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JOURNAL
FOR LEADS IN HORTICULTURE

IFTEX 2024,
Cultivating global connections in the flower industry



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IN MY OPINION

FORCE MAJEURE (GREATER FORCE)

Not long ago, in the month of May 2024, Kenyans were faced with unprecedented flooding that wreaked havoc, killed people, destroyed property, rendered roads impassable, among other devastations. The school opening calendar was as well affected since the Kenya Meteorological Department had given a forecast that advised the government to prioritize the learners' safety.

The concept of climate change has been a foreign in Kenya and largely in the African continent. This has made citizenry and its leadership not to pay much attention to fundamental pillars like forestation, water and nature conservation to the details.

With a ballooning population, demand for housing, and commercial space, the allure of modernization and imposing architecture of high-rise buildings and skyscrapers, has made many expert to question whether there is proper Environmental Impact Assessment(EIA). There is a possibility that the developers wallet is fatter and weighs heavier than proper EIA report, otherwise, why would a politician, be against demolition of structures constructed on riparian land and advise on moving the river course? I digress

Out of curiosity, I dug into several repositories to establish what might be the impact of flooding on food security of a nation, and can share below pointers;

- Flood impacts on food security vary depending on scale, with declines likely at smaller scales but mixed impacts at national and regional scales.
- Improved data collection at the intersection of flooding and food security, and at the spatial scales ranging beyond conventional humanitarian responses, is critical to better mitigate food security impacts of flood disasters across
- Information regarding flood effects on food security is of particular importance for humanitarian organizations and is especially valuable across Africa's rural areas that contribute to regional food supplies.
- flooding and its associated meteorological conditions can simultaneously degrade food security locally while enhancing it at regional spatial scales, leading to large variations in overall food security outcomes.

On Monday, May 14, 2024, I was touching base with a colleague based in Mauritius, she sought to know how the weather is in Kenya and if the flooding has reduced. Notably she mentioned that she loves fresh cut flowers, specifically roses originating from Kenya. When she went to her flowers supplier, she could not find any. On seeking to know why, she was told that with recent flooding in Kenya the supply of freshly cut roses had significantly been affected till further notice.

Perhaps, with good weather now, my colleague will enjoy her usual dose of freshly cut roses imported from Kenya!

For feedback write to Joseck.wekesa@gmail.com

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Contributors for this edition includes: Warmolt Tonckens, -

The editor is keen to ensure that the contents of this magazine are accurate as possible. Views expressed by the advertorials are not necessarily those of the publisher.

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CULTIVATING GLOBAL CONNECTIONS IN THE FLOWER INDUSTRY

Tuesday June 4 - Thursday June 6 • 2024

The International Floriculture Trade Expo Kenya (IFTEX), has once again unfolded its petals, captivating the world with the vibrant hues and fragrances of Kenya's flourishing flower industry. Held annually in Nairobi, this prestigious event serves as a pivotal platform for growers, exporters, and stakeholders to converge, collaborate, and explore the latest trends and innovations in the global floriculture trade.

Renowned for its diverse landscapes

and favorable climatic conditions, Kenya has emerged as a powerhouse in the global flower market. From the iconic roses to an array of exotic blooms, the country boasts a rich tapestry of floral varieties that captivate markets worldwide. IFTEX celebrates Kenya's floral splendor, showcasing the industry's prowess in cultivation, production, and export.

IFTEX serves as a nexus for international trade, facilitating meaningful connections between producers, buyers, and industry professionals from around the globe. With exhibitors and attendees hailing from diverse backgrounds, the expo fosters a dynamic environment for networking, knowledge exchange, and forging strategic partnerships.

This year's IFTEX, will be the 11th since the show opened its doors in 2012, and comes at a time Kenya is gaining traction, not just as producer but a flower logistics hub with large distribution chains establishing bouquet-making hubs under a concept called "packed at source", taking root here. This

essentially means value-addition is now expanding in the country creating more jobs and transferring technology. "This is an indication Kenya will, in future, be the major flower business hub", said Dick Raamsdonk.

With breeders releasing new varieties, IFTEX 2024, has attracted buyers from more than 75 countries from Europe, Middle East, Asia, Africa, US and South and Central America.

According to Clement Tulezi, Chief Executive Officer, Kenya Flower Council that is partnering with IFTEX, the flower exhibition offers the industry a platform to showcase latest innovations that have placed Kenya in a vantage position. "Innovations and sustainability are the factors keeping our flowers ahead, and the interest in IFTEX from all corners of the world is an indicator of better times for Kenya", he said.

In an era marked by environmental consciousness and sustainability, IFTEX underscores the industry's

Left to Right: Isaac Macharia, Principal Inspector, Plant Pathologist at Kenya Plant Health Inspectorate Service (KEPHIS), Dick van Raamsdonk, General Director, HPP Exhibitions, Clement Tulezi, CEO, Kenya Flower Council (KFC) and Christine Chesaro, Director, Horticultural Crop Directorate (HCD) during the media briefing on the status of the Kenyan flower industry.



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Elgon Kenya Ltd stand, during 2023 IFTEX exhibition

commitment to responsible practices. Exhibitors showcase innovative technologies and eco-friendly solutions aimed at minimizing environmental impact while maximizing efficiency and productivity. From water conservation techniques to renewable energy initiatives, the expo highlights the strides made towards a more sustainable future for floriculture.

“IFTEX 2024 has attracted a great number of flower growers and this is what sets the event apart. The flower

industry is like fashion: Consumers want something different all the time. From colours, names, shades, shapes and more, is what a consumer wants when entering a florist shop. Kenya has the widest range: head sizes, stem length, good climate and excellent logistics that enable farms to bring their products to the different markets, both close by and far away. For this reason, breeders are always in their labs to create new varieties, growers are always on the lookout for what is new, and the traders, the buyers are always on alert for new

releases to bring it to the market,” Dick added.

IFTEX offers invaluable insights into evolving market trends and consumer preferences, empowering industry players to stay ahead of the curve. Through seminars, workshops, and panel discussions, participants gain a deeper understanding of market dynamics, emerging demand patterns, and strategies for market penetration and expansion. From luxury markets to mass retailers, IFTEX equips attendees with the knowledge and tools to navigate diverse market landscapes effectively.

Beyond its commercial significance, IFTEX plays a pivotal role in driving economic growth and development in Kenya and beyond. By fostering trade partnerships and investment opportunities, the expo stimulates job creation, enhances livelihoods, and contributes to the socio-economic prosperity of local communities. Furthermore, it promotes tourism and showcases Kenya’s potential as a global hub for floriculture and agribusiness.

As IFTEX takes place, the legacy of this unique event endures, inspiring a collective vision for the future of floriculture. In an ever-evolving



Nirp East Africa Ltd stand, during 2023 IFTEX exhibition

industry landscape, innovation and collaboration remain key drivers of success. By harnessing technology, embracing sustainability, and fostering cross-sector partnerships, the global flower industry can continue to thrive, enriching lives and landscapes worldwide.

Responding to evolving travel preferences, IFTEX has shifted its schedule from Wednesday to Friday, to now commence on Tuesday and conclude on Thursday. This adjustment reflects extensive research into the changing habits of the international trade show attendees, who increasingly prefer returning home before the weekend, exploring flower farms post-show as well as go sight-seeing Kenya's great tourist attractions among these the Nairobi National Park.

IFTEX stands as a testament to Kenya's vibrant floral heritage and the industry's resilience and adaptability in the face of change. As participants depart with newfound insights and connections, they carry with them the promise of a brighter, more sustainable future for floriculture, rooted in innovation, collaboration, and a shared commitment to excellence.

"The number of flower growers showcasing their blooms has

“This year's IFTEX, will be the 11th since the show opened its doors in 2012, and comes at a time Kenya is gaining traction, not just as producer but a flower logistics hub with large distribution chains establishing bouquet-making hubs under a concept called “packed at source”, taking root. ”

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surged this year from 59 to 74, marking a remarkable 25 per cent growth. And a considerable slice of this increase is the number of new exhibiting smaller growers aligning with one of the key objectives of the Kenyan International flower trade exhibition-to give all growers, big and small, an opportunity to showcase their flowers, by offering the smaller ones a free stand as 'kick off' to become part of this platform too. As a result, the growers exhibiting in this year's edition represent nearly 90 per cent of all hectares dedicated to cut flower cultivation in Kenya," noted Dick.



Murara Plant Ltd stand, during 2023 IFTEX exhibition

Battling Botrytis a silent menace in flower industry

In the verdant fields and towering floriculture's greenhouses, a silent menace lurks, threatening the health and productivity of crops. Botrytis, commonly known as grey mold, casts a shadow over the vibrant landscape, causing widespread damage and economic losses. As flower growers grapple with the multifaceted challenges posed by this fungal pathogen, understanding its effects and implementing effective control measures are paramount to safeguarding the agricultural prosperity.

Understanding Botrytis

Botrytis cinerea, the fungal pathogen responsible for grey mold, is a ubiquitous threat to flower crops worldwide. In Kenya, where the climate provides favorable conditions for its proliferation, Botrytis poses a particularly formidable challenge. This opportunistic pathogen thrives in humid environments, targeting a wide range of rose varieties and carnations. Its insidious nature manifests in various forms, from the characteristic greyish mold on infected plant tissues to the rapid decay of flowers, rendering them unsuitable for market.

Botrytis infected flowers not only fail to meet stringent quality standards but also incur rejection or downgrading, diminishing their market value and eroding export earnings.

“Effective management of Botrytis hinges on a comprehensive understanding of the disease dynamics. Botrytis spores, carried by wind, water, and contaminated plant debris, can spread rapidly within and between crops, creating conducive conditions for infection. Factors such as high humidity, overcrowding, and poor air circulation exacerbate the risk of Botrytis outbreaks, making preventive measures essential in disease management strategies,” said Stefano Banella, Crop Manager at Red Lands Roses. To tackle the threat, the farm that grows close to 200 rose varieties, has embraced conventional, biological and cultural arsenals.

Control measures

Addressing the threat of Botrytis requires a multifaceted approach that integrates cultural, biological, and

chemical control measures. Cultural practices such as pruning, spacing, and proper irrigation management help reduce the risk of Botrytis infection by minimizing conditions conducive to fungal growth. Additionally, biological control agents, such as beneficial fungi and bacteria, can be employed to suppress Botrytis populations and enhance plant resilience.

Chemical control, while effective, are recommended to be used judiciously and in conjunction with other control measures to minimize environmental impact and mitigate the risk of fungicide resistance. Timely application of fungicides, tailored to the specific needs of each crop and stage of growth, can help manage Botrytis outbreaks and protect crop yields.

“Chemical control remains an important tool in the fight against Botrytis, but its judicious use is paramount to mitigate the risk of fungicide resistance and environmental contamination. Integrated pest management strategies that combine cultural practices, biological controls, and targeted fungicide applications offer a comprehensive approach to managing Botrytis effectively,” said Amit Kumar Singh, the Group General Manager, PJ Dave Flowers Limited noted.

The company grows over 25 flower varieties on more than 100 hectares resulting in the export of an estimated 80 million stems of roses each year to prime destinations across the world.

The farm balances the use of chemical pesticides with of biological pest control methods like traps enhancing sustainable flower production processes.

Research initiatives

Government agencies, research institutions, and industry stakeholders continue to play a crucial role in supporting growers and exporters in their battle against Botrytis. Investments in research and development, aimed at developing disease-resistant crop varieties and innovative control technologies, have become essential for long-term disease management strategies. Extension services and



Millions of botrytis spores on dead rose tissue – greenhouse cleanliness is very important

farmer training programmes have helped disseminate knowledge and best practices, empowering farmers to effectively manage Botrytis and safeguard the health and productivity of their crops.

