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IN MY OPINION

Year 2024, full of opportunities despite many challenges

Globally, the fresh produce industry has faced many challenges this year. Despite the difficulties, there have been numerous technological innovations and exciting new products that have been developed, which make the future remains full of opportunities.

This year had many weather extremes of too wet, too cold or too sunny, experienced in countries such as Kenya, Colombia and Ecuador, that affected production. In Ecuador, for example, production was too low at the beginning of the year and near the end of the year they witnessed overproduction. This erratic weather has further exacerbated the problem of False codling mold (FCM) in Kenya.

There have been concerns about shipping capacity and costs, especially from Kenya to Europe. At the start of the 2024-2025 high season, lack of cargo freights at Jomo Kenyatta International Airport (JKIA), has limited the capacity of export produce and driven up airfreight costs.

The ongoing global conflicts, including the Israel-Gaza war and Russia-Ukraine, have affected the local horticultural sector in a big way. Transportation of horticultural products by sea have been affected due to attacks along key routes, especially along the Red Sea, as rebel groups increase attacks, forcing exporters to use alternative routes, leading to high costs of production and high freight costs of products shipped to and from abroad.

The other challenges in the year included; economic downturn, ever-decreasing and more expensive workforce, high production costs, more limited water availability, more stringent sustainability requirements and consumers demand of an ever-higher quality, just to name a few.

Despite the challenges, many flower growers introduced their latest varieties that are not only more beautiful and longer-lasting but also more resistant to diseases and pests.

The year also witnessed an increase in automation solutions, ranging from robotic harvesters, to extremely advanced sorting equipment for fruits, to technologies for assisting pollination, among others. Artificial Intelligence models that can automatically process texts and answer knowledge-based questions have also been brought into spotlight this year.

Sustainable practices, from organic farming to eco-friendly packaging solutions were part of the year. With consumers demanding greater transparency in the production process, farmers have resulted to reducing their environmental footprint and contribute to a more sustainable future.

As horticulture evolves with sustainable practices, eco-friendly techniques and technological advancements, breeders, growers and industry-related companies are committed to the success of the industry. Expectations are high for Valentine 2025 and producers are hoping for a better season.

By Carol Mwarura

Hortfresh Journal is a premier magazine that highlights issues in horticultural industry. It is published bi-monthly.

Contributors for this edition includes: Rowan Godfrey - Meilland Roses (Africa), Michael de Geus - Select Breeding, Joyce Ndinda - Silafrica, Charles Mutema - Corteua Agriscience Mr. Roussoss Demisee - Mushroom Kenya, among others.

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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Spinning the wheel to win a prize at Elgon Kenya stand, during Naivasha Horticultural Fair 2024

Brilliant & Extraordinary Naivasha Horticultural Fair 2024

The 2024 Naivasha Horticultural Fair, in the month of September highlighted a significant moment for Kenya's horticulture industry, attracting over 250 exhibitors and thousands of visitors. The two days event underscored Kenya's reputation as a leading global hub for horticulture.

The Fair now in its 22nd year, presents Kenya's flourishing horticultural industry for its significant contributions to the national economy and the livelihoods of many citizens. It has seen consistent growth over the years, driven by the support of sponsors and a growing number of participating companies.

According to Richard McGonnell Naivasha Horticultural Fair chairman, the show was well-attended. "This year's event was extraordinary, brilliant and the attendance was great," he said.

Exhibitors included breeders and growers such as De Ruiter East Africa (DREA), Van Kleef Kenya Ltd, Select Breeding, Ball Horticultural Company, Meiland Roses, United Selections, Icon Selections, Könst Alstroemeria and WAC Breeding. Propagators included ProRoot

and Stokman Rozen, along with companies like Plantech Kenya Ltd, showcased their products and services.

The event also had companies offering biological solutions such as Andermatt Africa, Dudutech, Koppert Biological systems. Among the automotive industry were John Deere, Cassini & Tonolo, Simba Corporation, Car & General, offering the farmers variety of vehicles from tractors to cars.

In addition to breeders' companies like Majitec, Maji Water Storage, Amiran Kenya and Afro Drip were present to introduce their latest technologies aimed at solving water challenges in horticultural production.

Agrochemical companies such as Osho, Syngenta East Africa, Elgon Kenya among others also participated, offering expert advice on pest and disease management through best practices.

Manufacturing companies offering a wide range of products - from mechanical tools to chemicals, were also present, demonstrating the importance of technology in boosting efficiency and productivity in the sector. Similarly industry players like the Kenya Flower Council (KFC) and the Flower Council of Holland were also in attendance.

The event offered visitors a variety of insights into flower, vegetable, and fruit production. According to Richard, the exhibitors provided a diverse range of products, expertise, and experiences, which he believes will further invigorate the Kenyan horticulture industry. He acknowledged the support of the event's sponsors, led by the Co-operative Bank of Kenya, for

their commitment to the fair's success.

He pointed out that the Naivasha Horti-Fair 2024 has been a great success, especially coming from the downside of the COVID-19 days when the event would face numerous challenges making it difficult to hold. Commending the sponsors for their determination considering the proceeds are given back to the community through charities.

The sectors numerous challenges

According to the Chairman, the fair was initiated to counter the negative portrayal of the horticultural sector in mainstream media. McGonnell emphasizes the immense revenue that the horticultural sector generates for the government, despite the difficulties faced by growers.

He called on the government to provide incentives to help the industry grow even further. One such



measure could be the introduction of dedicated freighters at Kenya Airways, which would facilitate smoother exports, enabling more growers to benefit from international markets.

Supporting the flower growers would boost exports significantly, helping to mitigate crises like the ongoing challenges at the Red Sea, which have affected Kenyan businesses. The Kenya Flower Board has been instrumental in advocating for solutions to these issues, ensuring that growers receive the support they need.

Reflecting on the industry's history, Mr. McGonnell noted that flower farming began in the Naivasha and Mt. Kenya regions about four decades ago, primarily dominated by European growers. However, over the years, the sector has seen increasing diversity, with many Kenyan growers now thriving in the industry.

The Success of the Flower Industry

The success of Kenya's floriculture industry is largely due to the efficient production of roses and other flowers Primarily for export. Despite challenges like fluctuating markets, and high levies, the sector has demonstrated resilience. The growing interest from small-scale farmers, who are now venturing into floriculture with unique varieties, further stresses the profitability of the



industry.

Water shortages, particularly during last year's prolonged drought, were a significant issue for horticulture. However, innovative solutions have helped mitigate such challenges, allowing the industry to continue flourishing. The increase in both local and foreign agrochemical, seed, and water equipment companies has further strengthened Kenya's position as a major player on the global floriculture stage.

Children's Safe Haven

In addition to its economic contributions, the Naivasha Horticultural Fair has also played a key role in social initiatives. One such project is the creation of a safe haven for children, an idea that arose in response to the persistent issue of child abuse. Mr. McGonnell, a member of the Naivasha Disadvantaged Support Group (NADISCO), explains that after witnessing repeated cases of child abuse, they decided to take action.

Through their efforts, they secured the Mau Mau prison as a rescue center for abused children. Since its inception, the center has saved more than 2,000 children. NADISCO, supported by proceeds from the Fair and other well-wishers, has been at the forefront of helping disadvantaged children and youth.

"The joy a parent expressed when we helped a blind child who had no access to medical care, was indescribable," Mr. McGonnell said. He said recounting a case where a child regained sight after a successful surgery facilitated by Italian doctors through NADISCO's support.



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The STARTUPS breathing new life to Kenya's Flower industry

While roses dominate Kenya's exports, young entrepreneurs are exploring opportunities to diversify, helping to ensure that Kenya's flower exports remain resilient in the face of shifting market trends.

roses. They receive orders on a weekly basis.

“Consolidation has its ups and downs like any other business. Consistency and cultivation of a good relationship with clients has been our hallmark. If a client asks for an order you need to assure them that it will be delivered and within the time they need it. This has also meant ensuring we work closely with flower farms who we source from to ensure the quality and packaging meets the customers’ requirements,” she added. The farm has predominantly been working with large scale farms due to volumes although at times it extends its partnership to small growers.

