with textured leaf surfaces - seem to be the most affected.

Still another form of phytotoxicity is caused by drift from nearby herbicide applications. This can be treated by avoiding spraying chemicals with high viscosity ingredients or If spraying is necessary, do so very early in the morning.

Often, in our zeal to nurture our roses, we may cultivate a bit too close to roots. This is a Mechanical problem. Damaging roots and destroying their associated micorrhizal fungi is essentially inducing a water and/or nutrient stress situation to the rose, thereby causing yellow leaves. One should use caution cultivating in and around root zones and if roots are exposed, trim away broken sections and replant immediately.

Nutrient Deficiencies

Nutrients come in two forms - mobile (“translocatable”) nutrients and immobile nutrients. The mobile nutrients are nitrogen, phosphorus, potassium and magnesium that can move quickly from the soil to the plant. The immobile nutrients are iron, sulfur, calcium, manganese, copper, zinc, boron, molybdenum, and chlorine and their movement is determined by their electrical charge. If positive, the nutrients bind with the soil and become unavailable - an insoluble precipitate.

This can be termed as Soil pH out of balance.

Although roses can survive a wide range of pH, they prefer their soil slightly acidic (6.5) to near neutral (7.1). This can be treated by doing a quality soil test, performed at least biannually and this will help determine not only the soil’s pH but the available nutrients it contains.

We have Iron deficiency (“chlorosis”)

Iron is one of the chief elements necessary for the production of chlorophyll - the molecule that makes green plants green. It also aids sugar burning enzymes which activate nitrogen fixation. And it regulates the respiration of the plant’s cells. To treat the flower add bone meal or blood meal organic amendments, or iron sulfate or chelated iron liquid or granular inorganic amendments

There is Magnesium deficiency and like iron, magnesium promotes chlorophyll formation and vital to the photosynthetic process necessary to produce dark green foliage. It also promotes healthy, disease-resistant plants. To treat this, add fish meal, basic slag, greens and/or dolomitic limestone, or Epsom salt (magnesium sulfate).

On roses with yellow blooms, a lack of nitrogen frequently appears as yellow leaves. Nitrogen availability occurs in most soils with a pH above 4.5. If nitrogen is deficient, add blood meal, cottonseed meal and/or manure for organic amendments, or nitrate of soda or ammonia sulfate for inorganic amendments. Others include sulfur and manganese deficiency

Nutrient toxicity

Zinc toxicity:

Although it is rare, too much zinc can cause symptoms similar to iron or magnesium chlorosis. That is, the leaf tissues first turn yellow, and then turns brown. The main leaf rib remains green, but the secondary veins lighten. New growth may become stunted and bloom buds may be distorted.

Phosphorus toxicity

Phosphorus toxicity is becoming an increasing

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problem in areas where it's over use has accumulated in clay-based soils. This is particularly important to growers who frequently succumb to the media hype and apply water soluble, high phosphorus fertilizers in hopes of achieving bigger blooms.

Potassium toxicity

Potassium toxicity appears the same as phosphorus toxicity, and for the same reasons. The chief difference is that too much potassium also manifests in root loss and consequently the wilting of tender new growth.

Aphid

Treatments for too much "love" - that is, too many nutrients - is to reduce the amount of fertilizer applied.

Pests

Without a doubt, spider mites are the leading garden pest for causing yellowed leaves. When this mite attacks your rose, it pierces the epidermis and apparently injects some of its saliva in the process. After feeding, two minute chlorotic spots appear as the leaf tissue collapses. During severe infestations, the entire plant may turn yellow and die. You can have excellent success controlling pest mites on your roses by using the beneficial predatory mite called Phytoseiulus persimilis. It enjoys warm, humid weather and reproduces twice as fast as the pest mites. Research has shown that mites can quickly mutate to pesticide-resistant strains. If using synthetic pesticides, rotate between two or three different chemical types.

There is Whiteflies that are a member of the Homoptera Order of critters and thus related to the aphids, scales and mealy bugs. Like their plant-sucking cousins, whiteflies pierce leaf tissues causing noticeable wilting, chlorosis, loss of leaves and/or stunted growth. In addition, like their cousins, they produce "honeydew" which attracts other pests and produces a medium for "sooty mold" fungus. Use Biological controls like *Beauveria bassiana*, *Paecilomyces fumosoroseus*, or *Verticillium lecanii* fungi (the latter for greenhouse use); *parasitoids* like *Encarsia Formosa* and *Eretmocerus californicus*; and a host of other predators like lacewings, lady beetles, and predatory mites. Research has shown that whiteflies can quickly mutate to pesticide-resistant strains. If using synthetic pesticides, rotate between two or three different chemical types.

Disease

Blackspot: Of all the reasons for yellowing leaves, this disease is one of the primary causes. Damage usually begins as a black or brown splotch. Shortly after, the leaf tissues surrounding this spot turn yellow. In this case, the fungus exudes a chemical called ethylene to kill the leaf tissue as it advances; the result of this is the destruction of chlorophyll in the cell living tissue and the creation of a golden "halo" or yellow surface area indicating the dead tissue.

About treatment the pathogen is susceptible to fungicides within the first 90 hours but may not be noticed. For this reason, preventive fungicide applications are best made during susceptible periods of the year if these are your preferred control means.

Downy mildew: This disease is most commonly confused with Blackspot. But unlike its "cousin," the damage is first noticed at the top, new-growth areas of the plant instead of the lower leaves as with Blackspot. Infected leaves develop purple-red, irregular splotches. Mature stages of the disease manifest as gray fuzz or "down" on the undersides of leaflets and possibly yellow leaf surfaces. Its treatment is same as for Blackspot.

Brown Root Rot (Cylindrocladium sp.:

Cylindrocladium is a fungal pathogen found rarely among amateur rosarians. This may occur during greenhouse propagation of rose cuttings. Brown Root Rot first begins near or just below the soil's surface. Leaves turn yellow as the pathogen begins to kill the cutting. To treat use Fungicidal soil drench.

Viral Diseases (Rose Mosaic)**:** The most common of the viral diseases, Rose Mosaic symptoms are yellow, staggered patterns on the leaf. These patterns frequently look like yellow electrical streaks or veins. There is no treatment for rose mosaic.