As Kenya's flower sector navigates the challenges posed by Botrytis, proactive and collaborative efforts are becoming essential to mitigate its impact and ensure agricultural resilience. By understanding the disease dynamics, implementing integrated control measures, and leveraging research and innovation, stakeholders can be positioned to effectively combat Botrytis and protect the viability of Kenya's floriculture industry for generations to come.

“Addressing the economic impact of Botrytis requires a multifaceted approach that encompasses prevention, early detection, and effective management strategies. Investing in research and development to develop disease-resistant crop varieties and innovative control technologies is essential for enhancing the resilience of Kenya's floriculture sector against Botrytis and other fungal pathogens.

“Empowering growers with knowledge and resources is key to managing Botrytis and preserving the health and productivity of the flowers,” Simon Andys, the CEO, of Premier Seed company, a fresh produce production farm noted further stating that while the Kenyan flower industry has come of age in tackling old threats, new ones, occasioned by changes in weather among other factors require new approaches and control arsenals to tackle.





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LAUREN INTERNATIONAL FLOWERS' 25-Year Legacy of Sustainable Flower Farming

Nestled amidst the scenic landscapes of Murang'a County, along the enchanting Thika-Gatanga road, Lauren International Flowers has flourished into an emblem of excellence and sustainability during its illustrious 25-year odyssey. Spearheaded by the visionary luminary, Mr. Joseph Tawk, this haven of floral artistry embarked on a noble quest to cultivate premium roses for global admiration.

From its modest inception on a 10-hectare expanse, Lauren International Flowers now boasts integrated divisions and nurtures a dedicated workforce of 300 artisans. The farm's triumph is deeply entrenched in its unwavering allegiance to quality, uniformity, and perseverance.

Christopher Tawk, a pivotal figure in the farm's daily operations, underscores their steadfast dedication to excellence. "Our paramount focus has perennially been excellence, executed with finesse. The export arena demands meticulous adherence to exacting standards, particularly in markets like Australia, and we appreciate the gravity of meeting and exceeding such benchmarks," he affirms.

In the pursuit of perfection, Lauren International Flowers has garnered an array of certifications, including the Kenya Flower Council, MPS A, Global Gap, Fairtrade, and Sedex. These endorsements underscore

the farm's unwavering allegiance to global standards and consumer contentment.

In its nascent years, the farm transitioned from soil to 75% hydroponic cultivation. However, grappling with escalating production overheads and currency volatilities, the farm contemplates reverting to soil cultivation. Lauren's adaptability and unwavering commitment to market preeminence have set it apart as a beacon of resilience.

A Melody of Roses

Lauren Flowers proudly showcases an opulent array of over 18 premier rose varieties meticulously curated to meet global standards. Spanning a spectrum of hues, from ravishing reds, blush pinks, vibrant cerises, sunlit yellows, fiery oranges to pristine whites, these blossoms epitomize the farm's dedication to satisfying market exigencies.

Joseph Tawk fondly reminisces about the formative years, "We invest



Greenhouses at Lauren International Flowers

Navigating Turbulence and Fostering Community Bonds

The journey has been strewn with trials, from the tumultuous El-Nino of 1999 to the recent crucible of the COVID-19 pandemic. Yet, Lauren International Flowers has emerged unscathed, resilient amidst tempests that have compelled others to shutter operations. Throughout the pandemic, the farm chose to retain its workforce, underpinned by the conviction that adversities are transient.

In a testament to its community allegiance, Lauren Flowers extends educational bursaries to employees' progeny and bestows year-end tokens of gratitude upon its labor force. Over the past half-decade, the farm has also sown over 10,000 trees and implemented measures

such as verdant perimeters around its greenhouses to fortify sustainability.

Gazing into the Horizon

Despite the tribulations encountered, Lauren International Flowers remains steadfastly forward-focused. Blueprinting expansions in cultivation acreage and introducing novel rose varieties to market, the farm's unwavering dedication to excellence, sustainability, and communal prosperity illuminates the trajectory of global flower farming.

As Lauren International Flowers commemorates its 25th anniversary, it stands as a testament to the transformative alchemy of tenacity, ingenuity, and an indomitable pursuit of excellence in the realm of sustainable flower cultivation.

significantly in varietal selection, recognizing it as the genesis and most pivotal phase in floral production. Our aim is to resonate with market trends and uphold our ethos."

Lauren International Flowers has not merely expanded its global footprint but has also pioneered direct flower exportation to Australia. Transitioning from exclusive exports to Australia via South Africa during its inception, the farm has since diversified its reach, spanning the Middle East, Germany, and the Dutch auction.

Innovations in Trade Advancement

In addition, with its commitment to excellence, Lauren International Flowers champions sustainability initiatives. From repurposing waste for organic fertilization to installing a 150-kilowatt solar power infrastructure, the farm remains steadfast in diminishing its carbon footprint and championing sustainable practices.



Christopher Tawk (L) handing over Fairtrade bursary cheque to employees at Lauren International flowers

Kenyan horticulture industry weathers storms



Kenya's horticulture industry has been grappling with the multifaceted impacts of unpredictable weather patterns, presenting a formidable challenge.

Renowned globally for its high-quality produce, Kenya has built a reputation as a key exporter, particularly in sectors such as floriculture and fresh produce. However, the sector's resilience is being tested as unrelenting rains wreak havoc on farms and disrupt supply chains.

Scenes of flowers destined for export submerged in raging waters at the cargo section of Jomo Kenyatta International Airport depicted the severity of the matter with growers and exporters losing millions of shillings as a result of the deluge.

The incessant downpours have transformed once fertile fields into waterlogged battlegrounds, leaving crops submerged and soil saturated. Smallholder farmers, who form the backbone of Kenya's agricultural sector, are bearing the brunt of this environmental onslaught. For them, each day brings new challenges as they struggle to salvage what remains of their crops and livelihoods.

Losses Mounting, Opportunities Diminishing

The toll of the heavy rains extends beyond the immediate

destruction of crops. With roads washed away and transport routes impassable, farmers are confronted with logistical nightmares, hindering the timely delivery of produce to markets. This disruption not only leads to financial losses for farmers but also jeopardizes Kenya's reputation as a reliable supplier in the global market.

Environmental Degradation and Long-Term Consequences

Beyond the economic ramifications, the environmental toll of the flooding is profound. Soil erosion, water contamination, and the depletion of natural resources pose long-term challenges to sustainable agricultural practices. Moreover, the displacement of communities and loss of biodiversity further underscore the far-reaching consequences of unchecked climate variability.

But the ongoing heavy rains are just one side of the coin.

As global temperatures rise and weather patterns become more erratic, the effects on Kenya's horticultural sector are becoming increasingly evident, posing significant threats to both farmers and consumers alike.

One of the most noticeable impacts of climate change on Kenyan horticulture is the alteration of traditional growing seasons and crop patterns. Shifts in rainfall patterns and prolonged droughts have disrupted the timing of planting and harvesting, leading to decreased yields and crop failures. Farmers are forced to adapt to unpredictable weather conditions, often resulting in reduced productivity and income instability.

Water scarcity, exacerbated by changing precipitation patterns and increased evaporation rates, have posed

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a significant challenge to Kenyan horticulture. Many crops require precise irrigation to thrive, yet dwindling water resources are making it increasingly difficult for farmers to meet their needs. Inefficient irrigation practices have further exacerbated the problem, leading to water waste and environmental degradation.

Pests and Diseases

Rising temperatures create favorable conditions for the proliferation of pests and diseases, threatening the health and productivity of horticultural crops. Pests such as aphids, thrips, and mites thrive in warmer climates, causing damage to crops and necessitating the use of chemical pesticides. Similarly, fungal diseases, such as powdery mildew and botrytis, flourish in humid conditions, further complicating crop management and reducing yields.

Loss of Biodiversity

Climate change is also posing a threat to Kenya's rich biodiversity, which is essential for maintaining healthy ecosystems and supporting horticultural activities. Changes in temperature and precipitation patterns are disrupting delicate ecological balances, leading to the loss of native plant species and pollinators critical for crop production. Loss of biodiversity has not only diminishes the resilience of agricultural systems but also threatens long-term food security.

Economic Implications

The impact of climate change on Kenyan horticulture extends beyond the farm gate, affecting the entire value chain from production to export. Reduced crop yields and quality issues have led to increased production costs and reduced competitiveness in global markets. Additionally, disruptions in supply chains due to extreme weather events has result in market volatility and financial losses for farmers, exporters, and other stakeholders.

Adapting to Uncertain Futures

In the face of such adversity, resilience emerges as the watchword for Kenya's horticultural sector. From embracing climate-smart agricultural techniques to investing in resilient infrastructure, stakeholders are exploring strategies to mitigate the impacts of erratic weather patterns.



Flowers destined for export submerged in raging waters at the cargo section of Jomo Kenyatta International Airport

Recognizing the importance of horticulture to the economy, the Kenyan government has implemented various initiatives to support farmers in adapting to changing climatic conditions. Programs promoting climate-smart agriculture provide training and resources to enhance resilience and sustainability. Moreover, investments in infrastructure, such as water management systems and weather forecasting technology, bolster farmers' capacity to cope with extreme weather events.

Additionally, fostering greater collaboration between government agencies, research institutions, and grassroots organizations is becoming essential in developing holistic solutions to address the challenges at hand.

A Call to Action

“As Kenya navigates the complexities of a changing climate, the need for decisive action becomes increasingly urgent. Sustainable water management practices, improved early warning systems,

and investments in climate-resilient infrastructure are imperative to safeguarding the future of horticulture in the country. Moreover, fostering a culture of innovation and knowledge-sharing can empower farmers to adapt and thrive in the face of adversity,” Mark Zedee an agronomist said.

Looking Ahead: Hope Amidst the Storm

Despite the formidable challenges posed by ongoing heavy rains and flooding, Zedee noted that there remains a glimmer of hope amidst the storm. The resilience, ingenuity, and unwavering spirit of Kenya's farmers serve as a beacon of inspiration, reminding the world of the power of human perseverance in the face of nature's wrath. By harnessing this collective resolve and embracing sustainable practices, Kenya can chart a course towards a more resilient and prosperous future for its horticultural sector.

“Heavy rains also increase the risk of crop damage and disease. Waterlogged soils suffocate roots, leading to stunted growth and reduced yields. Furthermore, excessive moisture creates an ideal breeding ground for pathogens and pests, escalating the threat of diseases such as phytophthora and bacterial wilt. For delicate crops like flowers and vegetables, these challenges can spell disaster, jeopardizing entire harvests,” Dorothy Mbita, a researcher said.

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91 HOLE SEED TRAY



286 HOLE SEED TRAY



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82MM DIA BLACK POT
HEIGHT: 114MM



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HEIGHT: 76 MM



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HEIGHT: 88MM



120MM DIA BLACK POT
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How a ‘*nduma*’ farmer is raking profits in Kisii



Most residents in Kisii County often set aside the lower part of their farms near rivers or water bodies for the planting of Eucalyptus trees. After the cultivation of tea leaves appeared to decline in the country, many farmers in Gusii resorted to planting of the trees.

However, for James Nyagwoka, 63, planting of trees did not cross his mind at all as a venture that would save him economically.

Instead, he decided to venture into arrow root (*nduma*) farming in Kegati village, Nyaribari Chache constituency, where he hails from. It is a venture that he has practiced for more than 20 years after being unsuccessful doing menial jobs.

But now, Mzee Nyagwoka is one of the most famous farmers in Kisii County and the country in general due to arrow root farming.