Bloom Kenya, a startup uses technology to streamline the production and export of flowers. Founded by 28-year-old entrepreneur, Jane Mwangi, Bloom Kenya focuses on growing sustainable, pesticide-free flowers in hydroponic greenhouses, an innovation that reduces water usage and waste. “We are passionate about growing flowers sustainably while ensuring that our products are accessible to a broader global market,” Jane shares. “Our customers want to know where their flowers come from and how they are grown. By embracing technology, we can provide transparency and traceability, which is becoming a key factor in the industry.”

Mwangi’s company is one of several startups capitalizing on Kenya’s growing interest in sustainable practices. By focusing on eco-friendly farming techniques and fair trade, these businesses are tapping into a growing demand for ethically produced products in international markets, especially in Europe, where consumers are becoming more environmentally conscious.

Another dynamic startup, **FloralSync**, is revolutionizing the way flowers are sold and delivered. Founded by Nicolette Mutua, the company connects local farmers directly with buyers across the globe via a cutting-edge digital platform. FloralSync’s model bypasses the traditional supply

In recent years, a new wave of startups is breathing fresh life into this well-established sector. These innovative ventures, driven by young entrepreneurs with a passion for floriculture, are introducing new technologies, sustainable practices, and creative business models that are reshaping the future of Kenya’s flower exports. From eco-friendly farming to data-driven production techniques, these startups are proving that the future of floriculture in Kenya is blooming bright.

In a competitive global market, certifications are more than just a badge of honor—they are essential to accessing and maintaining market share. For Kenyan flower growers, adhering to certifications such as FairTrade, Rainforest Alliance, and GlobalGAP is not only about meeting regulatory requirements but also about aligning with consumer values and ensuring long-term sustainability.

FairTrade certification ensures that workers are paid fair wages and work in safe conditions. It also supports community development projects, such as building schools and healthcare facilities. This certification is becoming increasingly important as consumers and retailers seek products that are produced under ethical conditions.

“FairTrade certification is crucial for

ensuring that our workers are treated with respect and fairness. It also helps us invest in our communities and improve the quality of life for our employees and their families,” Laura Mwikali, a sustainability expert noted.

Rainforest Alliance Certification focuses on environmental sustainability, requiring farms to implement practices that protect biodiversity, conserve water, and reduce chemical use. GlobalGAP Certification (Good Agricultural Practices) ensures that farms meet international standards for safety, quality, and environmental impact.

Certifications are critical for Kenyan flower growers to demonstrate their commitment to ethical practices and high-quality standards.

The new wave of flower startups

Historically, Kenya’s flower industry has been dominated by large multinational corporations with established supply chains and distribution networks. However, in recent years, there has been a shift, with young entrepreneurs carving out niches in a market once reserved for traditional businesses.

Connie Muthee is the Director at **Ranges Farm**, a startup flower company that was started at the height of COVID 19. It now has over ten international clients and has been keen to tap into more markets across the world from Russia, Japan, Europe to Democratic Republic of Congo. Ranges Farm has predominantly been a consolidator, buying flowers from farms and selling them to both local and international markets. Key among the flowers they export include summer flowers which takes the lion share of their shipments, carnations and

chain, cutting down on middlemen and ensuring that both farmers and customers get better prices. “Our platform enables local farmers to reach international markets without needing huge capital or extensive export networks,” says Mutua. “We’ve seen firsthand how technology is opening doors for small-scale farmers to compete on a global stage.”

Through FloralSync, farmers in remote regions of Kenya can upload pictures and descriptions of their flowers, allowing buyers to place orders directly from them. This reduces the costs associated with flower exports and increases transparency, creating a more sustainable model for the industry. With the growing importance of technology in business, startups like FloralSync are providing farmers with the tools to increase efficiency and meet the growing demand for high-quality flowers globally.

Diversifying Kenya’s flower exports

One of the key challenges faced by Kenya’s flower export industry is the over-reliance on a limited variety of flowers, primarily roses. While roses dominate Kenya’s exports, young entrepreneurs are exploring opportunities to diversify, helping to ensure that Kenya’s flower exports remain resilient in the face of shifting market trends.

Heritage Blooms, a new startup focusing on the cultivation of exotic and rare flowers, is one example. Founded by 30-year-old Kendi Wambui, the business has found success with locally grown varieties of lilies, orchids, and tulips, in addition to traditional roses. “The flower industry is ripe for innovation, and one of the ways we’re differentiating ourselves is by focusing on high-value, less common flower species,” Wambui explains. “By diversifying what we grow, we not only reduce the risks associated with monoculture farming but also increase the earning potential for farmers.”

Heritage Blooms is also committed to fair wages and community development. Wambui’s company works directly with small-scale farmers from rural areas, providing them with training, resources, and market access. “We want to empower farmers to grow diverse, high-quality flowers while providing them with the tools they need to improve their livelihoods. This is how we create long-term change and drive growth in the sector.”



From eco-friendly farming to data-driven production techniques, these startups are proving that the future of floriculture in Kenya is blooming bright.

Embracing sustainability and innovation

Sustainability has become a critical consideration for many global consumers, and Kenyan flower startups are increasingly adopting eco-friendly practices to stay competitive. From eco-conscious packaging to water-saving irrigation systems, young entrepreneurs are leading the charge in developing innovative ways to reduce the environmental impact of flower production.

EcoPetals, a startup founded by Liam Otieno, is one such company that focuses on environmental sustainability. EcoPetals grows flowers without the use of chemical pesticides, relying on natural pest control methods. Additionally, they use biodegradable materials for their packaging, reducing plastic waste that has long been associated with the floriculture industry. Otieno says, “We aim to reduce our carbon footprint by implementing sustainable practices in every step of our process, from farming to packaging and shipping. Consumers today are more conscientious about where their flowers come from and how they’re produced. We want to give them an eco-friendly option that doesn’t compromise on quality.”

The company’s flowers are also grown in solar-powered greenhouses, which allows EcoPetals to significantly reduce energy consumption, making the business more resilient to fluctuations in energy prices. Otieno adds, “Our investment in renewable energy ensures that we can operate sustainably while also mitigating climate change. The future of flower farming in Kenya must be green, and we are proud to be leading that charge.”

The Road ahead

While these young entrepreneurs are making significant strides in transforming Kenya’s flower export industry, challenges remain. High competition, fluctuating international market demands, and access to financing are just a few of the obstacles these startups face. However, their resilience and innovation are proving that Kenya’s flower sector has the potential for substantial growth.

“We are witnessing the birth of a new generation of flower farmers and exporters who are not afraid to embrace technology and sustainability,” says Stephen Mutua, an agricultural economist and industry expert. “Kenya’s young entrepreneurs are leading the way in ensuring that the future of the flower export sector is not only profitable but also sustainable and inclusive. As long as these startups continue to innovate and adapt to global trends, the Kenyan flower industry will remain a key player on the world stage.”

The future of Kenya’s flower export industry is being reshaped by young entrepreneurs who are bringing fresh ideas and innovative approaches to a market that has traditionally been dominated by established players. Through technology, sustainability, and diversification, these startups are enhancing Kenya’s competitiveness in the global flower market while creating positive social and environmental impacts. With their vision, passion, and entrepreneurial spirit, they are not only changing the flower export landscape but also setting a blueprint for the next generation of Kenyan businesses.

By: Bob Koigi

Kenyan flower exporters navigate Auction and Direct sales options

By: Bob Koigi

Kenya's flower exporters face a unique challenge. They must navigate a delicate balance between two powerful forces in the global flower market: the traditional auction system and the growing demand for direct sales. Both channels are essential to the success of the industry, but each comes with its own set of pressures, risks, and rewards. For Kenyan exporters, mastering this balance is key to maintaining their competitive edge in a market where freshness, quality, and timing are everything.