Composition Tanks Calculation of Fertilizer for a Standard Nutrient Solution

Different issues need to be implemented and calculated. Subsequently the fertilizer tanks are calculated

Crop analyses

Analyses of the crop gives information about the nutrients needed for growth. Analyses can be made by drying the complete plant. When all the water is out of the plant, the nutrients in the plant can be checked. Every crop has its own balance of nutrients. Plant analyses per crop are executed by the research station.

Root environment

To find out how to get the nutrients in the right composition into the plant, you need to know what to offer the plant direct in the root environment. This is determined by the characteristics of the roots absorbing nutrients. Since all crops have their own root system, the characteristics per crop are different. The research station has selected the right nutrient composition in the root environment for the different crops.

Substrate

The characteristics of the substrates determines how near and in what concentrations the nutrients are to the roots. Rockwool and peat have different qualities. The standard nutrient solution for tomatoes grown on rockwool differs from tomatoes grown on peat although the same nutrients in the same composition needed in the tomato.

Nutrient solution in the substrate

The centre of fertilizing is the nutrient solution in the substrate. The requirements of the composition of the nutrient solution in the substrate depends on the crop and the used substrate. Per crop and per substrate the research station gives advises. The grower has to strive after the advised nutrient solution in the substrate for an optimal production. Those figures are called the “strive figures”. Analyses of frequent taken samples out of the substrate are necessary to check the nutrient solution in the substrate. Having the right composition of the nutrient solution in the substrate also means the root environment is okay and you have got the optimal circumstances for production.

Standard nutrient solution

The composition of the irrigation solution is created to get the right nutrient solution in the substrate. This is per crop and per grow medium (substrate) indicated by the “standard nutrient solution”. The differences between the solution in the substrate and the irrigation solution are clear. For instance the EC of in the substrate is (much) higher than the EC of the irrigation solution and the composition of both solutions are different. The two solutions are more similar if having small rockwool slabs and high drain percentages.

Water quality

Before calculating what fertilizers to put in the A and B tank don’t forget the “clean water” already can contain nutrients. Those nutrients can be left out of the fertilization plan. You have to deduct for the “water quality”. For example: well water contains Calcium, a nutrient for the plant. Generally the plant needs more than available in the (clean) water. Less Calcium need to be added to the (clean) water to get the standard nutrient solution.

Fertilizer tanks

Finally you can calculate the needed amount of fertilizers in the fertilizer tanks to create the standard nutrient solution. The fertilizer tanks are concentrated 100 times more than the standard nutrient solution. Suppose the concentration Calcium in the standard nutrient solution is 4 mmol/l and the “clean” water already contains 1 mmol/l Calcium, 3 mmol/l Calcium need to be added. Because the concentration in the fertilizer tanks is 100 times, 300 mmol/l Calcium still has to be solved into the fertilizer tank.

Effective Protection of Breeders Rights

Human genius is the source of all works of art and invention. These works are the guarantee of a life worthy of men. It is the duty of the state to ensure with diligence the protection of the arts and inventions.'

These words are inscribed in the entrance hall of the headquarters of the World Intellectual Property Organization (WIPO) Geneva, Switzerland

Despite this impressive statement, the world's breeders of ornamental plant and fruit tree varieties face the frequent infringement of their rights. These breeders are not enjoying sufficient protection of their "inventions," as the state is not fulfilling its duty to prevent the violation of plant breeders' rights.

Why should breeders invest this kind of money for the protection of their varieties?

Simply put, breeders need this protection to receive a return on their investment. But this is only possible if breeders have a real and effective protection of their varieties-not only protection on paper.

What is 'effective protection'?

When breeders receive a protection title, this is the starting point for effective protection. Based on the breeders' rights laws in individual countries, a plant breeder is theoretically given the right to exclude others from propagating, selling, importing and exporting plant material of his variety. In practice, however, this is not always the case. A number of people do not respect these rights. The authorities must provide effective tools that enable breeders to legally enforce their rights.

A plant breeders' rights law is the material law that grants the breeder his rights. Civil laws, criminal laws, customs laws (and in some countries, public laws)-all of these either allow breeders to enforce these rights or, in the worst case scenario, leave breeders powerless. The legal possibilities to enforce [breeders'] rights determines the effectiveness and the real value of this and other intellectual property rights in practice. The UPOV explanation of why protect new varieties of plants reads as follows:

Breeding new varieties of plants requires a substantial investment in terms of skill, labour, material resources, money and time. The opportunity to obtain certain exclusive rights in respect of new varieties provides successful plant breeders with a better chance of recovering their costs and accumulating the funds necessary for further investment. In the absence of plant breeders' rights, those aims are more difficult to achieve since there is nothing to prevent others from multiplying the breeder's variety and selling it on a commercial scale, without recognizing in any way the work of the breeder.

Headquarters World Intellectual Property

Daren Tang, Director General of the World Intellectual Propert Organization

The UPOV explanation, however, seems to be incomplete. It should read as follows: "In the absence of plant breeders' rights, or without the effective enforcement of these rights, it is impossible to reach those aims." This is also the reason why the three Acts of the UPOV Convention for the obligations of members includes the following statement: "to provide for appropriate legal remedies for the effective enforcement of breeders' rights" *(see Article 30 (1) (i) of the UPOV 1991 Convention).* This obligation is also included in a more general way in Chapter III of the TRIPS (Trade-Related Aspects of Intellectual Property Rights) agreement.

Unfortunately, UPOV has not yet established a control mechanism to determine when and if the obligation stated in Article 30 of the UPOV Convention is being fulfilled by UPOV member states.

For breeders, the enforcement of

their rights will be one of the crucial issues in years to come. Let us examine which laws deal with the enforcement of breeders' rights.

Plant breeders' rights laws can have a considerable impact on the enforcement of these rights, either by providing straightforward, understandable provisions or by creating confusion with vague language.

The latter is particularly the case in regards to essentially derived varieties. The laws also need more significant recognition of the special requirements needed to enforce these rights; for instance, that breeders and growers deal with living material and

one plant of a particular variety never looks exactly like its neighbor (although the respective variety is homogenous). Perhaps this necessitates a special provision in the breeders' rights law in regard to "evidence."