The Hortfresh team visited him on his farm, to get his perspective on how the venture has helped him educate his five children up to the university level, take them to secondary schools and build a modern house where he lives with his wife. “I started arrow root farming with only 200 seedlings. I started it as joke. The seedlings had grown near the river in this farm. It is from those 200 seedlings that I have produced and continued, until now that I have more than 100,000 plants,” Nyagwoka explains.

Most residents think that the seedlings are planted in wet areas, but the farmer objects. Although seedlings require a lot of water, Nyagwoka says they can be planted in any good soil as long as it is fertile and free of stones.

He explains that before a farmer starts any farming of the crop, it is good to visit some farmers who have succeeded in it, so that one can learn the dynamics behind arrow root farming.

He says that before planting the seedlings, the field should be properly prepared. It should be dug evenly and the soil made soft. Once you have removed all the weeds, then the farmer can dig trenches about a foot deep. The width between one trench to the another should not exceed 50 meters in order to use the field properly.

Once the trenches are dug, pour manure that is made from cow dung or the excrement of any livestock that is kept at home. He gives the example of other natural fertilizers of goats, sheep, chickens or rabbits.

“After applying the manure, bring the arrow root seedlings and plant them by giving them space in the dug trenches. When the weeds grow, they produce other young plants beside them and these can be uprooted and planted in the trenches. Also, once you harvest the arrow root themselves, the stems that remain can be planted again and they will flourish,” added the farmer.

What the farmer should pay attention to is making sure that the plants planted do not have a lot of soil close to the roots. This, according to Nyagwoka, helps to fatten the stalks for maximum produce.

He says that arrow roots take seven to eight months to mature.

Since this farmer started arrow root farming, he has never witnessed many diseases that affect the crop, but warns that any farmer should not try to use pesticides bought in stores.

“Inorganic inputs are completely incompatible with the plant. The

fertilizers contain chemicals that cut the roots of the plants to make them wither,” he says.

Another problem he faces is the destruction of his crops by porcupines. He says that they like to destroy the plant’s roots.

Nyagwoka plants dark green-leaved arrow roots, as it does well in the area. There is another type with purple leaves. He explained that one 50-meter line with mature arrow roots fetches him Sh15,000.

In one year, Nyagwoka said he makes more than Sh600,000 from the sale of the crop, which he has planted in his six-acre farm. Most of his customers are in Kisii town. One sack of arrow root fetches him Sh3,000. He has also customers in Nairobi and Nakuru cities.

In order to ensure that his customers do not always miss the produce, he plants his crops in intervals. There are plants that have lasted for two months, others four and more. This, he says, helps him a lot to harvest at different times so that his customers do not miss the produce.

Other farmers in his village have slowly started to embrace the farming. He says he has offered to give them free training so that they can benefit. He also attends agricultural fairs to learn more about the crop.

“Four lines can give me Sh60,000 a year. Out of that money, I can spend Sh40,000 to buy maize that I consume with my family throughout the year. Therefore, this farming is greatly rewarding,” he says.



Mr Nyagwoka shows some of the harvested arrow roots.

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The 20+ years of exhibition Excellence,



The Naivasha Horticultural Fair is a premier event in the horticulture industry. Held at the Naivasha Sports Club in Kenya, the Fair is in its 21st year and has consistently grown over the years. This year the Fair shall take place on 20th - 21st of September.

NH Fair provides a platform for exhibitors from across the continent and Europe to showcase their products and services. From horticultural industry stakeholders (primarily flowers) to car manufacturers, accessories and financial institutions, the Fair provides a perfect opportunity to meet potential customers and build relationships with industry peers.

The event is ideal place to discover the latest products and services in the horticultural industry. With a wide range of exhibitors and vendors, it provides an opportunity to explore the latest innovations in the industry and find potential business partners. Additionally, the event features a variety of activities and events that allow exhibitors to network and build relationships.

All the profit from the Naivasha Horticultural goes to local charities, among them, The Safe House - a rescue shelter for Abused Children, Nacohag - a community based health centre in Karagita, Red Cross, Nyamathi Adopt a village (with the Naivasha Rotary Club), a secondary school, water for more than 20,000 people and health or maternity clinic project. In 2015, 2016 they built a Children's Protection Unit CPU, and are currently looking at building more classrooms at the Nyamathi Secondary School, and many more projects.

A lot has been said about the Fair. "We are grateful and appreciate your willingness to charitable work that you do. You are getting better

every year, giving back to the society, helping the needy by feeding, clothing and sheltering. Thank you for the great job," Jimmy Ngugi testified.

Kahara Nguere Gerald attested that the Fair is a great chance for agriculture experts to educate the public, students to gain priceless skills and competence and citizens to benefit from ideas for utilizing wasteland including investment solutions. "It is the best trade fair in Africa, where companies showcase their products," Sally Jonse Johnson says.

The Hortifair 2024 sponsors are the Cooperative Bank, Elgon Kenya, Agrichem Africa, Amiran Kenya, Greenlife Africa, Osho Chemicals Industries, among others. "Amiran Kenya as one of the key sponsors of this year's edition, we would like to thank all those farmers and stakeholders who visited our exhibition booth and interacted with us. The Fair brought together passionate farmers and stakeholders from across the Kenyan agricultural and horticultural community. It was an incredible platform for interaction, and participants exchanged innovative ideas and solutions that will shape the future of our agricultural landscape", they said in regard to the 2023 exhibition.

NH Fair 2023 was great. "We had interactions with the various players



Nyamathi Health Center



Children protection unit

in the horticultural and agribusiness sector in general. This is key since as Affluent Farmers we gathered key insights and info on the diverse areas that may benefit our farmers," Affluent Farmers said.





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Choosing The Right Cold Chain Management Solution

Managing the cold chain in global trade is tough. It's not just about moving stuff; it's about keeping it safe. The cold chain is a refrigerated transport system and careful handling that protects goods from temperature changes. It's crucial for businesses that rely on freshness and quality.

It's complicated because many things can go wrong from start to finish. If something goes bad during the journey, it can ruin the product, cost a lot of money, and hurt a company's reputation.

Having the right cold chain management solution is vital. It's not just a tool; it's a must-have for success. Picking the right one can save money, improve tracking, and keep up with rules and regulations.

This article helps you understand what to think about when choosing a cold chain management solution.

The Significance of Effective Cold Chain Management:

Effective cold chain management is crucial for global trade. It's about ensuring products that need to stay cold, like vaccines and fresh food, stay safe throughout the supply chain.

Keeping products at the right temperature is super important. In food, if things aren't kept cold, they can spoil, causing big losses for everyone involved and even making people sick.

Good cold chain management helps businesses save money by reducing waste and making sure things run

smoothly. Using technology to keep track of temperatures and fix problems before they happen is key.

Understanding the Challenges:

The cold chain is tough to manage because it involves keeping things cold while they're being transported. It's especially tricky because even small changes in temperature can ruin products.

One big challenge is making sure the temperature stays steady. Weather changes and delays during transport can mess things up. Different factors like where things are being shipped from and how they're being transported make it even harder to keep things cold.

On top of that, there are lots of rules to follow, especially in industries like healthcare and food. Breaking these rules can have serious consequences, like getting fined or damaging a company's reputation.

Because cold chain products can go bad quickly, any delays or mistakes can cause

big problems. Unlike other shipments, even small issues can cause a chain reaction of problems.

Coordinating with everyone involved in the cold chain, like suppliers and distributors, is also a challenge. If communication breaks down, it can slow everything down and make the process less efficient.

And when it comes to international shipments, there are even more rules and complications to deal with, like customs and different regulations in different countries.

Understanding these challenges is the first step in dealing with them. By using technology and coming up with smart strategies, businesses can reduce risks and make the cold chain work better. There are lots of new ideas out there, like using data to predict problems or using blockchain to track products, that can help make the cold chain easier to manage.

Importance of Choosing the Right Solution:

Picking the right solution is super important. It's not just about moving things; it's a big deal for the success of a business.

The right solution keeps



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products safe and follows the rules. Whether it's vaccines or food, keeping the right temperature during transport is crucial. A good solution helps track temperatures accurately and reliably.

Choosing the right solution can also save a lot of money and make things run smoother. By keeping temperatures steady and reducing waste, businesses can cut costs and use resources better.

Plus, the right solution gives businesses a clear picture of where their products are and how they're doing. This helps them make smart decisions and fix problems before they get big.

It's also important that the solution works well with other systems a business already has. This makes sure everything keeps running smoothly without causing problems.

In a competitive market, having the right cold chain solution can make a business stand out. It helps keep products fresh, safe, and reliable, which builds trust with customers and gives the business an edge.

Basically, choosing the right cold chain solution is about investing in the future of the business. By focusing on product safety, saving money, following rules, and keeping customers happy, a business can grow, innovate, and stay strong in a tough market.

Key Considerations In Selecting a Cold Chain Management Solution:

Picking the right cold chain management solution is a big deal because it can really affect how well your logistics work. Here are some important things to think about when choosing one:

- 1. Temperature Monitoring:** Make sure the solution can keep track of temperatures in real-time. Look for features like wireless sensors and data loggers to get accurate temperature readings.
- 2. Data Visibility and Analytics:** Choose a solution that lets you collect and analyze data so you can make smart decisions. Look for customizable dashboards and predictive analytics to help you understand temperature trends.
- 3. Integration with Existing Systems:** Your new solution should work well with the systems you already have. Make sure it can connect with your ERP and other software smoothly.
- 4. Scalability and Flexibility:** Pick a solution that can grow with your

business and adapt to changes. Look for options that can be customized to fit your needs as your business expands.

5. Compliance: It's important that your solution meets industry standards and regulations. Check that it follows rules like Good Distribution Practices (GDP) and Hazard Analysis and Critical Control Points (HACCP).

Types of Cold Chain Management Solutions:

Businesses have different options to keep their temperature-sensitive products safe. Here are some common types of solutions:

- 1. Traditional Solutions:** These use manual processes like thermometers or data loggers. They're cheaper but may not offer real-time tracking or advanced features.
- 2. Digital Solutions:** These use modern tech like IoT and data analytics for real-time monitoring. They're accurate and efficient, reducing the risk of spoilage.
- 3. Integrated Solutions:** These cover everything from production to storage and work with other systems like ERP. They offer comprehensive insights and help streamline operations.
- 4. Standalone Solutions:** These focus only on temperature monitoring and are simple to use. They're good for smaller businesses or specific needs but may not scale well.
- 5. Cloud-based Solutions:** They store data in the cloud, offering flexibility and accessibility from anywhere. They're easy to update and maintain but require an internet connection.
- 6. On-premises Solutions:** These are installed locally and offer more control over data. They're good for industries with strict regulations but may need a big upfront investment.

By knowing these options, businesses can choose the right solution based on their needs and budget. Whether it's traditional methods or modern tech, the goal is always to keep products safe and high-quality throughout the supply chain.

Evaluating Potential Solutions:

Choosing the right cold chain management solution is a big deal because it affects how well your logistics work. Here are some important things to think about when choosing one:

- 1. Functionality and Features:** Make sure the solution has what you need, like temperature monitoring and data

“Basically, choosing the right cold chain solution is about investing in the future of the business. By focusing on product safety, saving money, following rules, and keeping customers happy, a business can grow, innovate, and stay strong in a tough market.”

analytics. Look for customizable options that can grow with your business.

2. Reliability and Performance: Check if the solution works well and has a good track record. You might want to test it out or see a demo to be sure.

3. Scalability and Flexibility: Make sure the solution can grow with your business and adapt to changes. Look for options that can be customized and are compatible with future upgrades.

4. Ease of Implementation and Use: Choose a solution that's easy to set up and use. Look for user-friendly interfaces and good support resources.

5. Cost and ROI: Consider how much the solution will cost and what you'll get in return. Compare upfront costs with potential savings and benefits.