The flower auction system

At the heart of the global flower trade is the auction model, with the Netherlands being the most prominent player, thanks to the world-famous FloraHolland auctions. Kenyan flower growers have long depended on this marketplace, which operates on a competitive bidding system. Through auctions, florists, wholesalers, and retailers from all over the world purchase flowers from growers, with prices set by demand and supply dynamics at any given time.

For Kenyan exporters, the auction system provides several advantages. The primary benefit is liquidity – auction platforms like FloraHolland and others around the world enable growers to quickly offload large quantities of flowers, especially those produced in bulk. The transparent nature of auctions also means that prices are often competitive, providing an opportunity for growers to gauge market trends

and respond quickly to changes in demand.

However, while auctions offer quick turnover and market access, the system comes with its downsides. Prices are volatile, often subject to fluctuations driven by seasonality, weather conditions, and economic factors like exchange rates or global events such as the COVID-19 pandemic. For exporters, this uncertainty can result in lower returns, especially if the flowers are produced at a high cost. In addition, while auctions provide an immediate outlet for flowers, they don't necessarily foster long-term relationships with buyers. This transactional nature can sometimes leave Kenyan growers vulnerable to sudden price drops or changes in demand, which are harder to predict or influence.

Growing 25 different rose varieties that are destined for 12 markets, majority of them in Europe where market dynamics have evolved considerably over the years,



FloraHolland auctions. Kenyan flower growers have long depended on this marketplace, which operates on a competitive bidding system.

Thika-based Simbi Roses, Simbi Roses understands that it has to keep reinventing and innovating to grow its market portfolio. The decision to concentrate on both auctions and direct sales in export of its premium rose varieties, with 60 per cent going to direct customers and 40 per cent to auctions has paid off because it has insulated the farm from price fluctuations.

The rise of direct sales

Over the years, Kenyan exporters have increasingly turned to direct sales as a way to complement or sometimes replace auction sales. Direct sales involve building relationships with buyers such as supermarket chains, wholesale distributors, and even florists who place bulk orders directly with the growers. This channel offers greater control over pricing and



hubs then distribute to various countries which has worked for us well so far,” said Christine Shikuku, Human Resource and Environment Manager at Tambuzi Flower Farm.

However, the direct sales model is not without its challenges. It requires more investment in marketing, logistics, and customer service to build and maintain relationships with buyers. It also often entails longer payment cycles compared to auctions, where payment is typically received much quicker. In addition, managing direct sales requires dealing with the complexities of international trade, such as shipping arrangements, customs regulations, and fluctuating demand patterns.

The delicate balance

In Kenya’s flower export sector, most successful growers and exporters strike a balance between auctions and direct sales, recognizing the strengths and weaknesses of each model. For example, large-scale exporters might use auctions as an outlet for their lower-grade or surplus flowers, while reserving direct sales for premium products or long-term customers who offer higher margins. This diversification strategy helps exporters mitigate risks and ensure they have multiple revenue streams.

Kenya’s flower industry is highly competitive, with exporters from Ethiopia, Colombia, and Ecuador also vying for market share in Europe and beyond. The ability to balance auction and direct sales effectively allows Kenyan exporters to stay competitive, offering flexibility and responsiveness to fluctuating demand while also maintaining strong relationships with key buyers.

Some Kenyan exporters also benefit from innovations in technology, which have made

often allows for better margins, as exporters can bypass the auction fees and negotiate directly with the buyer.

One of the main advantages of direct sales is the ability to establish long-term, stable contracts with buyers. These relationships allow for greater predictability in terms of volume and pricing, which is crucial for managing cash flow and long-term planning. Additionally, direct sales help exporters maintain control over the quality of their product and ensure that they meet the specific requirements of their clients, such as packaging, flower variety, and delivery schedules.

Direct sales also cater to the rising demand for high-quality, specialty flowers, such as premium varieties of roses or exotic blooms, which may

not always be available in the auction market. By engaging in direct negotiations, exporters can carve out a niche for themselves, positioning themselves as trusted suppliers of high-end floral products.

“We are into direct markets for the roses. For the summer flowers we do 60 per cent auction and 40 per cent direct sales to florists. The relationship we have built with our direct customers has been a big boost to building this business. The auction sometimes presents challenges because of the volumes and prices. So sometimes our summer flowers suffer because of price fluctuations.

We have a model of having hubs in different continents. We take our flowers there and the

it easier to track demand patterns and predict sales trends. Platforms that connect growers directly with international buyers, like FlowerHub and TradeFlow, enable exporters to showcase their products and secure contracts without relying exclusively on auction systems.

Additionally, as sustainability and environmental concerns continue to grow globally, both auction and direct sale buyers are increasingly looking for suppliers who adhere to ethical practices, including fair labor standards, environmental responsibility, and carbon footprint reduction. Kenyan exporters who can meet these demands through both channels are likely to gain a competitive edge in the market, fostering trust and long-term loyalty with buyers.

For PJ Dave Flowers Limited, located in Isinya in Kajiado County, the farm first started exporting flowers exclusively through the Dutch auction to

now moving 70 per cent of the export to direct sales. Its prime markets are in Europe and Middle East even as it sets sights on emerging markets such as China.

“Our strategy to focus more on direct markets was informed by the fact that in direct sales you get fixed revenue, while in the auctions, the prices fluctuate and are dictated by events. When prices drop, production costs don’t drop so we had to make a deliberate decision on where we could maximize our bottom line,” said Amit Kumar Singh, the Group General Manager.

The future of Kenyan flower exports

As the flower export industry in Kenya continues to evolve, the balance between auction and direct sales will remain a critical consideration for exporters. In the coming years, the rise of direct-to-consumer platforms, innovations in logistics and packaging, and the increasing preference for sustainability could further shift the

dynamics between these two channels.

Moreover, with climate change affecting flower-growing regions around the world, Kenyan exporters may need to adapt by diversifying their product lines and strengthening their supply chain resilience. The growing trend of digitalization in trade could also mean that flower exporters will rely even more heavily on data analytics and market forecasting to fine-tune their operations.

Navigating between auction and direct sales requires Kenyan flower exporters to be agile, adaptable, and well-informed about market trends. By leveraging the benefits of both models and staying ahead of industry shifts, they can continue to bloom in a competitive global marketplace while maintaining their reputation for high-quality, fresh flowers.

Aerial view of the International Floriculture Trade Expo (IFTEx): Over the years, Kenyan exporters have increasingly turned to direct sales as a way to complement or sometimes replace auction sales





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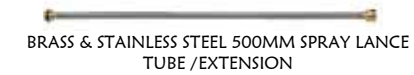
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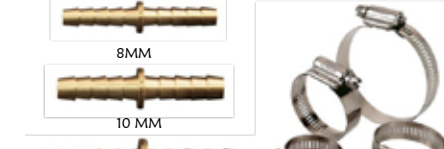
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TURBO "MITES" WITH 1.5 NOZZLE (PLASTIC HANDLE)

Meilland Kenya Eyes More Gains in Floriculture industry



Meilland's most important goal is delivering high quality rose varieties with the motto of 'the right rose for the right grower'.

House of Meilland, a long-established breeder for garden and commercial roses has had a base in Kenya since 2007. This enables Meilland to offer varieties selected for the Kenyan climate and altitude. Its over ten-year presence in Kenya is a testament to its excellence, delivering innovative, high-quality roses to Kenyan growers.

In a conversation with Rowan Godfrey, Area Manager for Meilland Roses (Africa), he shared insights about their stunning display at the Naivasha Horticultural Fair, which featured an array of rose varieties including standard, garden, and spray roses.

Although the breeding of these roses is done in France, selection happens in Kenya and Meilland varieties thrive in the Kenyan flower landscape, where growers are servicing customers worldwide with excellent quality and shelf life.