In most countries, civil and procedural laws are the core tools for enforcing plant breeders' rights. These legal procedures need to be fair and equitable as required by the TRIPS agreement. Additional points that have to be considered in regard to breeders' rights are how to adduce evidence, the right to information and access to the premises, the possibility to receive injunctions, the level of damages and provisional measures. A crucial factor in the enforcement process is whether or not a particular court is fluent in the issues and language of breeders' rights. If the judge is not familiar with the basics of intellectual property and/or the general problems of breeders' rights, it is difficult to achieve a reasonable judgment. Another reality of this litigation is the sheer cost; this is particularly an issue when the fees outweigh the amount awarded by the judge.

The violation of breeders' rights is also a criminal issue. While not consistently recognized as "theft" in the various legal systems of the world, the act of infringing upon a breeders' right is certainly comparable to misappropriation and fraud, both of which are criminal offences. Countries that understand the true value of breeders' rights prosecute infringements with the full support of the criminal justice system.

As a regulating force for the international trade of illegal material, customs law is considered to be one of the most important areas of future development for breeders' rights. Both the fruit and ornamental industries are rocked with illegally propagated roses and apples are seized just before entering the European market; the same effect is achieved when illegal roses are confiscated at the port of Miami, Florida, United States. Clearly, it is important to have well-trained customs officials who are able to detect illegal plant material. Additionally, an effective co-operation between customs authorities in different countries should be established where possible.

Last but not least, precedent-setting case law is one of the cornerstones of breeders' rights enforcement. As the courts are responsible for interpreting the laws, at the end of the day it is for them to decide whether or not a title holder can enforce his right. Because this field is rather small there are not many court cases, but when a judgment is made it should be visible to the international community. This would be possible if an international body such as UPOV would compile the results of all plant breeders' rights court cases.

The enforcement of breeders' rights is a complex matter that requires a strong blend of civil, procedural, criminal, customs and case law. While breeders should not stand for any infringement of their rights, it is also the case that the vast majority of the "players" in the business abide by the rules. By using the above-mentioned laws to act against infringements, breeders not only defend their rights, but also those of loyal and faithful customers who would otherwise be forced into an unfair competition with those who operate illegally. Without effective enforcement, the plant breeders' right title is of limited value.

The World's Leading Trade Fair For Horticulture Inspired The International Green Sector

"Climate plants and resource-saving production took centre stage.

"The joy that IPM ESSEN could finally take place again could be felt in every hall and at every stand", Oliver P. Kuhrt, CEO of Messe Essen, sums up. The reunion of the green sector turned out to be more international than expected. Over 40,000 trade visitors from more than 100 countries came to Messe Essen to exchange information and to place orders. There was a wide range of products: 1,330 companies from 46 nations presented their innovations and new products in the fields of plants, technology, floristry and garden features from 24 to 27 January. Climate plants, environmentally friendly packaging and peat alternatives were particularly on trend.

"The importance of IPM ESSEN for the global green industry remains high even after the pandemic. The internationality of the trade audience is close to the 2020 level. In view of the dynamic market situation of the last few years and the travel restrictions that are still noticeable, this is a great result", continues the tradeshow CEO Kuhrt. The proportion of trade visitors from abroad was 33 percent (2020: 40). At 66 per cent, the proportion of exhibiting companies from abroad was even four percentage points higher than in 2020. Eva Kähler-Theuerkauf, President of the North Rhine-

Westphalia Horticultural Association and Chairwoman of the IPM Advisory Board added: "IPM ESSEN 2023 was a complete success. It was good to meet again in our gardening family. The fair also met with great interest internationally. Anyone who was there neither as an exhibitor nor as a visitor definitely missed out a lot."

The 39th International Plant Fair in Essen once again proved to be a high profile ordering platform: around 30 percent of visitors placed orders directly, and more than two thirds plan to conclude deals after the fair on the basis of the contacts made and information received.

"We look back on intensive and successful days at the fair. In all halls, one could vividly experience what horticultural entrepreneurship is all about – be it new technology, new varieties or new business ideas. This is how we can tackle the challenges of the industry. For the ZVG, after the pandemic break, it was an absolute must to be there.

The reunion was important for everyone", summarises Jürgen Mertz, President of the Central Horticultural Association (ZVG), the conceptual sponsor of IPM ESSEN.

From production to addressing customers: climate change concerns horticulture
Sustainable production is playing an increasingly important role in horticulture, i.e. the responsible use of energy, water, fertilisers, substrates and plant protection. Various start-ups presented projects and solutions in this regard both in the new Horticultural Technology Innovation Centre and at the Young Innovative Companies stand. For example, CO2-storing plant charcoal made from biomass was presented, which stores water and releases nutrients. In the area of pots, recycled plastic and compostable materials dominated. Also on display were smart transport and logistics solutions as well as software.

In the area of plants, "green climate heroes" that can cope with drought, heat and heavy rain were in high demand across all assortments. Special themed tours of sustainable plant ranges provided guidance. The increasingly warmer climate also allows actual houseplants and Mediterranean plants to thrive in the garden. Here, too, a trend for the point-of-sale emerged.

The IPM Discovery Center provided further input with innovative sales concepts and the Speakers' Corner, where the topics included marketing and social media in the green industry. What was striking this year: IPM ESSEN was more present than ever in the social networks. Numerous influencers and podcasters posted and reported on the world's leading trade fair. During the runtime alone, the fair's Instagram channel achieved an increase of 34 percent, its LinkedIn channel of 16 percent.

Preview of the floristry year

IPM ESSEN 2023 was once again the top meeting place for florists from all over the world. Lots of flowers, few leaves, colourful retro looks and powdery pastel brown tones in floral design were the predominant trends. "IPM ESSEN 2023 has presented itself green, ingenious and with a fantastic, innovative floriculture programme. The exhibitors in Hall 5 have reached their customers and in the FDF World we have incited the floricultural world. The sector is inspired, motivated and very well positioned. What is also particularly remarkable is the great interest and motivation of young people: a great many vocational school classes took part in our guided tours this year", says a delighted FDF President Klaus Götz. The rousing live shows on the unique revolving stage also included the preliminary competition for the international championship of young florists "Eurofleurs 2023" in Slovenia. Newcomer Anian Friedrich from Bavaria qualified as the German representative. The industry competition for the IPM Trade Fair Cup also enjoyed a large number of entries. Tanja Korsak, florist at Blumen Westerheide in Mettmann, was the overall winner in the combined bouquet and container planting category.