6. Vendor Reputation and Support: Research the company behind the solution to make sure they're reliable and have good customer support.

By considering these factors carefully, you can pick a cold chain management solution that fits your needs and helps your business succeed. Make sure to involve everyone who will be using the solution in the decision-making process.

Conclusion:

In the ever-changing world of supply chains, one thing stays the same: the need to keep improving. By using good cold chain management and picking the right solution, businesses can grow and stay strong in a competitive market.

As you deal with cold chain logistics, remember that success comes from using technology, working together, and planning ahead. By choosing the right solution, you can keep your products safe, reduce risks, and make customers happy. Remember to pick the solution that fits your business best.

By: Witness Omoga, Head Of Technology at Infinity Iotech Solutions Limited



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Ms Priscilla Wambui a beneficiary of the Ireland funded potato revolution programme at her four-acre potato farm.

BLOSSOMING POTATOES at Ms Priscilla Wambui's farm

After some months of perseverance, hard work, and risk-taking, potato farmers from parts of Nyandarua County are now smiling to the banks. Their dreams for contract farming, and eliminating brokers have finally materialized. The contracted farmers are selling their produce in kilograms, against the exploitative 150kg bags imposed by the brokers.

This success was not a walk in the park, but a painful journey that required strict adherence to newly introduced farming technologies, which have resulted in increased production from between 7 tonnes and 10 tonnes per acre to between 40 and 50 tonnes.

The increased production has also come with higher costs of production compared to what the farmers traditionally invested in a one-acre farm.

Still, unlike in the past when farmers visited the farms, when necessary, with the new technologies, it was full-time employment, a relationship akin to that of a shopkeeper to her shop.

Ms Jane Karugu, a farmer from Shamata ward in the Ndaragua constituency says

with the new technology, the cost of production per acre has increased from Sh30,000 to Sh80,000.

“I was really scared at the mention of the cost of production, the margins are imaginable, but I was encouraged projected cost of productions and the streamlined market systems,” said Ms Karugu. Using the former method of farming, Ms Karugu harvested about 10 tonnes of potato which she sold to brokers in 150kg bags at between Sh800 and Sh1,000 per bag, earning her an average of Sh65,000 per acre per season.

At Ol Joro Orok, Ms Priscilla Wambui said the cost of production per acre was between Sh30,000 to Sh40,000, giving her between 7 and 10 tonnes of potato per acre. With the new technologies, she



A blossoming potato farm at Ms Priscilla Wambui's farm

is among contracted farmers selling to identified processors at Sh25 per kilo of potato.

“I am expecting a harvest of between 40 tonnes and 50 tonnes going by the average number of potatoes per plant. Initially, each plant produced a maximum of seven potatoes compared to an average of 25 pieces of potatoes per plant,” said Ms Wambui.

If she manages 40 tonnes of the produce and sells at the contracted Sh25 per kilo, Ms Wambui expects to earn handsomely from her four-acre potato farm.

The farmers from Ol Kalou, Mirangine, Ol Joro Orok, Kipipiri, and Ndaragua regions are contracted by neighborhood Freshmatt Limited and Redgate Limited, both companies buying Panamera and Shangi varieties at Sh25 per kilo.

The growers are the first batch beneficiaries of the Potato Revolution Programme, funded by the Irish Government, in an agreement signed with Nyandarua County Government in March. The entire production process starts with land preparation with critical components such as soil testing previously ignored by farmers.

“Soil testing guides the farmer on the type of fertilizers to apply, time, and amount. But eight bags of fertilizer are recommended per acre. Four at planting and four at top dressing 6 weeks after planting,” says the project coordinator Mr Patrick Boro.

Before then, most farmers applied one and a half bags to 2 bags of fertilizer per acre at planting. Mr Boro says the cost of land preparation per acre is Sh15,000 for mechanized farming and Sh20,000 for manual land preparations.

Before the training, Ms Wambui used to plant 6 to 8 bags of locally sourced potato seeds. This season, she increased the seeds to 6 bags per acre with an additional Sh5,000 for soil testing: “The average cost of production per acre using the new technologies is Sh80,000 up to harvesting, but can sometimes go up to Sh100,000 if there are other requirements like Instant Liming which is done in four intervals at Sh1,750 per liming,” says Mr Boro.

Ms Wambui says the biggest challenge is the high cost of farm inputs due to taxation by the government.

“A bag of fertilizer retails and Sh6,000, Sh4,500 per bag of certified seeds, Sh5,

000 for pests and disease control, where one must use recommended inputs. We were lucky the county government had subsidized fertilizer at Sh1,500, but it was not enough as most farmers got an average of 2 bags each,” said Ms Wambui. She appeals to the county government to initiate a crop advance program or an agricultural revolving fund in favor of the farmers for subsidized fertilizer and other input.

The farmers also want the county government to operationalize the Sh100 million storage plant to caution farmers during glut during the peak season when brokers take advantage of uncontracted growers.

The storage plant was construction in Ol Kalou town was constructed about three years ago and officially opened by President William Ruto about a year ago, but farmers are yet to benefit from the facility. Nyandarua Agriculture and Livestock executive Mr Francis Miring’u is optimistic about improved potato production, noting that the government has started certified seed multiplication at Ol Joro Orok Agricultural College.

BY WAIKWA MAINA
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Chrysal Long Storage

What we have seen in the recent months is a strong adoption of long storage, whereby roses are stored longer than normal at farms to be shipped by air freight at a later moment than normal. Although the benefit of a cheaper freight option and less carbon emission is not there, in the case of sea freight of flowers, still the advantages - if well managed - outweigh the disadvantages:

- Timing the market following supply and demand; sell at a later date with higher price.
- Reduced need for flushing.
- Avoid waste of flowers that are produced at times of lower demand.
- Sell red roses when there is a market.
- Creating of operational advantages of not processing all flowers at once.
- Lastly, and this is an advantage purely to long storage, having more flexibility over selling flowers, not only today or in 4 weeks (sea freight), but with this option anywhere in between.

The requirements for success remain the same as for sea freight, but with the added requirement of

having good, sufficient and preferably dedicated cold store space at your farm. Input quality of your product remains key. Management of your product and proper timing of sell-date is important. Having a (dedicated) cold store available set at a low temperature is paramount where the climate is constant and stable.



To conclude, many good growers have adopted long storage nowadays in their processes in absence of sea freight, and Chrysal is working with many other growers to support this as well.

Please contact our technical consultants to find out how we can best support you: info@chrysal.co.ke

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United Kingdom suspension of Tariffs for flower exports from Kenya: A BLOSSOMING OPPORTUNITY

In a move signaling a significant boon for Kenya's flourishing flower industry, the United Kingdom recently announced the suspension of tariffs on flower exports from Kenya. This decision, which comes amid evolving trade dynamics post-Brexit, not only underscores the strengthening trade relations between the two nations but also paves the way for mutual economic growth and sustainability.

The suspension of 8% duty for cut flowers applies across the world but will be a big win for major flower growing regions in Kenya, Ethiopia,

Rwanda, Tanzania, and Uganda. The duty suspension will remain in place for two years from 11 April 2024 to 30 June 2026.

His Majesty's Trade Commissioner for Africa, John Humphrey said: "The UK's relationship with East Africa is rooted in mutually beneficial trade. This additional flower power will allow trade to bloom. We go far when we go together... or in this case, we grow far when we grow together, further reinforcing the UK's commitment to the expansion of trade in East Africa."

Kenya, renowned for its diverse and vibrant floral exports, has long been a key supplier of flowers to international markets, with the UK being one of its primary destinations. The flower industry holds a crucial position in Kenya's economy, providing employment opportunities for thousands and contributing

substantially to foreign exchange earnings.

Historically, trade agreements between Kenya and the UK have been governed by the European Union's trade policies. However, with the UK's departure from the EU, both nations have been reevaluating their trade relationships. The suspension of tariffs on Kenyan flower exports marks a significant departure from previous arrangements and signals a fresh chapter in bilateral trade ties.

The decision to waive tariffs on Kenyan flowers brings forth a myriad of benefits for both countries. Kenya's flower industry is set to experience a notable surge in exports to the UK, fueled by the elimination of tariffs. This will, in turn, stimulate economic growth, create employment opportunities, and enhance the livelihoods of countless individuals employed in the sector.

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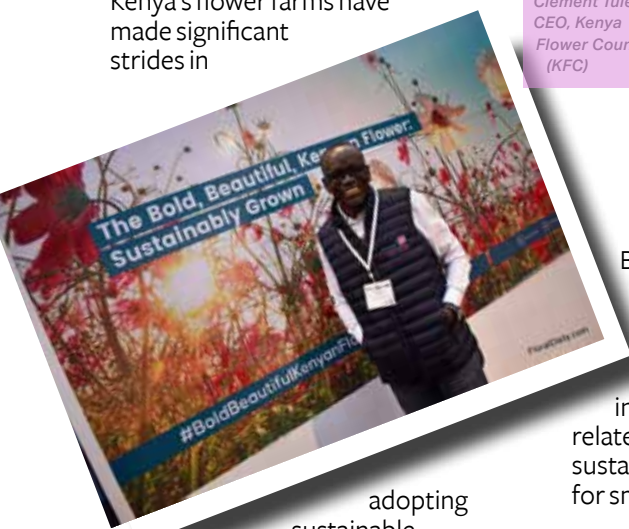
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UK consumers can anticipate a wider array of high-quality Kenyan flowers at competitive prices. The suspension of tariffs is expected to translate into cost savings, making floral products more accessible and affordable to British consumers, particularly during peak demand periods such as Valentine's Day and Mother's Day.

"By removing barriers to trade, this move creates a conducive environment for economic growth and prosperity, benefiting both Kenyan exporters and UK consumers. As the world navigates the complexities of a post-pandemic landscape, such initiatives serve as beacons of hope, highlighting the potential for solidarity and partnership to overcome challenges and build a brighter future for all," noted Dr. Milkah Wekesa from the University of Nairobi School of Economics.

Kenya's flower farms have made significant strides in



Clement Tulezi, CEO, Kenya Flower Council (KFC)

adopting sustainable practices, including water conservation, waste management, and fair labor standards. With increased demand for Kenyan flowers, there's an impetus for further investment in sustainable agriculture practices, thereby fostering environmental conservation and supporting local communities.

For the UK, the move signifies a strategic diversification of its trade partnerships beyond the confines of the EU. By strengthening ties with Kenya, the UK not only secures a vital source of floral imports but also lays the groundwork for broader economic cooperation in other sectors, including agriculture, technology, and renewable energy.

Moreover, the move underscores the United Kingdom's commitment to supporting developing economies and fostering inclusive growth. By extending a helping hand to Kenyan exporters, the UK demonstrates its recognition of the importance of international cooperation and solidarity, particularly in times of crisis.

The decision also reflects a broader trend towards more liberalized trade policies and a departure from protectionist measures. In an increasingly interconnected world, countries are recognizing the benefits of free trade agreements and collaborative initiatives aimed at facilitating the flow of goods and services across borders.

While the suspension of tariffs presents a promising opportunity, it is not without its challenges. Chief among these are logistical hurdles, including transportation costs and supply chain disruptions. Additionally, fluctuating currency exchange rates and regulatory changes could impact the cost-effectiveness of trade between the two nations.

Both parties must remain vigilant in ensuring that the benefits of this trade arrangement are equitably distributed across all stakeholders. This includes addressing concerns related to labor rights, environmental sustainability, and fair market access for smaller producers.

The suspension of tariffs on Kenyan flower exports to the UK marks a significant milestone in the evolving landscape of global trade. It exemplifies the potential for mutually beneficial trade relationships that prioritize economic growth, sustainability, and shared prosperity.