Meilland Kenya operates from Penta Flowers, located in Muranga county, just 45 mins north Kenya's capital Nairobi. A second test area for high altitude roses is located at

Uhuru Flowers in Mt Kenya. These two facilities – Penta Flowers, at a lower altitude of 1.600m, and Uhuru Flowers at 2,400 meters above sea level – allow the company to test all varieties thoroughly to ensure that any recommendations are likely to lead to success for the grower!

Whereas Uhuru Farm specializes in the growing of large-headed and garden type roses due to its high altitude, Penta Farm produce a wide range of intermediate roses and other summer flowers, an advantage of its positioning in a lower-altitude environment.

Meilland are focused on selecting a full range of varieties that produce well for Kenyan growers!

Some of the popular Meilland varieties grown in Kenya include intermediate roses like Meiwangy LOVELY PINK® and Keimassay Cerise SUCCESS®, garden roses like Meichneder LADY FORTE®, as well as spray roses like Meidjanot Baby FOLIES® and the unique novelty AyaNo4 GYPSY® Rose

At their show house at Penta Flowers, in the pre commercial and commercial area Meilland displays nearly 200 varieties and codes for their growers to select from, after which they are offered the plants for trials before settling on a variety. The company's wide array of varieties caters for all growers' needs across Kenya.

Following the inquiries received during the Naiuasha Horticultural Fair, Rowan has a conviction that they will be receiving an increased number of growers visiting their show houses at Penta Flowers and at Uhuru. This anticipation is further fueled by the presence of thousands attending the two-day Hort Fair event who were flower revelers, existing growers as well as incoming growers.

Growers' Variety Selection and Its Importance

Rowan highlighted the importance of variety selection for growers considering their locations, market demands and trends in varieties. "Growers can work directly with Meilland, conducting test trials of rose varieties tailored to their market needs," he said.

"It's all about finding the right variety for the right grower," he continues, emphasizing the need for consultation and trialing before a grower commits to specific varieties.

He noted that technical trials prior to commercial planting are essential for growers to experience long term success with a variety. Meilland are happy to organise these trials, and Rowan spends a lot of time visiting growers to help understand their needs and to follow up on trial and commercial

As breeding and growing roses evolves, it becomes increasingly important for breeders to understand their growers and their grower markets. Meeting consumer demands is key to thriving in the competitive floriculture industry.

planting performance.

As breeding and growing roses evolves, it becomes increasingly important for breeders to understand their growers and their grower markets. Meeting consumer demands is key to thriving in the competitive floriculture industry.



ALEXANDRE ASTIER (r) Meilehagan



SELECT
BREEDING

Cultivating Innovation in Kenyan Floriculture

By: Kwabe Victor

Select Breeding, a pioneer in rose breeding, is revolutionizing the Kenyan floriculture industry with its introduction of new rose varieties.

The company's latest offerings, including the versatile FireFox and the premium Red Bentley, are poised to elevate the country's floral exports.

FireFox: A Versatile Beauty

FireFox, a marvel of horticultural engineering, is available in a stunning spectrum of colors, including vibrant red, sunny yellow, and captivating bicolor combinations.

This versatile rose is equally at home in both low-altitude and high-altitude growing environments, offering unparalleled flexibility to growers.

Its robust nature, combined with its captivating beauty, makes FireFox a prized possession for florists and consumers alike.

Red Bentley: A Luxurious Red

For those who seek the epitome of elegance and sophistication, Red Bentley is the ultimate choice. This premium rose, with its deep, velvety red hue, is the epitome of luxury. Ideally suited for intermediate and high-altitude growing conditions, Red Bentley offers exceptional vase life, making it a reliable and long-lasting addition to any floral arrangement.

"These new varieties are competing with strong varieties in the markets. And for growers in Kenya, it's a new addition to the assortment, to compete with the famous Dutch Red, Naomi Rose in the Netherlands," says Michael de Geus, co-founder of the company. The first commercial growers planted the new variety two years ago and the demand is growing steadily.

Operations

At the heart of Select Breeding's operations lies its state-of-the-art nursery and main facility in the Netherlands. The modern 5,000 square meter greenhouse serves as the epicenter of innovation, where extensive cross-fertilization is conducted on cut roses, garden roses, and patio roses.

The initial selection process for cut roses takes place here, with promising new varieties being sent to testing facilities in Kenya and Colombia for further evaluation under diverse climatic conditions. Each year, approximately 800 new

rose varieties undergo rigorous testing to identify the most exceptional cultivars.

Since 2012, Select Breeding has established a dedicated test and show greenhouse in Naivasha, Kenya. Situated at an altitude of 1,920 meters, this 5,000 square meter facility provides an ideal environment for evaluating new rose varieties under Kenyan conditions.

The greenhouse showcases the latest cultivars, allowing growers to witness firsthand the exceptional quality and performance of Select Breeding's offerings.

Select Breeding's global reach extends to South America, where it has been actively engaged since 2014 through a strong partnership with Icon Selections. This collaboration has led to the establishment of a testing facility and showroom at the Flores el Tandil nursery in the Bogotá savanna region.

The 3,000 square meter showroom, located at an elevation of 2,600 meters, offers a stunning display of Select Breeding's diverse range of roses, inspiring growers and showcasing the company's



commitment to innovation and excellence.

"Depending on the growers' demand they select certain varieties from our breeding program which fit into their assortment. And then we closely work together for one to one and a half year to have a

commercial introduction. Once the grower introduces the product commercially, demand begins to grow" says Michael.

Select Breeders understands that growers are constantly seeking improvements in existing varieties—whether in production performance, shelf life, or transportability. As a



result, they set goals to align with market demands. Despite the breeding process to come up with a new product taking 6 to 8 years, the breeders are determined to meet customer demands.

"Therefore, we invested two years ago in a new trial greenhouse in Nini Flowers to give better service to the growers, by having them over our breeding farm to see the new products in an early stage," says the breeder.

Select Breeders together with their Colombian partner -Icon selections, have also introduced a new line of Spray Roses which they started breeding 5 years ago and are coming up with the

first commercial varieties in the market.

"Demand for spray rose flowers has grown rapidly in recent years, and we are working to meet that demand by developing a productive retail spray rose line. This initiative was started by our partner, who requested

a productive retail spray rose variety in a range of colours. We have now expanded this approach to our Kenyan market as well."

Michael further encourages growers to do group marketing to increase Kenya's competitive edge in the flower export market.

"If you want to create growth, you have to create demand in the end markets like the Middle East or Europe. So, the only thing that can be done is to do better promotion. To do better promotion and more promotion. But many growers are promoting individually you know. It should be good if they can promote as a group."

YOUNG ENGINEER DEFY TOOLKIT FOR FARMING CABBAGES

After graduating with a diploma in engineering, Mr Kahoro Munene crisscrossed the City of Nairobi and other major towns in search of a job but in vain.

This forced him to go back to the village where after a soul searching, he decided to engage in farming, specializing in horticulture.

Two years later, Mr Munene is proud of the decision he made, earning handsomely from farming, a venture that has created some job opportunities for other young men at his Ndaragua Village, Nyandarua County,

He is currently growing cabbages on one acre of land divided into small plots, planting at different times, a plan that assures him of reliable incomes throughout the year.

He is among the farmers embracing Smart Climate Farming, using economical and equally environment-friendly water pumps known as hydrum.

"I got jobs with construction companies for about three years, felt fed-up, and decided to shift to farming. I started with a borrowed diesel-driven irrigation pump since I had no money to buy one. With the initial sales of Sh350,000 from carrots, I learned about and bought the hydrum irrigation pump that doesn't need fuel," said the young farmer.

The cabbages at the farm are Gloria FI which takes one month at the seedbed before transplanting.

He has planted the cabbages on the same farm he planted the carrots last year, but, after



Mr Kahoro Munene at his cabbage in Ndaragua Village, Nyandarua County,

harvesting the carrots, he left the land to rest for three months before planting the vegetables.

Within the month that the cabbage is at the seedbed, Mr Munene prepares the land where the cabbages are to be planted.

The preparation includes digging the farm about 30 centimeters deep to soften the soil for easy establishment of the roots.