Further award ceremonies were on the agenda at IPM ESSEN: On the first day of the fair, the best new plants were awarded prizes in the IPM novelty showcase: in the category "Spring Flowering Plant" the Primula polyantha hybrid POLLYANNA, in the category "Flowering Houseplant" the Anthurium andreanum ANTHFYSAN, in the category "Green Houseplant" the Philodendron erubescens 'Pink Bikini' ®, in the category "Woody Plant" the Acer campestre 'Street Pillar', in the category "Tub Plant" the Mangave Mad about Mangave ® 'Blazing Saddles' and in the category "Cut Flower" the Chamelaucium 'Ever Flowering Wax'. The Audience Award went to the Erysium hybrid RYSI TM 'Winter Spirit' on the Thursday of the fair.

The best storytelling was honoured with the Show Your Colours Award. With its unique colour gradient from red to purple and its fragrant flowers, the hardy rose "Rosa Rosy Boom Colours Change" by Diderk Heinje won the award.

Anniversary in 2024

90 per cent of the trade visitors were satisfied with the range of products and services at IPM ESSEN 2023. 91 per cent are planning a repeat visit, 92 per cent recommend IPM ESSEN to others. On the part of the exhibitors, 95 percent plan to participate again. The next opportunity will be from 23 to 26 January 2024, when the 40th IPM ESSEN will be launched at Messe Essen with a special anniversary programme

Rai Family Diversifies into Avocado Farming

The billionaire Rai family has extended its empire to avocado farming under the Menengai Orchards in Nakuru County as they diversify to fresh produce.

The farm is currently growing 380 acres of the produce with a long-term plan of extending the acreage to over 600 acres next year.

Menengai, owned by businessman Jaswant Rai, is among the fresh produce firms that are eyeing the lucrative Chinese market after Kenya was allowed to export fresh avocado to the Asian nation last year.

"We are planning to expand our farm in coming years and we are also looking at incorporating the local community in planting the avocado for export,"

Jaswant Rai

"We are planning to expand our farm in coming years and we are also looking at incorporating the local community in planting the avocado for export,"

said David Jean Louis, a manager at Menengai Orchards. Menengai Orchards is on the path to compete with other established firms such as Kakuzi.

Mr Louis said as an established orchard, they are sensitising small-scale farmers on the best practices in growing the avocado so that they can be part of the larger organization growing the fruit.

He said they are looking into contracting smallholder farmers to grow more avocados so they can buy from them to push more volumes into the Chinese market.

The firm has also established a packing house that will come in handy for farmers who will grow the fruit.

Valentine's Day: More Tulips than Roses Traded at Royal FloraHolland

In the two weeks before Valentine's Day, Royal FloraHolland's marketplace sold 160 million tulips and 151 million roses. The number of roses sold was 8 million lower than last year. The number of premium roses sourced from the Netherlands was lower for the second consecutive year. Due to the increasing use of LED lighting and higher temperatures, the decline in the supply of roses grown in the Netherlands was still somewhat limited.

The total number of flowers sold decreased from 517 million to 497 million. The average price of cut flowers in the past two weeks was slightly lower than last year. The pricing of flowers and plants clearly lags behind inflation. Chrysanthemum, Lisianthus, and Cymbidium were in high demand. With lower supplies, prices for these products were higher than last year. Among houseplants, it is notable that more Phalaenopsis was sold than last year. It is the most popular houseplant.

Source: Royal FloraHolland

UK to Construct Sh2.3billion Potato Processing Factory in Iten

The UK government will construct a shs.2.3 billion 60,000 tonnes irish and sweet potato processing factory in Iten town of Elgeyo Marakwet county. Speaking during its launch at the governor's office, the British high commissioner to Kenya Jane Marriot said the factory which will process fresh and frozen irish and sweet potatoes will guarantee steady farm prices to over 10,000 smallholder potato farmers in the county and the region.

The high commissioner said it will create at least 5,000 direct jobs in its first year of operation which will increase to 10,000 jobs within five years in addition to producing a new seed variety which has the potential to double farmers' yields.

"The factory which is the first potato processing factory in the region will reduce post-harvest losses and provide ready off take of potatoes, guaranteeing steady farm prices for over 10,000 smallholder potato farmers in Elgeyo Marakwet county and the region thus transforming the lives of thousands of smallholder farmers," she said.

The factory which is a partnership between the UK government and Select Fresh Produce Kenya Limited will be implemented through the UK's Sustainable Urban Economic Development Programme (SUED) in collaboration with the Iten municipality.

The governor Wisley Rotich said the county will fully support the project saying that farmers in the county have continuously been exploited by middlemen as the county has never had a successful potato value chain.

The governor said he has posted cooperative officers in all wards to strengthen cooperative societies saying farmers will sign contracts with the factory as groups and not individuals.

The CEO Select Fresh Produce Kenya Eunice Mutua said her factory will work closely with local farmers to ensure that what they produce meets international standards by ensuring that they use methods which are environmentally friendly and promote climate resilience. She said the factory will be the first in the country and the third in Africa after Egypt and South Africa to process irish and sweet potatoes for the European market.

Kenya: Nairobi R&D Facility to Carry out Research into Arid Environment Agriculture

The Horticultural team at Powerplus Group exhibited at the Africa Agri Expo in Nairobi. Meeting delegates from countries across the region, including the Ministers for Agriculture from South Sudan, Kenya, Tanzania, and Uganda.

The team signed an agreement with the Kenya government to help design an R&D facility to carry out research into arid environment agriculture.

The majority of conversations led to how PPG and its partners could help provide solutions that would insulate the issues generated by climate change in the region, such as drought and sudden rainstorms wiping out crops.

Alongside meeting grower cooperatives and local government, the team also met with the British High Commission for Kenya and the Department for International Trade to discuss expanding UK exports to the region in exchange for helping local growers connect with the UK markets.

We look forward to seeing how PPGs expansion into this new market will progress over the coming months.

Nutrients Management in Nursery and Floriculture

Nutrient deficiency affects crop yields whether they are trees grown for timber, fruit trees, cereals, flowers or vegetables. A shortage (or excess) of nutrients can cause serious reductions in crop growth, yield and the quality of the crop produced. Essential major nutrients such as nitrogen, phosphorus, potassium, magnesium, sulphur and calcium are required in relatively large quantities, whilst trace elements such as manganese, copper and boron are required in very small quantities.

Many crops show large and very profitable responses to the correct use of lime and fertiliser in terms of both the yield and quality of the crop produced.