As both nations navigate the complexities of post-Brexit trade dynamics, the decision sets a positive precedent for future collaborations and underscores the importance of fostering inclusive and resilient supply chains.

In 2022, Kenya was ranked as the fourth biggest exporter

of cut-flowers in the world, with 6% of global cut-flower exports. Ethiopia is the second largest cut flower producer in Africa, making up 23% of Sub-Saharan African exports. In 2023, the value of trade in cut flowers between the UK from Ethiopia was valued at £12.6m, Rwanda at £727,000, £839,000 from Tanzania, and £1.1m from Uganda.

The trade relationship between Kenya and the United Kingdom traces back to colonial times when Kenya was under British rule. However, post-independence, both nations have endeavored to redefine their relationship based on equality and mutual respect. The signing of various trade agreements and treaties has laid the foundation for bilateral trade, promoting economic growth and development in both countries.

The trade relations received a significant boost with the signing of the Economic Partnership Agreement (EPA) between Kenya and the United Kingdom post-Brexit. This agreement ensures continued preferential access to the UK market for Kenyan goods, safeguarding trade volumes and fostering stability.

Moreover, both countries are members of the Commonwealth, which provides a platform for enhancing economic cooperation through initiatives such as the Commonwealth Trade Review Mechanism (CTRM) and the Commonwealth Business Forum (CBF).

"As Kenya and the United Kingdom navigate the evolving global landscape, the future of their trade relations appears promising. With a shared commitment to fostering economic development, both nations are poised to explore new avenues of cooperation, leverage emerging technologies, and capitalize on their respective strengths to unlock the full potential of their partnership," noted Dr. Wekesa.





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Madam Lucy Wambui Yinda founder Kikwetu Flowers

After an illustrious and exceptional career spanning over 30 years in the cut flower industry, Madam Lucy Wambui Yinda the then Managing Director of Baraka Roses saw it fit to start her own farm which would specialize in growing and exporting premium T-hybrid roses, special intermediates and spray roses. Having understood that roses need altitude to grow tall and produce big heads, a quality that the world yearns for, she traversed Timau, a beautiful high-altitude region in the Mt. Kenya area known world over for producing quality flowers, in search of a location to set up a rose farm venture. Her initial investments on 5ha and 5 varieties have now bloomed to two enchanting farms with a total area of production of 18 ha with over 24 varieties of roses which are known for their exceptional quality and outstanding vase life. From vibrant reds to captivating whites to soft pinks and bi-colors which form a kaleidoscope of colors that are stunning to the eyes.

Kikwetu was voted almost automatically as the ideal name for the project to depict a national pride and culture. It is a Swahili word that means 'Our Ways'.

Kikwetu Flowers came into existence in 2019 and is a family business that is owned and run by 4 family members. At the heart of the farm is Mr. Mathia Yinda who is the Executive Director in charge of the daily operations. The farm employs 400 people mostly from the local community, and a half of them are women. The main farm is located right in the center of a small rural community at "Kwa Ng'ang'a area near Timau town while

the new farm is located in Ex-Lewa near a village called Maritati, both in Meru County. The entire community is involved in the farm in one way or another and a culture of working together with people from far-off communities is slowly developing making Kikwetu a unique blend of Kenyan cultures.

“As you are aware there are a few farms that are Kenyan owned and we take pride in being one of them. When we came to Timau, we had to very quickly learn and adopt to the ways of the local community and the diverse customs and expectations and I am happy to say that we have bonded well and work very closely on many matters pertaining to the community.”

“We focus more on quality and not on numbers in order to meet the increasing demand for quality. We also pay attention to the changing tastes as the flower industry is highly dynamic. It is like the fashion industry where tastes and preferences change quite often and we have to stay at the top of the game. Therefore, the decision on what variety to grow is guided by largely the market demand. We want to ensure that we respond to market demand and live up to our philosophy, that quality must supersede everything else,” Lucy Yinda stated.

“As a family business we learn from each other and strive for excellence in every part of our business. That has been our strength and that is how we have overcome many hurdles. Our philosophy is to work round the clock to keep our customers happy, being



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friendly to nature and growing our farm and our family that includes our staff,” Said the Executive Director Mathia Yinda.

The 5 years journey for the farm has been of learning and experimenting. First, they had to understand the high-altitude climate, and manage the pests and diseases in an efficient manner. Secondly, bench marks had to be set and all relevant people trained to produce the high-quality flowers yearned for in the market. Currently, they have been able to tap on customers who used to buy from Ecuador but now they are directly sourcing from Kikwetu.

What truly sets Kikwetu Flowers apart is their commitment to quality and sustainability. They believe in

“The 5-year journey and the well-deserved successes are inspiring Kikwetu Flowers into new heights. Kikwetu Flowers is looking at expanding their area of production and to introduce new varieties”

preserving the natural beauty of Kenya. Their roses are grown using eco-friendly practices, ensuring that they not only look beautiful but also leave a minimal footprint on the planet. This culture is demonstrated by the use of solar energy and the wetlands that clean and recycle waste water thus providing many “ecosystem services” and biodiversity, groundwater recharge, and climate change mitigation. The Farm has also established a roses waste compost system to produce organic fertilizer to supplement the farm fertilizer requirements.

One of the most remarkable qualities of their roses is their longevity. Unlike ordinary roses that wither within days, Kikwetu roses are known for their exceptional vase life. This is due to a unique combination of factors, including meticulous care during in the growing methods and post-harvest protocols.

“Our strategy to focus more on direct markets was informed by the fact that in direct sales you have a direct relationship with the customer whereby prices can be negotiated and the relationship can be nurtured and developed, unlike the auction where one has no control on the prices which vary almost on daily basis. Kikwetu has a good clientele base in the Middle East, and Europe” said Mathia.

Behind the flourishing roses that have caught the world attention, are sustainable practices from farm to market that the company has invested in to ensure production of world class flowers. With the farm being located near Mt Kenya, the

company has invested in rain harvesting by constructing dams to ensure year-round supply of water which is crucial in flower production. The farm also shares water with the community by supplying piped water to several homesteads around the farm and setting up water tanks with clean drinking water that can easily be accessed.

But it hasn't been all rosy at the farm. Mathia recalls the challenges that they had to contend with when the world experienced the unprecedented COVID 19 pandemic. The fighting spirit inspired by the founder Madam Lucy Wambui Yinda kept them moving.

The COVID-19 pandemic was one of the biggest tests for the farm's operations. The farm then being relatively new had just attained its first flush of flowers for harvesting and the world was put on lockdown, flowers couldn't be transported and the business almost came to a halt. “A bulk of flower farms closed operations and sent their workers home. But even with the tough prevailing circumstances we decided to keep our workers in the farm. We owe it to the grace of God because when the restrictions were lifted, we had good production of flowers which we eventually sold,” Mathia opined.

The 5-year journey and the well-deserved successes are



inspiring Kikwetu Flowers into new heights. Kikwetu Flowers is looking at expanding their area of production and to introduce new varieties to respond to market demands. “Our journey is far from over, we are constantly innovating and improving, exploring new ways to enhance the beauty and longevity of our roses. Whether it's through new varieties, sustainable farming practices, or innovative packaging, we are committed to ensuring that our roses continue to delight and inspire generations to come,” said Yinda.

In a nutshell, when you choose Kikwetu Flowers, you are not just buying roses; you are investing in a love that will last. Their roses have travelled far and wide, spreading joy and beauty wherever they go. From weddings to anniversaries, birthdays to graduations, the roses have been a part of countless special moments, adding a touch of elegance and romance to every occasion. They are not just flowers; they are a symbol of love, a reminder that beauty is timeless and love knows no bounds.



Madam Lucy Wambui Yinda, founder Kikwetu Flowers (R) Mr. Mathia Yinda (C) Director Kikwetu Flowers and Benson Simiyu, farm manager Kikwetu Flowers

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Nyandarua farmers embrace Chamomile herbs farming



stem, applied at least three inches from the stem.

Two weeks after application of the top-dressing fertilizer, the plant will have developed some branches but the shots must be cut to make it develop healthier branches.

He explains that the more branches a plant has, the more the yield, and, the crop is disease and pests-tolerant.

“Flowering comes two months after transplanting, but they should not be harvested this early stage, the flowers should be given some more time for the yellow color to fully develop, which also means more weight,” said the farmer.

The biggest labor is harvesting and the laborers must be trained in plucking, a process similar to pyrethrum harvesting where only mature flowers are harvested and then dried for the market.

He says the flowers are harvested eight times before the plant withers at intervals of three weeks between harvests.

In every three weeks, Mr Kimani harvests between 150 kilos and 250 of the flowers to sell a kilo at between Sh1000 and Sh1500 depending on season and market trends in Nairobi, Nakuru, and other towns.

Other customers are herbalists buying directly from the farm, says the farmer.

“Chamomile can fetch better export markets but I am a small-scale farmer, I can’t meet the export demand, I am currently recruiting more farmers but as usual, most farmers are adamant about embracing new crops. I have also refused to give them seeds for free since most people never get serious when given things for free. I am selling a spoon of the seeds at Sh3,000 which is more than enough for one acre,” said the farmer.

BY WAIKWA MAINA

waikwamaina@yahoo.com

For nearly a decade now, Mr Elijah Kimani from Kipipili Constituency, Nyandarua County has known no other agribusiness, and he has no intention of diverting from herbs farming, a rewarding venture he truly cherishes.

He has specialized in Chamomile herbs farming, some shrubby plants with white and yellowish flowers decorating his three-acre farm.

He ventured into herbs farming in 2015 after constant failures hawking in Eldoret town, a decision he doesn’t regret today.

The farmer started with Coriander farming in 2016 on the one-acre farm before shifting to more rewarding Chamomile herbs.

Mr Kimani came across the herb in Nyahururu town when selling coriander at the open-air market, got motivated, and resolved to go Chamomile.

“Most of the customers who bought the herbs were Asians and few Africans. I felt the farmer was making better money selling the herbs than my coriander. I bought some seeds which I planted at my farm, they performed very well,” explained the farmer.

With time, he got a direct market for the herbs, selling directly to customers in Nakuru, Nairobi, and other parts of the country, almost doing contract farming.

Chamomile seeds are first planted at the seedbed where they take three days to germinate before they are transplanted to the garden.

To plant an acre of Chamomile, a farmer requires about a spoon of the seeds which are more of dust, planted in a seedbed to germinate in three days.

At the seedbed, he advises farmers to mix the one-spoon seeds with a 2kg container of manure for easy planting.

A month later, with regular watering, the seedlings will be ready for transplanting on a well-prepared farm with adequate watering.

Topdressing fertilizer is applied at a rate of 50 kilos per acre when the plants are two to three weeks old after transplant, and the crop will require no more inputs until the last harvest.

Spacing at planting is one and a half feet between plants and two feet between rows but the spacing can be increased if the farm is very fertile to allow enough room for the shrubby plants to develop.

Mr Kimani described the crop as very delicate and the top dressing fertilizer should not come into contact with the

SUPERIOR CARE BETTER FARMING

Why Shade Nets are important to today's farming.



Shade nets are made from lightweight knitted polythene fabric that provides people and plants with protection from the sun. Shade cloth fabric is available in densities ranging to suit the unique needs of different types of plants, flowers and crops. It can be used with greenhouses, hoop structures and in field applications. Additional uses include fences, windscreens and privacy barriers. Shade material is rot and mildew resistant, does not become brittle and is water permeable. It offers superior ventilation, improves light diffusion and keeps greenhouses cooler.

Shade Nets are beneficial since it helps to create an optimum growing climate because with the use of Reflective Shade Nets, it reflects the sun's radiation rather than absorbing it. It assists in controlling the light, temperature and humidity balance. Reflective shade screens are also energy-saving. Excellent climate characteristics include low daytime temperature due to maximum reflection and high energy savings at night, which keeps crop temperature close to ambient.