He then prepares some shallow furrows where he applies the manure which he covers with uprooted weeds he leaves to grow at the farm within the three-month farm rest period.

"The weeds applied serve as mulching conserving the moisture, and will have composed in about a month after transplanting the seedlings, assuring the crop of sustained soil fertility," explained the farmer.

At planting, he does a spacing of one foot squared between rows and between the plants,

then applies a teaspoon of top-dressing fertilizer a month after transplanting.

With such application, an acre takes an average of three bags of the top-dressing fertilizer.

"The other important thing is weed control, but with the mulching we do, that has never been a major challenge to us. I plan my farm by dividing and planting in quarter acre pieces for easy management and also for marketing purposes, such that I have to have a sustained supply to my customers, and also reduce the risk of glut," explained Mr Munene.

With the hydrum irrigation pump, the farmer uses sprinkling irrigation which controls pests and insects, irrigating three times in a week.

"It was not possible to irrigate three times a week using the diesel water pump which cost me about Sh1,500 each time I



sprayed translating to Sh6,000 in a week. Cabbage is a heavy feeder and needs a lot of water," said the farmer.

After the top dressing, the cabbages will be ready for harvest in one and half a months, meaning a total of about three months from transplant.

He says the biggest challenge is cutworms that attack the cabbages soon after transplanting, and that is the only time he does pest control.

With his spacing, an acre holds an average of 10,000 plants, which means going by his planning, the farmer can supply 2, 500 cabbage every three months.

The lowest he has sold a cabbage is Sh40 per piece, a total of Sh100,000, per each quarter acre piece of land.

With free water from the hydrum irrigation water pump, the main cost of production is fertilizer buying at Sh2,500 per bag

from the government subsidy programme.

"The total cost of production per quarter acre is about Sh10,000 inclusive of seeds, manure, labor, and fertilizer. I am planning to increase my farm by 3 acres by August, I have already leased the farm, this was just a trial that has worked, but I have realized that it makes more sense to farm on bigger land, that way I will be able to practice crop rotation effectively. Ndaragua is a dry area, we always have a ready market for the cabbages," said the farmer.

Mr Reuben Muchiri, an agronomist supports Mr Munene's idea of large-scale farming for better profit margins.

Mr Muchiri says cabbages grown under irrigation in dry areas have a unique enticing taste, making them a preference of consumers, and the hot weather pattern also accelerates the crop's maturity period.

By: Maina Waikwa



Mr Kahoro Munene, watering his cabbages using economical and equally environment-friendly water pump known as hydrum.

The Dos, Don'ts & Benefits of Cabbage Farming

Notably, cabbage farming is a rewarding agricultural activity that offers numerous benefits from nutritious values to job creations. It has become an increasingly popular crop for farmers due to its high demand and relatively short growing period.

The Dos of Cabbage Farming

When starting a cabbage farm, choosing the right variety for your climate, market demand and soil conditions is essential. Cabbages generally prefer fertile, well-drained soils, so it's important to test soil and amend it with organic matter like compost. This will improve soil structure and provide the necessary nutrients for robust plant growth.

Proper spacing between cabbage plants is crucial to allow them to grow to their full potential. Typically, cabbages need to be spaced about 45 to 60 cm apart. This ensures good air circulation, reduces the risk of diseases, and allows the roots to spread out and access nutrients. Along with proper spacing, maintaining consistent moisture through a reliable irrigation system is essential. Cabbages need regular watering, but overwatering should be avoided, as it can lead to root rot.

Pest management is another critical aspect of cabbage farming. Regularly monitoring the crop for pests like aphids and caterpillars and diseases such as downy mildew is necessary for maintaining healthy plants. Crop rotation can help reduce pest pressure and should be practiced as part of an integrated pest management strategy. Additionally, applying a balanced fertilizer ensures that cabbages have the nutrients they need for healthy growth.

Weed control is also important to prevent competition for nutrients and water. Regular weeding or mulching helps keep the field free of weeds and retains moisture in the soil. Finally, timely harvesting is key to achieving the best quality produce. Cabbages should be harvested when the heads are firm and mature, typically around 70 to 100 days after planting, depending on the variety.



The Don'ts of Cabbage Farming

While there are many best practices, there are also some common mistakes to avoid in cabbage farming. One of the most significant errors is overcrowding. Planting cabbages too closely together can reduce airflow, increase competition for nutrients, and lead to poor growth. It's important to maintain the recommended spacing to allow each plant to thrive.

Another mistake to avoid is neglecting pest control. Pests can rapidly damage cabbage crops if not managed early on. Waiting until an infestation occurs can result in major crop losses. It's better to be proactive and use preventive measures such as natural predators, organic treatments, or safe chemical options when necessary.

Overwatering is another common problem that should be avoided. While cabbage needs consistent moisture, too much water can cause root rot and other diseases. Ensure that your irrigation system is efficient and does not cause waterlogging. Similarly, overusing chemicals can harm both the environment and the quality of the produce. It's important to adopt integrated pest management strategies that minimize the reliance on chemical pesticides.

Delaying harvesting can also be detrimental. If cabbage heads are left too long on the plant, they can split or become tough and unappetizing. Harvesting at the right time ensures that the cabbages are of the highest quality and ready for the market.

Lastly, never ignore soil health. Cabbages are nutrient-demanding crops, and continuous planting on the same land without replenishing the soil can lead

to a depletion of essential nutrients. Crop rotation and organic practices such as adding compost are essential to maintaining long-term soil fertility.

Benefits of Cabbage Farming

Cabbage farming offers a range of benefits, making it an attractive crop for farmers. One of the most notable advantages is the high market demand. Cabbages are a staple in many households and are used in a variety of dishes, including salads, soups, and traditional meals. This consistent demand provides farmers with reliable income, particularly in urban areas where fresh vegetables are always in demand.

Additionally, cabbages have a fast-growing cycle. With a growing period of 70 to 100 days, cabbage farmers can have multiple harvests in a year, increasing their potential revenue. This quick turnaround time allows farmers to make the most of available land and resources.

From a nutritional standpoint, cabbages are a valuable crop. They are rich in essential vitamins such as Vitamin C, Vitamin K, and several B vitamins, along with minerals like calcium and potassium. The high nutritional value of cabbage increases its marketability and makes it an important crop in the fight against malnutrition.

Cabbage farming is also profitable. With the right practices in place, the cost of production is relatively low compared to other crops, yet the returns can be substantial. This makes cabbage farming an excellent choice for smallholder farmers looking to maximize their profits.

Moreover, cabbage farming can help improve soil health. Through crop rotation, cabbages can break pest cycles and contribute to a balanced agricultural system. When grown alongside other crops, cabbages can support the overall health of the farm, benefiting other crops and reducing the need for chemical inputs.

Finally, cabbage farming can create employment opportunities, particularly in rural areas. Tasks such as planting, weeding, pest control, and harvesting require labor, providing jobs to locals and helping to boost the local economy.

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TRANSFORMING HORTICULTURAL EXPORTS: A CONVERSATION WITH JOYCE NDINDA, BUSINESS DEVELOPMENT OFFICER AT SILAFRICA

Can you tell us a little more about Silafrica? Silafrica is a plastic manufacturing company that supplies most innovative, best-in-class plastic packaging solutions for FMCG'S and a wide range of other business customers since 1986

Silafrica is ISO 9000 and ISO 22000 certified.

It was one of the first packaging companies to be part of the Ellen Mac Authur global commitment and also the first company in East Africa to introduce the lightweight foldable crate. This tells you, here at Silafrica, we are all about innovation and sustainability

At Silafrica, we strive to achieve excellence overall and across key areas such as corporate, environmental and social impact parameters through an organization wide commitment to embody our vision and values of the Silafrica way

The horticultural export business involves significant transportation costs. How do Silafrica's crates, particularly the foldable ones, address this challenge?