An important part of farming is providing plants with proper amounts of lime and essential nutrients. Soil testing can be used to indicate if additional nutrients are needed to achieve optimal yield.

Soil analysis is the most accurate guide to fertilizer and lime requirements. It is especially important to determine soil fertility and pH levels before planting a crop, so that the necessary lime and fertilizer can be applied to the soil.

Managing Soil pH

pH is a measure of the acidity or alkalinity of the soil. Soil pH is very important because it affects the availability of nutrients to the plant. Most floriculture crops do not respond to fertilization when the pH is very low (extremely acidic soils, pH less than 5.0) or very high (extremely alkaline soils, pH above 7.5).

Calcium, phosphorus, magnesium, and molybdenum are the nutrients that are most likely to be deficient under acid soil conditions. Test the soil to determine pH before planting and every 2-3 years to monitor changes. Soil pH can usually be modified to obtain a suitable pH.

Raising Soil pH

For acidic soils Lime application to raise soil pH is usually required. When the soil pH is not known, a soil test should be performed.

On extremely acidic soils, flowers and most crops will not respond to fertilization or other management factors. Agricultural grade limestone (calcium carbonate or CaCO3) is generally recommended to correct soil acidity.

Note that Lime should not be applied within 1 week of applying nitrogen fertilizer or manure The high soil pH that occurs shortly after liming will increase the loss of ammonia.

Lime does not move through the soil, it must be incorporated.
Some soils limed heavily over a period of years may not require further applications. Some light-textured soils that have an adequate pH occasionally test very low in calcium, and therefore require lime.

If calcium levels are low, gypsum or fertilizers such as calcium nitrate may also be used to supply calcium, rather than using lime. Gypsum (CaSO4) is not a liming agent. It will not increase soil pH, and under certain conditions it is used to lower soil pH. The use of some dolomitic limestone is recommended since it contains a significant quantity of magnesium, an essential and often deficient plant nutrient.

The positive effects of lime application include:

- Reduce soil acidity,
- Improve the physical condition of the soil,
- Provide calcium and magnesium (if dolomitic limestone is used),
- Favour bacterial action and, thereby, hasten the decomposition of organic matter and the release of nitrogen,
- Improve conditions for availability of other nutrients, notably phosphorus and some minor elements, and
- Reduce the toxicity of some elements such as manganese and aluminium.

Growers need to be careful when applying lime. If applied at too high a rate (above 5 tonnes per ha), lime may tie up some micronutrients (e.g. boron) or cause nutrient imbalances. Lime application may aggravate magnesium deficiencies, especially in sandy soil.

Where this is a problem, some dolomitic lime should be used. Liming can also increase the rate of organic matter depletion and encourage the germination of some weeds. Lime should always be used in conjunction with a planned soil testing and fertilizer program.

Lowering Soil pH

Sometimes it is advantageous to lower or acidify the soil pH. Alkaline mineral soils may need to be acidified for crop production. The principal materials used to lower soil pH are elemental sulphur, sulphuric acid, aluminium sulphate and iron sulphate (ferrous sulphate). Ammonium sulphate, ammonium phosphate and other ammonium containing fertilizers are also quite effective when the soil receives sufficient water, though they are primarily sources of plant nutrients.

Soluble Salts in Soil

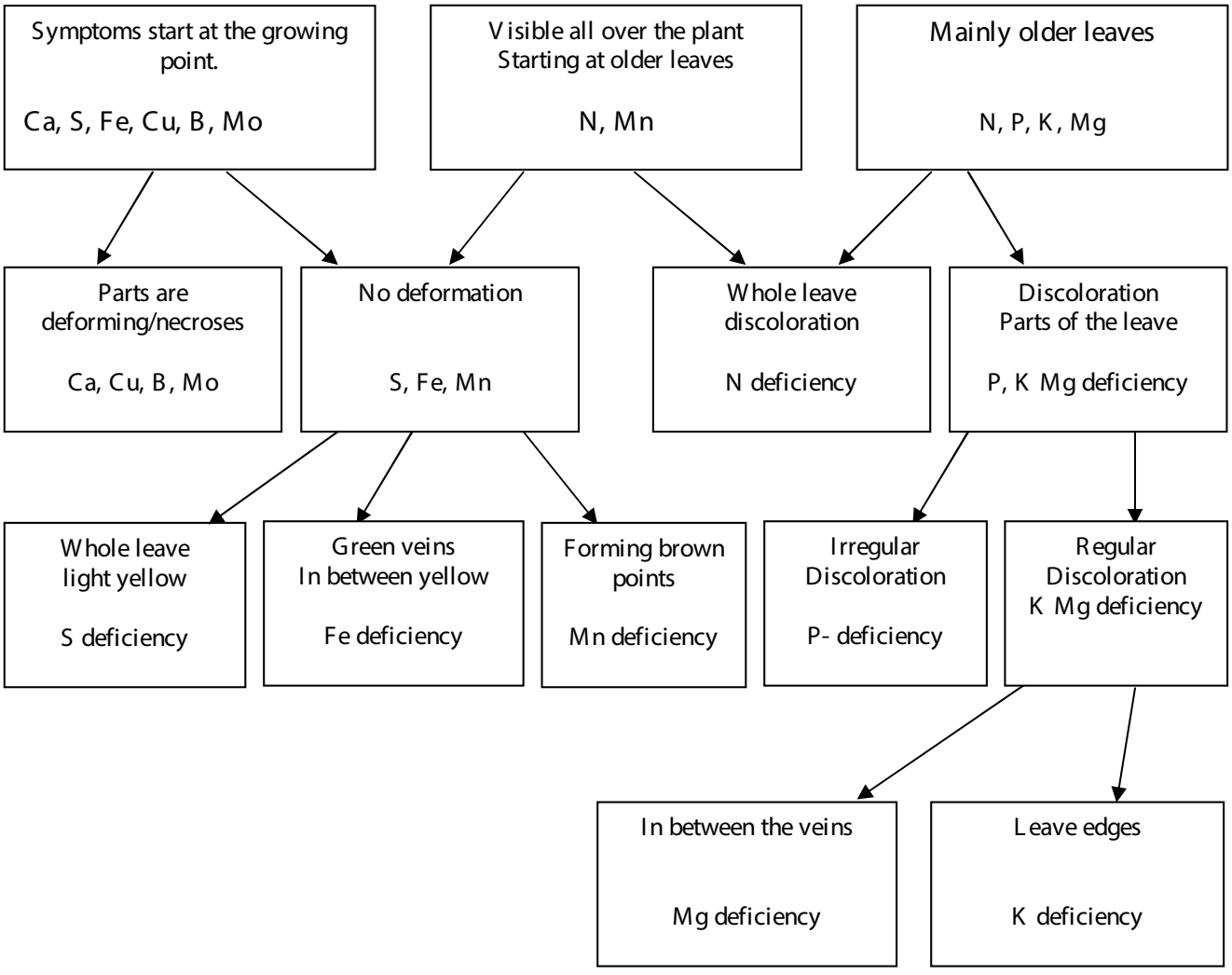
Elevated salt levels in soil will interfere with water uptake and eventually plant growth. The effects range from delayed or non-germination of seed to death of new transplants and serious reduction in growth of new or established plants. The problem with soluble salts is most severe when soil moisture is low and salt concentration is high.