There are Standard Shade Nets which are affordable, with extremely durable means of protecting plants and crops from direct sunlight. Shade Nets are placed on the exterior roof of a greenhouse, cold frame or high tunnel where it blocks a percentage of light from penetrating the building, hence keeping plants more comfortable. This type of shade material is appropriate for general gardening, farming and greenhouse applications and is widely used in the commercial farming and gardening industry.

Shade Nets are of various materials and what to use depends on the type of your crop. The shade materials help in protecting plants, pets, livestock and people from direct sunlight and also works as a windscreen. Depending on the climatic conditions also, growers use 50% and 60% density in colder areas while in hotter areas, they use 70% to 80%. Many farmers find that using a high-density shade on roofs and a lower density shade on walls is a good method for creating ideal shade conditions. Farmers should always check with a technical support team from Agrichem Africa Limited to determine the shade cloth density that is appropriate for both the climate and plant variety. The density of the shade is determined by the amount of the light blocked by the shade. For instance, the definition of

80% shade is that only 20% of light passes through it. Vegetables require a shade percentage of between 30 and 50%.

Shade Nets have many advantages and so to mention just but a few like they are easy to wash; do not get decay; easy to carry and easy to install; ease in relocation; a shade percentage of 30-50% is ideal for vegetables and flowers; they are ideal for gardens, plant nurseries, home terrace gardening; minimizes plant hassle and wind pressures to avoid damage to plants, enhances photosynthesis to stimulate plant growth; conserves water; protects plants from pests and diseases; shade cloth can help to lower energy costs by reducing the need to run fans as often in the warmer seasons; and installing a shade net is quick and easy as is taking it down during the off-peak season.

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Shade Net



OTHER APPLICATIONS

Shading / Windbreak / Fruit harvesting / Sunburn Reduction / Evaporation Reduction / Light-hail protection / Bird Exclusion / Fencing / Organic Production

MATERIAL: HDPE Monofilament; **SHADE FACTOR:** 35% TO 75%; **GSM:** 90 - 300; **COLOR:** Green + Black / Black / Red / Milky White / Beige; **DIMENSIONS: Std Width:** 3 Mtrs - 6 Mtrs; **Length:** As per customer requirement; **Fabrication:** As per customer requirement; **U/V STABILIZED**

Insect Protection Net



OTHER APPLICATIONS

Shading / Sunburn Reduction / Evaporation Reduction / Light-hail protection / Fruit Fly Protection / Insect Exclusion / Anti-Thrips / Pest Exclusion / Organic Production / Vineyard netting / Fencing

MATERIAL: HDPE Monofilament; **GSM:** 105, 110 and 135; **COLOR:** Natural White / Milky White; **MESH SIZE:** 40 (16x10), 50 (20x10); **DIMENSIONS: Std Width:** 3 Mtrs - 5 Mtrs; **Length:** As per customer requirement; **Fabrication:** As per customer requirement; **U/V STABILIZED**

Bird Protection Net



OTHER APPLICATIONS

Shading / Evaporation Reduction / Light-hail protection / Bird Exclusion / Wind Protection / Litter Barriers / Bird Protection / Crop Support

MATERIAL: HDPE Monofilament; **GSM:** 17 - 48; **COLOR:** Black / Milky White / Natural White; **MESH MBS (+/-5%):** 7 - 16; **STD MESH DEPTH:** As per customer requirement. **Maximum:** 540 Mtrs; **STD MESH LENGTH:** As per customer requirement. **Maximum:** 1000 Mtrs; **Fabrication:** As per customer requirement; **U/V STABILIZED**

Hail Protection Net



OTHER APPLICATIONS

Shading / Wind Protection / Vineyard / Netting / Fruit Harvesting / Orchard Netting

MATERIAL: HDPE Monofilament; **CONSTRUCTION:** Leno & Raschel Warp Knitted; **GSM:** Leno: 50/56 and Raschel Warp Knitted: 69; **COLOR:** Natural White / Milky White / Black; **MESH SIZE:** Leno: 3 mmx7 mm / 3 mmx4 mm / 3 mmx2.6 mm; **DIMENSIONS: Std Width:** 3 Mtrs - 5 Mtrs; **Length:** As per customer requirement; **Fabrication:** As per customer requirement; **U/V STABILIZED**



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Olive Harvesting Net



OTHER APPLICATIONS

Shading / Windbreak / Fruit harvesting / Sunburn Reduction / Evaporation Reduction / Light-hail protection / Bird Exclusion / Fencing / Organic Production

MATERIAL: HDPE Monofilament; **GSM:** 64 or 84; **COLOR:** Green + Black / Milky White; **MESH SIZE:** 20 Mesh; **DIMENSIONS: Std Width:** 3 Mtrs - 5 Mtrs (Without Joints) **Length:** As per customer requirement **Fabrication:** As per customer requirement; **U/V STABILIZED**

Vineyard & Orchard Net



OTHER APPLICATIONS

Shading / Sunburn Reduction / Light-hail protection / Fruit Fly Protection / Insect Exclusion / Anti-Thrips / Organic Production

MATERIAL: HDPE Monofilament; **CONSTRUCTION:** Leno Weave; **GSM:** 50 or 56; **COLOR:** Natural White; **MESH SIZE:** 3 mm×2.5 mm and 4 mm×4 mm; **DIMENSIONS: Std Width:** 25 Mtrs - 4 Mtrs; **Length:** As per customer requirement; **Fabrication:** As per customer requirement; **U/V STABILIZED**

Grape Harvesting Net



OTHER APPLICATIONS

Tomato Drying / Vineyard Protection / Bird Exclusion / Raisin Making from Grapes / Floriculture Netting / Fencing

MATERIAL: HDPE Monofilament; **GSM:** 54 and 70; **COLOR:** Green / Black / Blue; **MESH MBS (+/-5%):** 29 and 36; **DIMENSIONS: Std Mesh Depth:** 28 Mtrs; **Std Mesh Length:** As per customer requirement. **Maximum:** 1550 Mtrs; **Fabrication:** As per customer requirement; **U/V STABILIZED**

Fencing Net



OTHER APPLICATIONS

Multi Terrain Deer Netting / Barrier Netting / Crop Support / Floriculture Bed

MATERIAL: HDPE Monofilament; **GSM:** 90 and 108; **COLOR:** Orange / Green / Red / Blue / Black; **DIMENSIONS: Std Width:** 4 ft; **Length:** As per customer requirement; **Fabrication:** As per customer requirement; **U/V STABILIZED**

Other Offerings

Carnation Net



Floriculture Nets



Crop Support Net





MZEE OMANGA: *the old man feeding Kisii with* **GOOSEBERRIES**

Article by: Kamau Wanderi

Magenatown, which is located at Bomachoge-Borabu constituency, Kisii County, is well known for cultivation of indigenous vegetables such as Black Nightshade, cowpeas leaves, among others. Most residents here, especially women, are the main growers of these indigenous crops.

As you tour the small town, you will get a glimpse of huge lorries, packed along the town's main market, waiting to be loaded with the produce so as they can transport them to different towns, where they are largely consumed.

However, Mzee Elijah Omanga, 81, has decided to take a different trajectory, by engaging in the farming of Gooseberries. Despite his old age, Mzee Omanga has been practicing the farming since his youthful days.

The farmer says that most people do not know that the fruits can be domestically grown and become a source of livelihood, as they grew in the forest in the old days.

In the colonial days, Mzee Omanga worked as a chief of the entire Abamachoge clan.

The Hortfresh team visited the old man at his farm in Riomanga village, where he resides, to get a deeper perspective of why he has stuck in the farming of the crop for years.

Apart from enabling him in educating his 14 children, Mzee Omanga says that one of the reasons why he has enjoyed quite a long life with good health is the consumption of the unique fruit.

Given that his age is quite advanced, he says that he employs people to perform difficult tasks such as tilling the land. However, he does the rest of the work himself, such as planting and tending the plants.

“I was dismissed from my job in the 1970s in very controversial circumstances. One day when I visited my daughter in Kisii town, I saw some gooseberries growing outside her house. I plucked some fruits, which I carried with me home. I planted the seeds from the few fruits I carried. That's how I started my journey to gooseberry fruit farming,” said Mzee Omanga.

What pushed him to embrace the farming of gooseberries is that every time he travelled to Kisii town, the Indians who own big shops there always asked their workers on where they could get the rare fruits.

“Given that the fruit's availability was rare, those who managed to take them to the Indians were paid very handsomely. I saw a gap and an opportunity. That made me start farming the fruit immediately. For sure, the fruit has really uplifted me economically, mostly helping me educate my 14 children,” he adds.

He practices the farming in his one-acre piece of land.

Mzee Omanga farms the yellow gooseberries, saying that fruit

is easier to plant and maintain comparing to other crops, given that they do not require frequent weeding.

According to him, anyone who plans to start farming the fruit must get the seeds from ripe gooseberries. The gooseberries are broken and its seeds put under the sun to dry.

When the seeds are fully dry, they are transferred to a nursery, where they germinate.

After a period of one month, the gooseberries' seedlings will be ready to be taken to the garden to be planted.

Before planting the seedlings, it is important to clear the garden through thorough weeding. After that, planting holes are supposed to be dug half a foot deep, where manure or plant manure can be used.

The width from one plant to another should be one and a half meters because when the gooseberries start to grow, they get a lot of branches and so if you plant them too close, the plants will become a bush and fail to give you abundant harvests.

In order to give the gooseberry plants strength and make them not fall apart during strong winds, Mzee Omanga says it is better to stop them using sticks and wires.

After planting, the gooseberries will begin to bear fruit after three months. As they mature, they will begin to turn from green to yellow.

The sign of a ripe fruit is that the outer skin of the fruit starts to dry. If they start bearing, one can pick the

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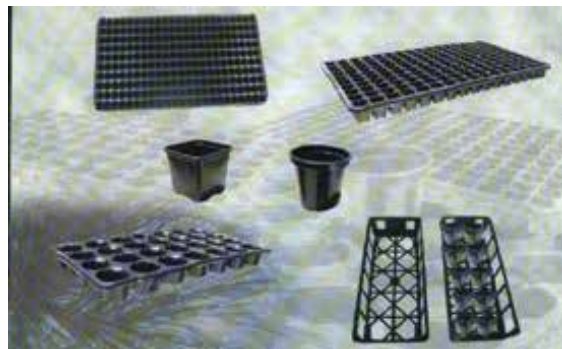
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Planting Seed Trays

- 28 hole
- 66 hole
- 91 hole
- 160 hole
- 204 hole
- 230 hole
- 288 hole



- 82 mm Dia Round
- 105mm Dia Round
- 120mm Dia Round
- 150mm Dia Round
- 7mm x 7mm x 6.5 mm





Mzee Omanga displays some of the gooseberry fruits from his farm

fruit up to two years before the plants get old.

Ripe gooseberries can be picked with or without skins and then sent to the market.

If you are going to harvest by removing the skins that cover the fruit, you must have plastic containers to keep it.

He uses small net bags, sold in the market. He sells each fruit for Sh1. He has customers from the towns of Kilgoris and Kisii. In a month, Omanga says he earns more than Sh20,000 from the sale of gooseberries.

The fruit does not suffer from many diseases. The main problem he has faced is the destructive birds that eat the fruits when they start to ripen and thus, has to chase them away when they are many.

According to nutritionist Michael Wokabi, gooseberries contain many minerals that are good for the human body.

Gooseberries do not contain many calories and their nutrients help to control sugar in the body, protect the heart and brain to ensure that these organs work properly.