Transportation costs are indeed one of the biggest challenges facing our exporters. Our foldable crates are specifically designed to tackle this issue head-on. They are lightweight just as the name suggests thus saving on freight cost compared to conventional carton boxes. In addition to this we get tremendous cost saving on products arriving at pristine conditions due to better aeration

Quality is crucial in horticultural exports. How can I be sure these plastic crates will protect my produce during long-distance transportation?

That's an excellent concern. Our lightweight foldable crates are constructed from high-quality, durable plastic specifically designed to withstand collapsing from the rigours of international shipping. They provide consistent protection against compression and impact, ensuring your produce arrives in pristine condition. Unlike traditional packaging solutions, our crates are well ventilated thus ensuring the produce arrive at destination in good quality reducing product damage and subsequent profit losses.

I've heard about sustainability becoming increasingly important in international markets. How do these crates align with environmental considerations?

Silafrica is very keen in advancing environmental sustainability through recycled materials and waste reduction strategies. In fact, Silafrica is one of the first packaging company in East Africa to be part of the Mc Authur foundation.





Our light weight foldable crates are fully reusable and recyclable, making them an environmentally conscious choice. In order to comply with environmentally conscious buyers in international markets on 30% recyclable materials in plastic crates, Silafrica has put measures to adhere to the UK regulation thus giving us a competitive edge, especially in European markets where sustainability is increasingly becoming a requirement rather than just a preference.

Storage space is at a premium in my facility. Won't having all these returnable crates create storage issues?

This is where the genius of our lightweight foldable crates really shows. When not in use, they can be folded flat, requiring minimal storage space. To put this in perspective, a stack of folded crates takes up about 20% of the space needed for traditional rigid crates. This means you can maintain a larger fleet of crates without sacrificing valuable warehouse space.

I'm concerned about the initial investment. How do these crates justify their cost compared to traditional packaging solutions?

The lightweight foldable crates cost about 15% as much as cardboard cartons in initial investment. The return on investment however is much higher. Consider this: you'll save on freight cost as the lightweight crates are lighter by 15% if transporting the produce via air. The conventional cartons use layer pads which is an additional cost. The cartons also need extra manpower for gluing the cartons. The cost of glue is also an additional cost. The crates are well ventilated as earlier said to ensure the produce reach in very good state reducing losses and produce damages. Our clients typically report a 30-40% reduction in their overall packaging-related costs within the first year.

How do these crates handle varying produce sizes and types?

Our lightweight foldable crates come in various sizes and configurations. We have different SKU's that is 4Kg, 5Kg and 10Kg to accommodate different types of produce. The design includes ventilation slots to maintain optimal product freshness, while

the sturdy construction ensures that even heavier produce can be safely stacked. Whether you're exporting delicate herbs or sturdy vegetables, the crates can be adapted to your specific needs.

What about maintenance and durability? How long can I expect these crates to last?

With proper handling, our foldable crates can be re-used 5- 7 times depending on handling. They're designed to withstand repeated folding and unfolding, extreme temperatures, and regular washing. We also provide maintenance guidelines and support to help you maximise their lifespan.

How quickly can I implement these crates into my existing operations?

The transition can be quite smooth. We provide comprehensive training for your team on proper handling and maintenance. The intuitive design means workers typically master the folding mechanism within minutes.

We also offer a phased implementation approach by providing small minimum order quantities, allowing you to gradually integrate the crates into your operations while maintaining business continuity. The good thing is that the crates are always available in stock and the turnaround time is 24 hours

What kind of support can I expect after purchasing these crates?

We believe in building long-term partnerships with our clients. Our support includes initial training, ongoing technical assistance, and regular check-ins to ensure you're getting the maximum benefit from your investment. We also have a dedicated team ready to address any concerns that might arise. Think of us as your partners in optimising your export operations, not just your crate suppliers.



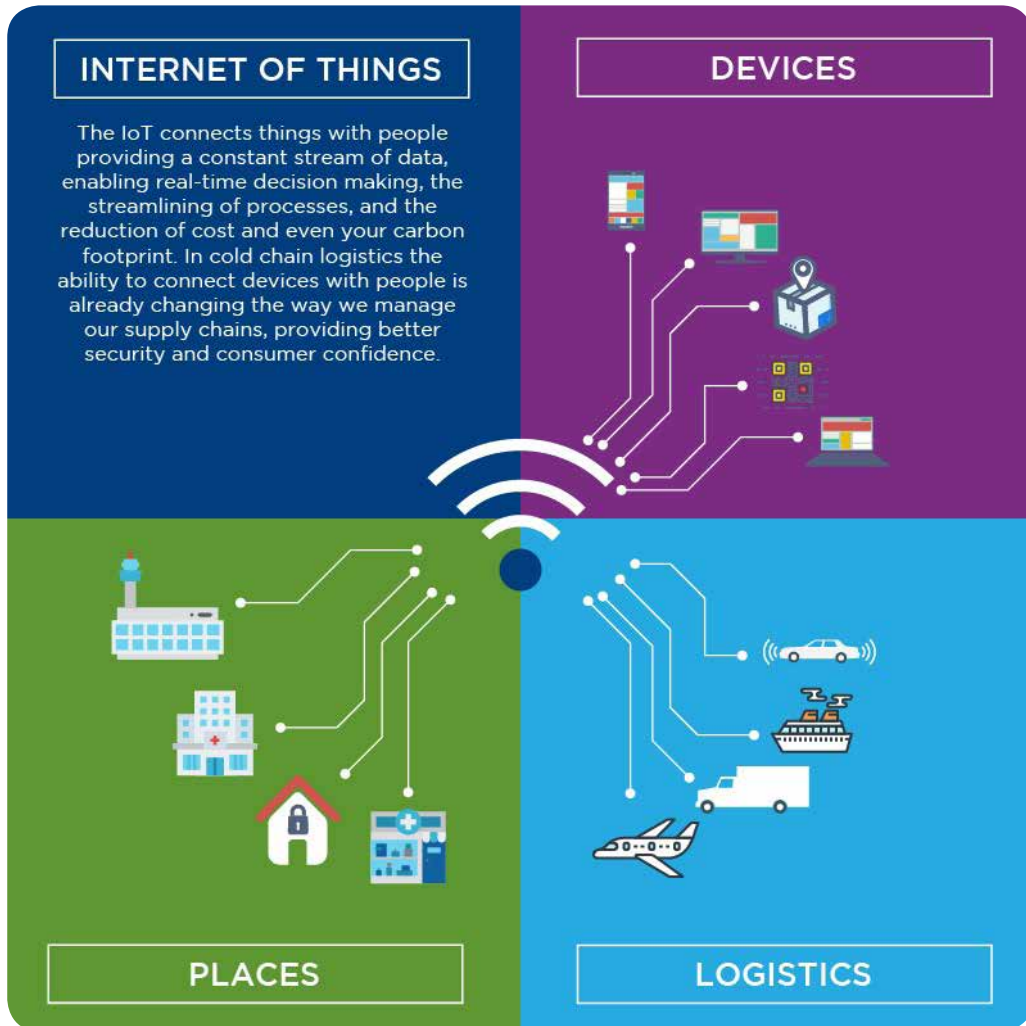
Internet of Things (IoT): Transforming the Cold Supply Chain

In today's fast-paced, globalized economy, the cold supply chain is critical for industries that rely on temperature-sensitive goods. From pharmaceuticals and vaccines to perishable foods like dairy, meat, and seafood, these products must be transported and stored under controlled conditions to ensure safety, quality, and compliance with regulatory standards. Any deviation in temperature or handling can result in significant losses, compromised product integrity, and even public health risks.

This is where the Internet of Things (IoT) steps in, offering powerful solutions to monitor, manage, and optimize cold supply chains. IoT-enabled devices, sensors, and data analytics are transforming how businesses maintain and improve efficiency in the cold supply chain, enabling real-time visibility, enhanced safety measures, and better decision-making. Let's dive into how IoT is revolutionizing the cold supply chain, creating a more reliable, data-driven ecosystem that ensures products remain in optimal condition from farm to table—or from factory to pharmacy.