Scheme to find the cause of the deficiency symptoms

The scheme below can be used to find out in a schematically way which element may be the cause of the symptoms. Start at the top and follow the lines.

The variation in deficiency symptoms between plant species is very big. For that reason, the scheme below is only a first step to find the reason. The best is to take a leaf sample and analyse the dry matter.

This will show which elements are in low or high amounts present.



The 3R's in Flower Logistics

In the recently held flower logistics Africa Conference, Parit Shah, of Silpak Industries Ltd, took the podium to shed some light on the 3R's in flower logistics. Speaking eloquently he stated them as Reduction, Re-use and Recycling.


Mr. Parit Shah

Reduction

The three R's are a natural fit. We need to find the carbon footprint of what we are doing. This is the question where sustainability comes in, what is the environmental impact? Today's market place; the millennials and the generation coming after, choose products based on their impact on the ecosystem. People purchasing today are using different parameters, whether you like it or not. "If you can identity and differentiate, your product from the guy next to you , as environmentally safe and ethically grown as well as meeting all other requirements for sustainability, then you'll have a better leg to stand on," Parit emphasized.

A lot of Carbon emissions is packaged per every kilo of flowers every year. This is where Kenya should put efforts to differentiate products and make them more competitive.

How reduction Affects packaging

In packaging you can use paper without compromising the mechanical properties/static properties/marketing requirements of your product. For instance; in 2011 Silpack introduced the SoliQ airfreight box. This box saves 250gms on airfreight thus the total cost of ownership of using a SoliQ box is USD 0.30 less than using a conventional box to do the same job.

The amount of polymers it takes for one to take a product from Nairobi to some other destination will be reduced and we could be more competitive than other nations. (some countries ask you to imprint how many carbon miles a particular product is flown) "We converted one particular product using 290grams to 255 grams of paper and the result was excellent, we saved 26 pallets, said Mr. Parit.

Reduction can also come through product development. This is practical through choice of paper. It has to be right. The design matters too. You can have the right paper but the wrong design and vice versa. Designs need to be sustainable, i.e. using less material to produce same cargo movement package. A correct design guarantees; Efficiency in supply chain, Less inventory (saving in the sustainability question), Less material, Carbon footprint saving and money saving.

Re-use

It is very difficult to re-use boxes but through use of recovered plastic it is doable. Once these plastic boxes are in the environment you take it back in, you can make a plastic flower crate. The recovery process of plastics creates employment too.

When it comes to paper, you can re-use your cartons for storage especially the large boxes but not for shipping. You can also re-use the cartons if you are locally transporting. It should also be noted though, that paper is not likely to survive long time humidity and temperature change.

Recycling

Sustainability cannot be interrogated by the 'P'word, i.e. plastics. The only challenge is who's going to take the step in using the right plastics? Paper on the other hand can be recycled about 5-7 times; eventually it reaches its wear and tear phase. On the contrary, plastic can be recycled for over 100 times though you'll lose integrity at every recycling stage. It is possible through change of mindsets. This is like saving the environment 100 times. In terms of finance, plastic is winning.

The first mindset is; using brown paper instead of white because; brown paper is environmentally friendly whereas white paper is not –it uses chemical bleaching which is hazardous to the environment. Cello tapes and stapling pins have to be replaced with glue. There needs to be a change in conversation. There has to be collaboration in the supply chain for this to work.

EHPEA Conferences on FCM and Sea Freight.

A discussion Platform was held on the possible courses of action to be taken by Rose farms with regard to FCM management. In addition, a validation workshop to review a study document on the development of cool logistics infrastructure and reefer containers cost in the horticulture sector was also held. Both were held under EHPEA in the presence of government officers, growers and The Netherlands Embassy representatives in Ethiopia.

Based on the findings and recommendations of the study document position paper will be

produced and submitted to policy makers as an input to support the sector.

The program organized, followed the experience sharing visit of the team which combines experts from the two organizations in Kenya.

HortiFlora Expo Ethiopia on Again!

HortiFlora Expo, the international floriculture trade fair of Ethiopia is on again after 4 years of absence due to Corona. EHPEA is warmly welcoming international visitors to HortiFlora Expo 2023, to reconnect and meet the Ethiopian growers on the floor of the country's national show case of floriculture and horticulture.

The Association will make sure that everybody's visit will be fruitful and worthwhile. The Millenium Hall, the venue where the event is being held, is located closely to the international airport of Addis Ababa and offers a large exhibit space to show all what Ethiopia has to offer in flowers and plants.

"It will be a real pleasure to see the international floral

business community meeting again with Ethiopian growers". "This trade fair takes place in a country that belongs to the top 5 most important cut flower producing nations", a spokesman of the fair organisation said. It will start on Wednesday March 8 and will last until March 10.

Among those signed up, many are Ethiopian flower growers as well as various international floral suppliers. It is anticipated that the show may become a very successful edition this year.

Therefore, expectations are high that a good number of international visiting buyers will fly in, as for them it will be a unique opportunity to meet again almost all of the Ethiopian flower growers together. Ethiopian growers, are also looking forward to the trade exhibition that was planned since 2019.

8 Steps in the Decision Making Process of Pest Control

The following are general steps that may be followed in the development and implementation of a pest control strategy.