Healthy Benefits of Gooseberries

1. Highly nutritious

Gooseberries are low in calories and fat, yet packed with nutrients. Vitamin C is a powerful antioxidant and vital to your nervous system, immune system, and skin. Vitamin B5 is necessary for creating fatty acids, while vitamin B6, which many enzymes and cells in your body need to function, helps convert food into energy. Copper is important for your heart, blood vessels, immune system, and brain.

2. High in fiber and low in calories

They are high in fiber yet low in energy, meaning you can eat a decent portion without consuming too many calories. In addition, research shows that eating berries may aid weight loss and help you eat fewer calories overall. Gooseberries are low in calories and high in fiber, which helps protect against obesity, heart disease, type 2 diabetes, and some types of cancer.

3. Rich in antioxidants

Antioxidants are compounds that help fight the effects of free radicals. These are reactive molecules that cause cellular damage and lead to a process known as oxidative stress. Oxidative stress is associated with many diseases and premature aging. Diets rich in antioxidants are thought to reduce your risk of certain types of cancer, heart disease, type 2 diabetes, aging, and protect your brain from degenerative disease. Gooseberries are an excellent source of antioxidants, including vitamin C, small amounts of vitamin E, and phytonutrients.

4. May help control blood sugar

High blood sugar levels are linked to type 2 diabetes, heart disease, stroke, dementia, and many other illnesses. Gooseberries have several properties that may aid blood sugar control.

First, they're high in fiber, which slows the absorption of sugar into your bloodstream, preventing spikes in blood sugar levels. Finally, gooseberries contain chlorogenic acid, which may slow carb absorption and help reduce blood sugar levels after starchy meals.

5. May protect your brain

Certain degenerative brain diseases are linked to an overload of iron in the cells. Iron levels that are too high can spur the creation of free radicals, which are molecules that damage your cells. Your brain cells are particularly high in iron, making them more vulnerable to damage.

6. May have anticancer effects

Diets rich in berries, phytonutrients, and antioxidants are linked to a reduced risk of some types of cancers. These nutrients are thought to reduce, counteract, and repair damage from oxidative stress and inflammation, which can lead to the development of cancer.

7. Good for your heart

Eating a diet rich in fruits like berries is associated with a lower risk of heart disease.

8. Easy to add to your diet

For maximum health benefits, it's best to enjoy gooseberries raw.

Gooseberries are also used in cooked and baked dishes, such as pies, tarts, chutneys, compote, jams, and cordial. However, keep in mind that these dishes often contain sugar, and cooking destroys a lot of the antioxidants and beneficial phytonutrients.

African heads of states and leaders pose for a photo during The Africa Fertilizer and Soil Health Summit in Nairobi Kenya.



Inaugural Africa Fertilizer and Soil Health seeks sustainable solutions to agricultural productivity

Industry players from across Africa recently gathered in Nairobi for a pivotal event—the Africa Fertilizer and Soil Health Summit. Against the backdrop of pressing agricultural challenges and the urgent need for sustainable solutions, this summit served as a beacon of hope, offering a platform for dialogue, innovation, and collaboration. In this feature article, we delve into the key themes, discussions, and outcomes of this significant gathering, exploring the potential to transform Africa’s agricultural landscape through enhanced soil health and fertilizer management.

Africa’s agricultural sector stands at a critical juncture, facing a multitude of challenges that threaten food security, livelihoods, and economic development. Among these challenges, soil degradation emerges as a pressing concern, exacerbated by factors such as climate change, unsustainable land management practices, and population growth. Degraded soils not only diminish agricultural productivity but also contribute to environmental degradation and rural poverty, underscoring the urgency of addressing soil health issues. Soil degradation casts a shadow over Kenya’s agricultural

landscape, jeopardizing food security, livelihoods, and environmental stability. As the world grapples with the urgent need for sustainable development, Kenya stands at a crossroads, facing the imperative to address this pressing issue before it spirals out of control.

Soil degradation, encompassing processes such as erosion, nutrient depletion, and contamination, is driven by a myriad of factors, including deforestation, unsustainable agricultural practices, urbanization, and climate change. In Kenya, where agriculture serves as the backbone of the economy, the repercussions of soil degradation are acutely felt by millions of smallholder farmers who rely on the land for their sustenance and income.

Experts have vouched at the policy level to enhance land governance frameworks, strengthening enforcement mechanisms, and incentivizing sustainable land use practices as crucial steps towards reversing the tide of soil degradation. Investing in research and innovation, harnessing digital technologies, and fostering collaboration between government agencies, civil society, and the private sector are essential for scaling up sustainable land management

initiatives and ensuring their long-term impact.

The widespread lack of access to appropriate fertilizers further compounds these challenges, limiting farmers’ ability to replenish soil nutrients and optimize crop yields. In many regions, smallholder farmers, who form the backbone of Africa’s agricultural sector, struggle to access affordable, high-quality fertilizers, hindering their potential to improve productivity and break the cycle of poverty.

Against this backdrop, the Africa Fertilizer and Soil Health Summit convened stakeholders from government, academia, industry, and civil society to explore innovative strategies for enhancing soil health and fertilizer use across the continent. The agenda encompassed a diverse array of topics, ranging from policy frameworks and market dynamics to technological innovations and farmer empowerment initiatives.

“It is important to recognize that, we cannot achieve our aspiration of eliminating hunger and poverty if we do not take a sustainable approach to soil health, prudent use of agricultural inputs, environmental conservation

and embracing of technologies that can make our production systems efficient and effective. The realization of this important goal will ensure that as we feed ourselves, we also leave an environment where our generations can be able to sustain themselves,” noted Prime Cabinet Secretary Musalia Mudavadi during the Summit.

At the heart of the summit discussions were policy imperatives aimed at catalyzing transformative action in the agricultural sector. Participants emphasized the need for comprehensive policy frameworks that prioritize soil health and fertilizer management, integrating sustainable practices into national agricultural strategies. Key recommendations included the establishment of supportive regulatory environments, investment incentives for fertilizer production and distribution, and targeted subsidies to improve smallholder farmers’ access to fertilizers.

Access to affordable fertilizers emerged as a central theme, with stakeholders exploring innovative approaches to enhance market dynamics and distribution channels. Discussions centered on strategies to reduce

example, observations have been made that maize yields have stagnated despite increased fertilizer use. This has resulted in input bundling, emphasis on balanced nutrition and soil sampling and testing,” Mudavadi noted.

Technology played a pivotal role in shaping summit discussions, with a focus on harnessing scientific innovations to optimize fertilizer use and soil management practices. From precision agriculture and soil testing technologies to remote sensing and digital advisory services, participants explored a myriad of tools and approaches to enhance agricultural productivity while minimizing environmental impact. The potential of data-driven insights and artificial intelligence to inform decision-making and tailor interventions to local contexts garnered significant attention, signaling a shift towards more evidence-based and adaptive approaches.

Central to the summit’s vision was the empowerment of smallholder farmers as agents of change in Africa’s agricultural transformation journey. Recognizing the pivotal role of farmer knowledge and capacity-building initiatives, participants emphasized the importance of extension services, farmer training programs, and knowledge-sharing platforms in promoting sustainable soil management practices and fertilizer use. Farmer-centered approaches, rooted in participatory decision-making and co-creation of solutions, were championed as essential for ensuring the relevance and effectiveness of interventions at the grassroots level.

As the Africa Fertilizer and Soil Health Summit drew to a close, participants left with a renewed sense of purpose and commitment to advancing the agenda of soil health and fertilizer management across the continent. Key outcomes included the formulation of actionable recommendations for policymakers, the forging of partnerships between diverse stakeholders, and the mobilization of resources to support on-the-ground initiatives. Looking ahead, the summit’s legacy lies in its capacity to catalyze collective action and drive tangible progress towards a

more resilient, inclusive, and sustainable agricultural future for Africa.

“The Soil Health conversation is unique in all countries world over given that we all have to feed our people. I am glad that our experts in Kenya have participated in the development of the Soil Health Initiative and 10-year Action Plan under different platforms and appreciate the leadership of the AUDA, NEPAD and AUC.

Soil fertility depletion has been cited as the fundamental root cause of declining per capita production arising from continuous mining of soil nutrients, inappropriate farming practices including use of blanket fertilizer recommendations,” noted Hon. Mithika Linturi, the Cabinet Secretary, Ministry of Agriculture and Livestock Development during his opening remarks.

In the fertile soil of Nairobi’s conference halls, the seeds of change were sown at the Africa Fertilizer and Soil Health Summit. As stakeholders from across the continent came together to confront the challenges of soil degradation and fertilizer access, they also unearthed opportunities for innovation, collaboration, and empowerment. With a shared vision and concerted effort, Africa stands poised to cultivate a brighter future, where healthy soils nourish thriving communities and sustainable agriculture flourishes. The journey ahead may be arduous, but the harvest of progress awaits those who dare to cultivate it.

“Regarding fertilizer, we have committed to tripling domestic production and distribution of both organic and inorganic fertilizers, ensuring they reach 70% of smallholder farmers across the continent. Additionally, we have pledged to enhance access to and affordability of fertilizer for smallholder farmers, providing them with targeted agronomic recommendations tailored to specific crops, soils, and climatic conditions. This aims to promote greater efficiency and sustainable use of fertilizers.

Concerning Soil Health, we have committed to reverse land degradation and restore soil health on at least 30% of degraded soil by 2033,” said President Ruto at the close of the Summit.



Delegates follow proceedings at The Africa Fertilizer and Soil Health Summit in Nairobi Kenya.

fertilizer costs, improve supply chain efficiency, and promote the adoption of appropriate fertilizers tailored to local soil conditions and crop needs. Innovative financing mechanisms, such as input credit schemes and digital platforms, were highlighted as promising tools to facilitate farmer access to fertilizers while promoting financial inclusion.

“Though fertilizers are estimated to contribute more than thirty percent of the crop yield, we have witnessed in our country that fertilizer alone cannot sustain increased agricultural productivity and production. For

CRITICAL ROLE OF CALCIUM IN CROP PRODUCTION

Calcium is an essential nutrient for crops, playing a vital role in their development and overall health. Its significance in plant physiology cannot be overstated, as it contributes to various critical functions necessary for plant growth and resilience. However, its immobility within plant tissues presents unique challenges, particularly in maintaining adequate calcium levels across all parts of the plant.

Calcium is a very immobile element within plant tissues. In the majority of plants, immobility means that once calcium is deposited in a particular part of the plant, it cannot be redistributed to other areas. As a result, calcium deficiency symptoms are most often observed in younger leaves, flowers, fruits and growing points, where the demand for calcium is high, but supply is limited.

The movement of calcium within a plant is largely dependent on transpiration pull. During periods of high transpiration, such as on sunny days, plants pull up more water from the soil to cool themselves. This process facilitates the uptake and transport of calcium from the roots to the upper parts of the plant. Conversely, during rainy seasons or high humidity conditions, transpiration rates are low, leading to reduced calcium uptake and an increased risk of deficiency.

Calcium deficiency can significantly impact crop health and yield. Understanding the signs and symptoms of calcium deficiency, as well as the consequences for crops, is vital for effective crop management and yields optimization

Signs and symptoms of calcium deficiency

a) Young leaf necrosis

Calcium is relatively immobile within the plant, so deficiencies often first appear in new growth where the calcium supply is inadequate. Calcium deficiency causes necrosis, or the death of tissue, which appears at the tips and margins of younger leaves.

b) Stunted growth

Calcium is critical for cell division and elongation. Its deficiency restricts growth in both shoots and roots, leading to overall stunted growth with small, distorted leaves and poor root development.

c) Blossom End Rot

Insufficient calcium during fruit development leads to this disorder, as calcium is crucial for cell wall integrity. This is physically shown by dark, sunken



spots on the blossom end of fruits, particularly common in tomatoes, peppers, and melons.

d) Leaf tip burn

Rapid transpiration and inadequate calcium transport to leaf margins cause cell death and the browning of leaf tips. This is evidently shown by the burnt or scorched appearance of leaf



tips, especially in leafy vegetables like lettuce and cabbage.

e) Internal rot

Calcium deficiency can cause the breakdown of internal plant tissues, leading to rot and decay from the inside. This is seen by the browning and rotting of internal tissues in crops such as carrots and lettuce.