Introduction: The Importance of Cold Supply Chains

Cold supply chains, often referred to as "the cold chain," are crucial for preserving the integrity of temperature-sensitive products throughout the journey from production to end-user. The cold chain is complex, involving various touchpoints such as refrigerated



trucks, warehouses, and distribution centers, all of which must maintain consistent temperature ranges. For instance, vaccines might require storage between 2°C to 8°C, while frozen foods typically need to be kept at -18°C or lower.

Maintaining these precise temperatures is challenging, especially when products are transported over long distances or through changing environmental conditions. Inadequate monitoring or handling can result in temperature fluctuations that cause spoilage or loss of efficacy, leading to financial losses and, in the case of pharmaceuticals, potential harm to consumers.

Traditional cold chains relied heavily on manual processes for temperature checks, which were often prone to human error, delayed responses, and incomplete data. With IoT, this model has dramatically changed, allowing for real-time monitoring, automation, and data-driven insights that enhance the cold chain's efficiency and reliability.

How IoT Is Revolutionizing the Cold Supply Chain

IoT technology has the potential to transform cold supply chains by providing continuous, real-time visibility into temperature, humidity, and other environmental factors that impact product quality. Through a network of connected devices

and sensors, IoT systems can track, monitor, and report on conditions throughout the entire supply chain, from production to final delivery. This real-time data empowers businesses to act immediately when issues arise, minimizing risks, reducing waste, and ensuring compliance with stringent quality standards.

Let's explore the key ways IoT is driving innovation in the cold supply chain.

1. Real-Time Monitoring and Data Collection

At the heart of IoT's value in the cold supply chain is real-time monitoring. IoT-enabled sensors placed within storage facilities, shipping containers, and transportation vehicles constantly gather data on critical parameters like temperature, humidity, light exposure, and vibrations. This data is transmitted in real time to a central platform, where it can be analysed and used to identify potential problems before they escalate.

For example, if the temperature in a refrigerated truck begins to rise above acceptable levels, the IoT system will immediately alert logistics teams, allowing them to take corrective actions—such as rerouting the vehicle or adjusting the refrigeration settings—before the products are compromised. These automated alerts help businesses prevent costly incidents, reduce spoilage, and maintain compliance with food safety or pharmaceutical regulations.

In addition to providing real-time insights, IoT devices can store historical data that businesses can analyse to identify patterns and trends. This historical data can reveal weak points in the supply chain, such as frequent equipment failures or temperature fluctuations at specific storage locations, enabling companies to make proactive improvements.

2. Predictive Maintenance for Refrigeration Equipment

One of the most significant advantages of IoT in the cold chain is its ability to enable predictive maintenance for critical refrigeration equipment. In the past, companies often relied on reactive maintenance—only addressing issues once equipment had already broken down or failed. With IoT, sensors attached to refrigeration units can monitor the performance of the equipment in real time, tracking factors like compressor efficiency, coolant levels, and motor performance.

Using predictive analytics, IoT systems can anticipate when equipment is likely to fail based on the data collected from these sensors. For example, if a sensor detects that a refrigeration unit is consuming more power than usual or if coolant levels are dropping faster than expected, the system can predict an impending failure and notify maintenance teams before the breakdown occurs. This proactive approach helps companies avoid unexpected equipment failures, which could lead to temperature deviations and spoilage of valuable products.

Predictive maintenance not only reduces the likelihood of product losses but also extends the lifespan of equipment, reduces downtime, and lowers maintenance costs. By ensuring that refrigeration units are always operating at peak efficiency, businesses can maintain a consistently high level of product quality and safety.

3. Ensuring Regulatory Compliance and Product Safety

In industries like pharmaceuticals, food, and biotechnology, regulatory compliance is non-negotiable. Regulatory bodies such as the FDA, the European Medicines Agency (EMA), and various food safety authorities require strict adherence

to temperature controls throughout the cold chain. Any deviation from the approved temperature range must be documented, and in some cases, non-compliant products may need to be discarded or recalled.

IoT technology provides the tools needed to meet these stringent regulatory requirements. IoT-enabled sensors create a digital trail of temperature readings, providing an auditable record that can be easily accessed for compliance reporting. Should a temperature breach occur, the system logs the event, records corrective actions taken, and ensures that all regulatory protocols are followed.

In addition to regulatory compliance, IoT improves product safety by offering enhanced traceability. In the event of a product recall, businesses can use IoT data to trace the precise location and conditions of affected products, allowing for swift and targeted recall efforts. This traceability reduces the scope of recalls, minimizes financial losses, and helps maintain consumer trust in the brand.

4. Optimizing Energy Efficiency and Reducing Costs

Energy consumption is one of the biggest cost drivers in the cold supply chain, as refrigeration units must operate continuously to maintain the required temperature ranges. IoT technology can help businesses reduce energy usage by optimizing the operation of these units.

For instance, IoT systems can analyse data on external temperatures, humidity levels, and energy consumption patterns to adjust the cooling capacity of refrigeration units in real time. By fine-tuning the operation of these units based on environmental conditions, businesses can reduce unnecessary energy usage without compromising product safety. Additionally, IoT sensors can

detect when refrigeration units are operating inefficiently, prompting maintenance or adjustments that prevent excess energy consumption.

In some cases, IoT-enabled energy management systems can be integrated with renewable energy sources, such as solar panels, to further reduce the environmental impact of cold storage facilities. These energy-efficient practices not only lower operating costs but also contribute to a company's sustainability efforts, which is becoming increasingly important in today's market.

5. Reducing Food Waste and Extending Shelf Life

According to the United Nations, nearly one-third of all food produced for human consumption is wasted, with much of this waste occurring during transportation and storage. IoT technology plays a pivotal role in reducing food waste by ensuring that perishable goods are stored and transported under optimal conditions.

For example, IoT sensors can monitor the freshness of produce,

alerting logistics teams when conditions like temperature, humidity, or light exposure deviate from acceptable levels. This real-time monitoring allows businesses to take immediate corrective action, preventing spoilage and reducing the amount of waste generated throughout the supply chain.

Additionally, IoT data can help businesses extend the shelf life of perishable products by optimizing storage conditions based on the specific needs of different items. For instance, some fruits and vegetables are sensitive to ethylene gas, which accelerates ripening. IoT sensors can detect ethylene concentrations in storage areas and adjust ventilation systems accordingly, slowing the ripening process and extending the shelf life of the produce.

The Future of IoT in Cold Supply Chains

The Internet of Things has emerged as a transformative force in the cold supply chain, offering unprecedented visibility, control, and efficiency. By leveraging IoT-enabled devices and sensors, businesses can ensure that

temperature-sensitive products are stored and transported under optimal conditions, reducing waste, enhancing product quality, and ensuring compliance with regulatory standards.

As IoT technology continues to evolve, we can expect even more sophisticated solutions for the cold chain. Artificial intelligence and machine learning will likely play a greater role in analysing IoT data, providing even deeper insights into supply chain operations and enabling more predictive, automated decision-making. As the demand for fresh, safe, and high-quality products grows, businesses that embrace IoT will be better positioned to meet the challenges of the future.

In a world where the cold supply chain is vital for ensuring the safety of food, pharmaceuticals, and other critical products, IoT offers a way to create a more efficient, data-driven, and sustainable supply chain. The future of cold chain management is digital—and IoT is at the heart of that transformation.