1) Detection

A pest control program always starts with a problem. The pest must first be detected.
The presence of a pest may be detected by visual observation of the organism or the damage it causes. While certain pests can be identified from a distance, some pests have hiding places (e.g. underside of a leaf, under soil, or under debris) and require the grower to make an effort to search at close quarters.
The key to successful pest control is early detection. It is advisable, therefore, that the grower routinely inspects the plants and look for pest or disease organisms known to be associated with the production operation and those prevalent into the area.

2) Identification

When a problem has been observed, it is important to make a positive identification of the insect or disease. Without knowing the organism involved, no sound control measures can be developed. Trial and error is wasteful. If the grower does not have the expertise to positively identify an insect or disease organism, a sample of an infected plant or the organism itself should be collected and sent to agricultural experts.

3) Biology and Habit

An organism has a life cycle. In insects that undergo a complete metamorphosis, there is a dramatic change from one stage of development to another. Each of these stages has its unique characteristics and habit. One stage may be more vulnerable than another to a particular control measure. The most vulnerable stage should be targeted for controlling the organism. It is important to know the habits of the pest in order to plan a control strategy. Certain insects hide on the underside of the leaves, others in the soil and still others live on plant materials.

Some insects are nocturnal in feeding habits while others feed during the daytime. Other characteristics of insects are difference in mode of feeding i.e. some have chewing mouthparts while others have piercing mouthparts. These and other biological characteristics and habits are important in designing effective pest control strategies.

4) Economic Importance

It is economically wasteful of resource and time if it costs more to control a pest than the return expected from the enterprise without pest protection. In other words, if the pest incidence does not pose an economic threat the grower should ignore the pest. Certain pests can completely wipe out the crop or lower the quality hence must be controlled immediately at the sign of their presence.

5) Choice of Method of Control

The most effective, economic, safe and environmentally sound method of control should be selected after identifying the pest and assessing the potential damage. There are situations where combinations of methods rather than one particular method may be most effective, while some methods are easier to apply than others. Further some methods may require the use of special equipment and hiring of professional applicators.

6) Application

If chemicals are to be used, they must be applied at the correct rate and the user should follow the instructions provided in the product label. Timeliness of application is critical to the success of a pest control method. To eradicate a pest it is important to know its life cycle. Certain applications may destroy the adult without damaging the eggs. By knowing when eggs hatch an appropriate schedule can be developed to implement repeated application of the pesticide for more complete control. Environmental conditions under which application of pesticide occurs is critical to its effectiveness i.e. pesticide should not be applied if rainfall is expected soon after application.

7) Evaluation

The effectiveness of application should be evaluated within a reasonable period after application to determine whether a repeat is necessary. This evaluation is important as it has direct impact on pest control hence increased productivity and return on investment.

8) Record keeping

Record keeping of one's operation is critical. The only way to make alternative choice is to have data for comparison. Such records should include type of pesticide, rate of application and cost of application.

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
AAA- Flowers-Simba	Roses	Rumuruti	Anil	0758349471	anil@aaagrowers.co.ke
AAA- Flowers -Chui Farm	Roses	Timau	Phanuel Ochunga	07522506026	fanuel.ochunga@aaagrowers.co.ke
AAA-Simba Farm	Roses	Rumuruti	Anil	0758349471	anil@aaagrowers.co.ke
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
Afriscan Kenya Ltd	Hypericum	Naivasha	Charles Mwangi	-	-
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	Simon Blinco	0723234927	simon@barakaroses.com
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
Black Petals	Roses	Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
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
Charm Flowers	Flowers	Athiriver	Ashok Patel	020 352583	ashki@charnflowers.com
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	Ajay Sutar	0711102266	ajay.sutar24@gmail.com
Desire Flowers	Flowers	Isinya	Rajat Chaohan	0724264653	rajatchaohan@hotmail.com
De ruiters	Breeder Roses	Naivasha	Fred Okinda	0722579204	Fred.okinda@deruiter.com
Double Dutch	Cuttings	-	Pharis Wainaina	0728207661	
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	Tambe Sabaji	0734740202	enkasiti@gmail.com
Equinox	Flowers	Nanyuki	Harry Kruger	0707266956	harry@equinoxflowers.com
Everest Flowers Ltd	Flowers	Mt. Kenya	Victor Kibore	0700416334	-
Everflora Ltd.	Flowers	Thika	Ghanshyam Dusang	0721638005	manager1@everflora.co.ke
Evergreen Crops		Nairobi	Arun Singh	0721941009	arun@evergreencrops.com
Exotic Peninah	Roses/ Carnations	Athiriver	Dan	0734626942	dan@exoticfields.com
Fairy Flowers	Flowers	Limuru	Sylivester	0753444237	sylvesterkahoro@yahoo.com
Fairy Flowers	cutings	Limuru	Kennedy Kamau	0712204894	kenreal07@gmail.com
Fides Kenya Ltd	Cuttings	Embu	Bernard Marindany	0726 366 752	B.Marindany@DummenOrange.com
Finlays- Lemotit	Flowers	Kericho	Japhet Langat	0722 863527	japhet.Langat@finlays.co.ke
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	Elijah Getiro	0722873539	elijah.getiro@dudutech.com
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	Margaret Mumbi	-	-
Flamingo Flora	Roses	Njoro	Sam Nyoro	0721993857	s.ivor@flamingoflora.co.ke
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	Roses	Solai	Yogeesh	0737453768	farm.florenza@megaspingroup.com