Strategies for Correcting Calcium Deficiency

Calcium plays crucial roles in multiple physiological processes, and its deficiency results in reduced yields, low quality produce, increased susceptibility to diseases and poor post-harvest quality. Calcium deficiency can be corrected through:

Soil application: Drenching calcium as a soil conditioner helps raise soil pH and supplies calcium to the soil. Cal 40 unique slow release mechanism enhances its availability at all times thus improving soil structure and providing a steady supply of calcium.

Foliar application: Provides calcium and helps improve plant health and enable the plants own defenses against pest and diseases. Cal 40 being a readily available source of calcium that can be applied directly to leaves, it quickly addresses deficiencies and strengthens plant structures.

Cal 40; the best Calcium Product

Vicentia East Africa proudly presents Cal 40, a premium calcium nutrition product hailed as the king of all elements. With a remarkable 56% Calcium Oxide content and 40% calcium elemental, Cal 40 stands out for its superior formulation and myriad benefits for enhancing crop health and productivity. Cal 40 is the most concentrated source of calcium available for agricultural production. This high concentration ensures that plants receive an ample supply of this essential nutrient. This formulation is designed to maximize the bioavailability of calcium enhanced by its slow-release mechanism making it more readily available for absorption at all times for efficient utilization and minimizing wastage. The Cal 40 particles are so fine ($\geq 2\mu\text{m}$) that 1ml of Cal 40 has a surface area of 4.5 M². Cal 40 does not contribute to the EC in the solution (when mixed in a fertigation tank) or in the soil as it's a suspension concentrate formula (SC). Less EC means less salinity stress on the roots.

The importance of calcium in crop production

Nutrient absorption and translocation within the plant.

Calcium is essential for root growth and development. It helps in the formation of root hairs, which increase the surface area for water and nutrient absorption from the soil. Healthy root systems are crucial for the efficient uptake of nutrients. Calcium also aids in the uptake of other nutrients by improving soil structure. It reduces soil acidity and promotes the availability of other essential nutrients like potassium and magnesium.

Calcium plays a significant role in the function of the plant's vascular system, particularly in the xylem and phloem. It helps in the movement of water and dissolved nutrients from the roots to other parts of the plant through the xylem.

The movement of calcium within the plant is closely linked to the transpiration stream. During periods of high transpiration, calcium is transported more effectively from the roots to the shoots and leaves.

Role of calcium in enzyme action

Calcium activates several important enzymes, which are involved in numerous cellular processes. The calcium-binding proteins regulate various functions, such as nutrient uptake and hormone signaling, essential for the plant's growth and development.

Calcium acts as a cofactor for several enzymes involved in the nitrogen metabolism pathway. One of the key enzymes in this pathway is nitrate reductase, which is responsible for the reduction of nitrate to nitrite, an essential step in the assimilation of nitrogen into organic forms. Calcium contributes significantly to the conversion of nitrogen into amino acids and proteins which requires enzymes. Calcium ions (Ca^{2+}) are necessary for the proper functioning of these enzymes, ensuring efficient nitrogen assimilation and protein synthesis for vigorous foliage which translates into improved growth.

Plant Structural Integrity

Calcium is crucial for the production of plant tissue. It is a fundamental component of plant cell walls and membranes, contributing to stronger cellular structures. This structural role is critical for maintaining the cellular environment necessary for the optimal function of metabolic processes, including nitrogen assimilation and protein formation. The presence of calcium fortifies cell walls, making them robust and capable of withstanding physical stresses.

Enhancing the crops' defense mechanisms

Calcium is a vital nutrient for plants, playing a critical role in their defense mechanisms against various biotic and abiotic stresses. Its importance extends beyond its structural functions in cell walls and membranes to its involvement in signaling pathways and stress responses.

Calcium ions (Ca^{2+}) act as secondary messengers in cellular signaling pathways. When a plant is under attack by pathogens or exposed to stress, calcium signals are rapidly generated and transmitted within the cell. These signals activate various defense-related genes and proteins. Calcium signaling triggers the activation of specific genes involved in the plant's immune response. This includes the production of defensive proteins, such as pathogenesis-related proteins, which help in fighting off infection.

Strong cell walls, facilitated by calcium, act as barriers against pathogens. Healthy plants with adequate calcium are less likely to suffer from diseases that could impair their ability to assimilate nitrogen and produce proteins for optimal growth.

Calcium helps plants manage abiotic stresses like drought and salinity. By maintaining cell wall integrity and

regulating the osmotic balance, calcium ensures that metabolic processes, including nitrogen assimilation, continue efficiently even under stress conditions.

Enhanced growth, development and yield increase

Calcium is an essential macronutrient that plays a pivotal role in the growth, development, and overall productivity of crops. Its importance cannot be overstated, as it contributes to a variety of physiological and biochemical processes that are crucial for healthy plant development and optimal yields.

Calcium is crucial for the development of fruits and seeds. It ensures proper cell division and expansion, leading to well-formed and high-quality produce. Adequate calcium levels prevent common disorders such as blossom end rot in tomatoes and bitter pit in apples.

By supporting overall plant health and resilience, calcium contributes to increased crop yields. Healthy plants with strong structural integrity and efficient nutrient metabolism are more productive and capable of achieving higher yields, which is the ultimate goal of every grower by ultimately having a great impact on returns.

Enhancing post-harvest quality and Pro-longed shelf-life

Calcium is a crucial nutrient for plants, and its significance extends beyond growth and development to the post-harvest quality and shelf life of produce. Adequate calcium levels in crops significantly improves the durability, appearance, and marketability of fruits and vegetables by enhancing their structural integrity and resistance to post-harvest deterioration.

Calcium is also a crucial element that plays a significant role in enhancing the shelf life of rose petals. Its effects on cell wall structure, membrane stability, and metabolic processes collectively contribute to the longevity and quality of rose petals during storage and display.

Conclusion

For growers aiming to maximize their crop production and profitability, the importance of calcium cannot be overstated. Ensuring an adequate supply of calcium through effective fertilization practices is key to achieving higher yields, better quality produce, and ultimately, higher income. By investing in calcium nutrition, farmers can enhance the health and productivity of their crops, securing a more prosperous and sustainable future in agriculture.

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What is killing CYCADS & How to deal with the unusual insect

Ruth Anita Vaughan

Cycads commonly known as living dinosaurs or living fossils, cycads have been on Earth for over 300 million years. Their earliest fossils date back to the late Carboniferous period. In the Jurassic period, the Age of the Dinosaurs, cycads accounted for over 20% of the vegetation, and were thought to be the main food source of the herbivores.

The modern living cycads that we see growing today, are an off shoot of these fossil cycads, and evolved in the last 12 million years. All cycad groups across the world began to diversify at the same time, indicating that a global trigger was involved. It is thought the trigger was climatic as this is when global cooling began, and the world started having distinct seasons.

Cycads are amongst the most endangered plants in the world due to habitat destruction, unethical plant collecting, and global warming. In many

parts of the world, they are protected plants. There are 10 accepted groups of cycads and 375 species, but these numbers are dwindling fast, and some species have disappeared completely from the wild and are only found in 'captivity' in Botanical Gardens and private collections. The loneliest cycad in the World, the Wood's cycad, is extinct in the wild and there are only a few very old and isolated male plants left in botanical gardens.

Cycads are very slow growing. They have specific male and female plants and very species-specific pollinators (obligate brood site mutualism). The chances of male and female cycads being in flower, in proximity, at the same time, with the correct pollinator, are becoming increasingly remote.

Last year I heard mumblings from the coastal region of Kenya, of cycads becoming covered in a white fuzz, the leaves going brown and the cycads dying within a few months. It was thought to be a fungus. However, on a recent



The loneliest cycad in the world, a male wood's Cycad. The female has never been found

visit to my uncle's house in Diani I came face to face with the problem. One the cycads was totally white, and nearby were the rotting remains of three other cycads that had recently died. On closer examination of the leaves, the white fuzz was made up of hundreds of insects that I had never seen before.

What do you do if you find unusual insects?

I carefully took samples of the leaves with the insects and put them in a tightly sealed jar (to stop them escaping) and kept them in the fridge to preserve them. To identify unusual insects requires a trained entomologist. ICIPE in Nairobi and The Museums of Kenya have entomology departments. I sent my samples to the Dudutech Entomology Unit at Bioline in Naivasha and very quickly got an ID, as an infestation by the Cycad Aulacaspis scale (CAS).

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The cycad scale (*Aulacaspis yasumatsui*)

The cycad scale is confirmed by CABI as present in Kenya, with few occurrences. As it is an unusual pest it has no natural enemies. It is host specific to cycads. It continually replicates and has a very short life cycle (shorter in warmer weather!), so an infestation can quickly get out of hand. It is a tiny orange sap sucking bug that hides itself under a white shelter, made of anal secretions that protects the population from the weather and enemies. The scales of mature females are 1.2-1.6 mm and highly variable in shape, conforming to leaf veins, adjacent scales and other objects. Males are much smaller. Infestations can start with the young crawlers moving from plant to plant (short distances) or being carried slightly longer distances by wind. As the infestation progresses the scales move to the upper leaf surfaces, the trunks and even the roots of the cycads. The cycad scale can form several layers and consists of dead and live scales, with up to 3000 scales per square inch. The leaves looked like they are covered in snow or whitewash. The leaves go crispy and brown and die, due to the continuous removal of sap. The plants die off within the year. A simple way to tell if a plant has cycad scale, as opposed to other types of scale, is the speed at which it multiplies and quickly covers the plant within a few months.

How to deal with unusual insect infestations

Once the insect has been identified by a trained entomologist it is always good to Google-up on the insect to know what you are dealing with and how they spread.

When buying new plant material always examine it closely for insects. Some insects are very small and impossible to see when there are only a few on a plant (like the cycad scale). In this case it is good to isolate new plants in a quarantine area and observe over a few months. Infected new plants should be destroyed by burning or burying.

If you are visiting other farms, it is good to change your clothes, insects can be carried from one farm to another in clothes and hair. When you collect samples be sure to carry them in well-sealed containers so the insects cannot escape in transit.

Unusual insects have no natural enemies and can spread quickly so time is of the essence

In the case of the cycad Asian scale, one really wants to save the cycads from a sure death. For the cycads in my uncle's garden a mixture of natural broad spectrum biological insecticides proved very effective and cured the



Cycads take a long time to flower, which is one reason they are endangered- there is over a year between these photos of a cycad flowering in my garden



The cycad scale- quickly covers the leaves in a white fuzz, and kills the cycad in a few months by sucking all the sap out



Normal scale does not kill the cycad so fast and is easier to treat

infestation in a few weeks. We used a mixture of insecticidal oil to penetrate the scale, with a natural pyrethrum product, mixed with two insect killing fungi, Lecatech® (*Lecanicillium lecanii*) and Beauvitech® (*Beauveria bassiana*). Better to be safe than sorry!

Ruth Vaughan is a cycad lover, avid gardener and independent IPM specialist.

The Dudutech Entomology Department at Bioline can be contacted at info@dudutech.com.

ICIPE can be found here <http://www.icipe.org/> and National Museums of Kenya here <https://museums.or.ke/>



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