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
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
Groove	Flowers	Naivasha	John Ngoni	0724448601	groovekenya@gmail.com
Hanna Roses Ltd	Roses	Thika	-	-	-
Harvest Ltd	Roses	Murungaru	Julius Oloo	0721465853	oloo@harvestflowers.com
Harvest Ltd	Roses	Athiriver	Julius Oloo	0721465853	oloo@harvestflowers.com
Harvest Ltd	Roses	Olkalou	Julius Oloo	0721465853	oloo@harvestflowers.com
Heritage Flowers Ltd	Roses	Rumuruti	Sailesh Kumar	0722203750	hfl.srk@gmail.com
Highland plantations	Cuttings & Herbs	Olkalau			production@highlandplants.co.ke
Imani Flowers	Summer Flowers	Kabarak, Nakuru	Raphael Otieno	0792302466	raphael@imaniflowers.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	Richard Fernandes	062-31023/6	bondet.production@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	Roses	Naivasha	Mureithi	0722238474	admin@lamornaflowers.com
Lathy Flora & Fairy	-	Kiambu	John Mbaoni	0753888126	info@lathyflora.com
Lauren International	Flowers	Thika	Dilip	0720796629	laurenflowers@accesskenya.co.ke
Laurel Investment	Roses	Olkalou	Ravindra Palshikar	0740569286	ravi.lil@btfgroup.com
Livewire	Hypericum	Naivasha	Esau Onyango	0728606878	management@livewire.co.ke
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		-	-
Mzuurie Flowers - Winchester Farm	Flowers	Bahati	Joseph Kasoso	0725696509	jkasoso@winchester.co.ke
Nini Farms	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
Oserian-Bohemian	Flowers	Nakuru	Chakravarthi Yashmith	0786143515	chakra.kuppusamy@oserian.com
Panda Flowers	Roses	Naivasha	-	-	gm@pandaflowers.co.ke
Panocol International	Roses	Eldoret	Mr. Paul Wekesa	0722748298	paul.wekesa@panocal.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@pentaflowers.co.ke
Pendekeza	Roses	Nanyuki	James Kiiru	0708124381	tambuzi.sales@tambuzi.co.ke
PJ Dave Flowers	Flowers	Isinya	Pravin Yadav	0708920202	gm@pidave.com

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Pj Dave	Roses	Timau	Ashok Everlyn Ladkat	0702000341	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, Nyandarua	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
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
Riverdale Blooms Ltd	Flowers	Thika	Antony Mutugi	0202095901	rdale@swiftkenya.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	Dinkar Wandhekar	0702418174	dinkar@eaga.co.ke
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 Milmet/Tindress	Flowers	Solai, Nakuru	Vinoj J. Kumar	0737801646	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	George Kimathi	0724622638	gkbuuri@gmail.com
Sunfloritech-Blue Sky	Gypsophilla	Naivasha	Patel Sushant	0725622333	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	Kavosi Philip	0721225540	philip.munyoki@syngenta.com
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	Appaso Mane	0737 513 844	mane.uel@btfgroup.com
United Selections	Roses -Breeder	Ngata, Nakuru	Jeroen Van Marrewijk	700176556	jvanmarrewijk@united-selections.com
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	-	-	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	Brijesh Patel	0715469732	brijesh.patel@xflora.net
Zena - Asai Farm	Roses	Eldoret	Japhet Chelal	0721770597	japhet.zenaroses@gmail.com
Zena Roses - Sosiani Farm	Roses	Eldoret	Francis Kariuki	0725444515	fkariuki@zenaroses.com

I Celebrate The Kapenguria Six **As We Turn Twenty Years Old.**

Floriculture Magazine celebrates its twentieth anniversary in a rich social environment, cared for not only by parents and grandparents, but also by lots of other family members- who are all experienced with small children, adolescents and teens. Floriculture feel loved, accepted and secure, and quickly understand emotions such as joy and sorrow.

Floriculture, as an idea was conceived way back in 2002 on an afternoon drive from Sian Roses Winchester farm to a Nyama Choma den at Nairobi west. After a few bottles, Mr. Wilfred Munyao's voice was uncontrollable. Kanyingi you must start a magazine he kept on saying.

Enter the Kapenguria Six

My inner self challenged me too. I trained to depreciate fingers using a calculator and later defected to depreciate them using a typewriter. What my history teacher told us was clear in my mind; in History there is no kako three H twenty mugo which I later learnt he meant CaCo3, H20, Mgo. This had completely thrown me out of Chemistry the world my friend Munyao wanted me to join as a scribe. Mr. Munyao could not give me a break, he told me of an association for floriculture professionals that was in the Kitchen. And this how I met the Kapenguria six who I will remain indebted as long as I live. Allow me to take you the Kapenguria six.

Mr. Tom Ochieng, then a production manager at Penta Flowers. A professional per excellence and stickler to details. The only production manager I visited without an appointment then. This is the man who introduced me to every small detail that happens in a greenhouse. He edited all my articles to ensure I understood the difference between Downy Mildew and Powdery Mildew. In every international exhibition he visited he was armed with a camera and he made sure I got the photos. The stickler, he is, he has never left Penta but he has grown through the ranks to his current position.

Then we had Victor Juma. A young aggressive professional with Syngenta EA Ltd. I do not know the number of times we drove in his pick up to farms. Victor recommended me to his colleague who gave me adverts. He gave the first full year advertising contract. Victor was the critic of my designs. He ensured Floriculture was more appealing. Like Tom, Victor is still at Syngenta but has grown through the ranks to head the flowers division in East Africa. Charles Njuki, then at Transbell, his closeness to Nairobi ensured he was able to co-ordinate us well. Njuki would leave for a tour to almost all the flower planting regions working in different farms. Wherever he went, he became my ambassador in the region.

Francis Karanja, then with Bayer cropscience gave me a tour of the Mt. Kenya region farms. He held my hands knocking the gates of different farms in Athiriver, Nairobi and even Limuru area. At any time he had a training or a product launch he would slot me in to talk about the new baby. FM as we called him became a close friend. Years later when he joined BASF, he never left me behind. Today at Corteva, we are still the best of friends.

Anampiu needs no introduction. The custodian of our funds was then with Bayer Cropscience too. He was the custodian of flower marketing business at Bayer Cropscience then. His mantra was. Kuna urafiki na kuna kazi. Strict to the letter, am sure he remembers the downy mildew umbrella advert he refused to pay because it was not to his specification. He rose through the ranks and joined different companies in different in different countries. Like Charles, wherever he went he became my ambassador. Like twins, they were together at Bayer and they are still together with Francis at Corteva.

Gervasion Kirigia, then at Sian, He gave me the first supplement to be carried by the magazine as he hosted me at Agriflora near Egerton University. GK the great, when he went to Tanzania flowers, he ensured he not only hosted me for a week but took me to all the farms in the country of Bongo flavour. Remember the soup we were taking at USA on our way to the farm. Wasomi we were called in Arusha joints due to our queen's language. GK, is the only one among the Kapenguria six who has left the industry to pursue other interest.

I have made friends with many more in the sector. Today, most are in senior positions and I work closely with the second generation that took over after them.

Floriculture Magazine values this generation which is on the driving seat today. But as we celebrate our twentieth anniversary, allow us to recognize the Kapenguria six pay gratitude to them.

ELGON KENYA
TRANSFORMING FARMS & LIVES THROUGH TECHNOLOGY

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