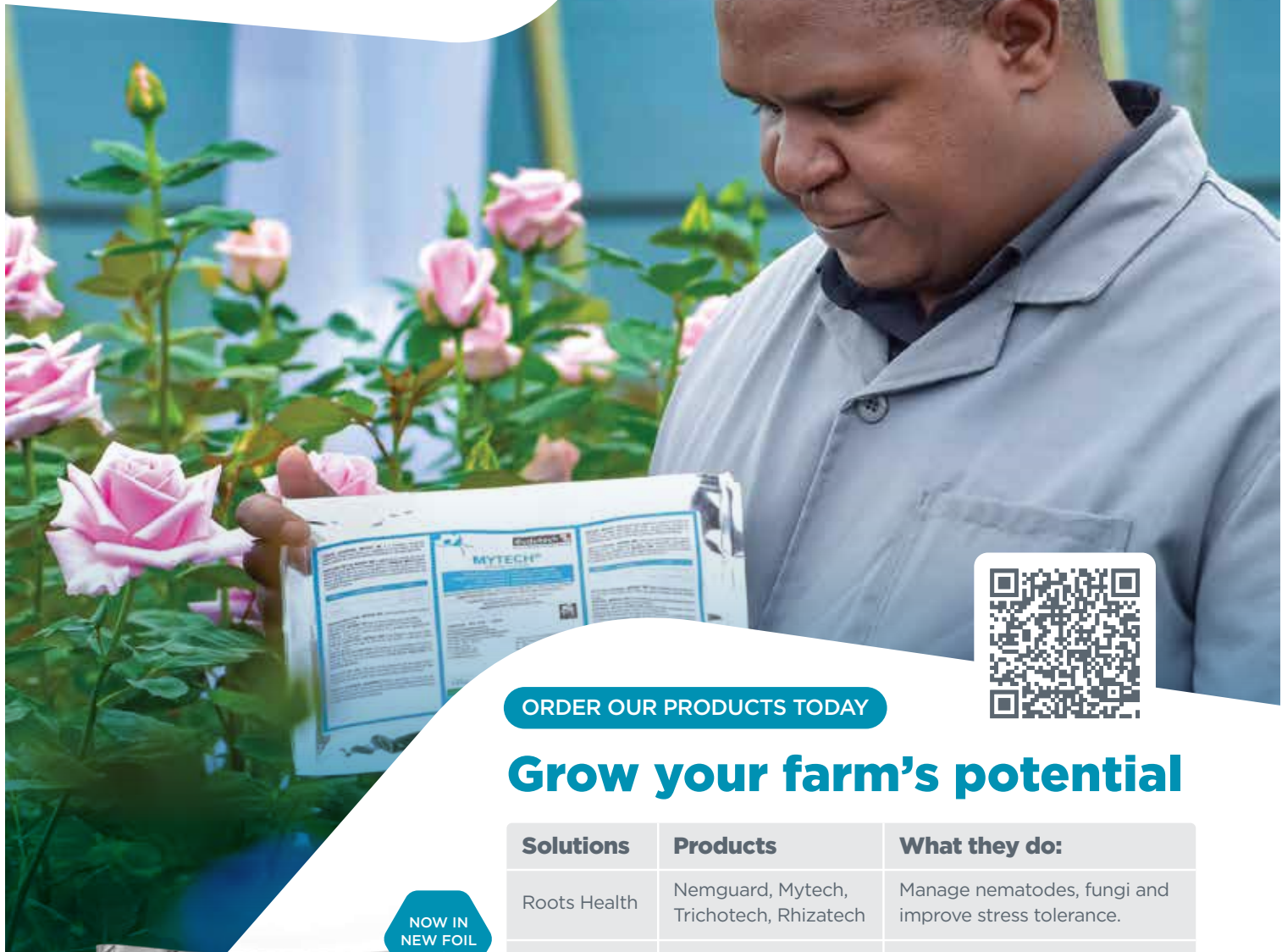
*By Witness Omoga – Head of Technology,
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AGRA Launches Initiative to Boost Potato Productivity in Kenya

Overall, the project intends to increase seed potato production of in-demand varieties by 50% and provide 150,000 farmers with essential extension information on sustainable farming practices.

In Kenya, the potato farming businesses are not only a crucial dietary component but also a key cash crop for millions of farmers, impacting over 800,000 households and contributing more than KES 50 billion (~US\$ 324 million) to the economy.

However, challenges such as low productivity, inadequate access to quality seeds, and marketing barriers hinder the sector's growth. On average, Kenyan farmers achieve a mere 7-10 tons per hectare, impairing their competitiveness against regional producers like Egypt and South Africa.

Recognizing these challenges, AGRA, in collaboration with the National Potato Council of Kenya (NPCK), Egerton University, and the Kenya Agricultural and Livestock Research Organization (KALRO), has launched the Kenya Sustainable Potato Initiative (KSPI) in a bid to enhance potato productivity in Kenya.

The transformative program aims to revitalize the potato subsector across Nyandarua, Meru, Laikipia, and Nandi Counties, with a focus on improving productivity and marketing to establish a sustainable potato food system.

Over the course of three years, from July 2024 to June 2027, the initiative will target 150,000 farmers—40% of whom will be women and 10% youth—enhancing their incomes, boosting competitiveness in the industry, and generating over 4,800 job

opportunities for young people in primary production, input sourcing, and marketing.

The efforts include building inclusive and structured input and output markets, facilitating access to financial services, and creating trade opportunities for smallholder potato farmers. The initiative is pivotal for improving coordination within the potato sub-sector, ultimately supporting inclusive agricultural transformation.

Funded by the Gates Foundation through AGRA, this project is set to play a crucial role in ensuring food security in Kenya, significantly integrating small-scale farmers into both seed and ware potato value chains.

During the launch, John Macharia, AGRA's Kenya Country Director, emphasized the initiative's aim to foster stronger market systems for the private sector, highlighting the importance of cooperatives that not only enhance value addition and market access but also evolve into commercial enterprises that equitably engage farmers in the value chain.

Additionally, Macharia underscored the program's commitment to strengthening extension services by partnering with county governments to effectively support farmers.

Recognized as both a staple food and a cash crop, potatoes rank as Kenya's second most important food crop after maize, impacting over 800,000 households, engaging 2.7 million individuals along marketing channels,

and contributing more than KES 50 billion (~US\$ 324 million) to the economy.

Despite these contributions, productivity remains low—averaging only 7-10 tons per hectare—due to inadequate agronomic practices and poor-quality seeds. A 2019 analysis by TechnoServe revealed that while potato production grew steadily until 2010, productivity stagnated thereafter.

Prof. John Nderitu, Chair of the NPCK, noted that inadequate seed availability is a major challenge for farmers. KSPI aims to triple the current potato seed production from 900 metric tons to 2,700 metric tons over the next three years, expanding the variety of certified seeds to meet the demands of franchises requiring traceable and standardized produce.

Overall, the project intends to increase seed potato production of in-demand varieties by 50% and provide 150,000 farmers with essential extension information on sustainable farming practices.

Furthermore, it plans to strengthen and support 400 farmer groups in establishing a structured marketing system aligned with all relevant strategies and regulations in the project counties.

To achieve success within the potato industry, coordinated efforts from all stakeholders are vital. KSPI is poised to unify and engage actors at both county and national levels to address existing challenges and leverage available opportunities within the sector.





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CORTEVA

Celebrates 5 Years of Empowering Kenyan Farmers

Corteva Agriscience, renowned internationally for decades, delivers innovative products that protect farmers' produce and provide consumers with safe, quality food. Corteva, which emerged from a merger of Dow Chemical and DuPont in 2017, has had regional offices in Kenya for five years.

Corteva has maintained a presence in Kenya through its widely renowned products. Its offices in Kenya, established in 2019, serve as regional headquarters for West, East, South-Central Africa (WESCA). On 1st June this year, the company celebrated its fifth anniversary of enriching both farmers and consumers.

Corteva Agriscience focuses on safeguarding both producers and consumers by offering farmers high-value products. In an interview with Mr. Charles Mutema, the Marketing Lead at Corteva Agriscience, he revealed that they provide top-tier products, including fungicides, insecticides, and herbicides, as evidenced by their portfolio. Mr. Mutema, who has been with the company for nine years, represents both the seeds and crop protection platforms. He emphasized that the company's success stems from meaningful engagements between producers

and consumers, supporting the entire value chain.

Anchored in creating an agricultural ecosystem that supports people, progress, and the planet, Corteva has solidified its presence among farmers. This is evident in the farmers' familiarity with their products, which they commonly use to address farm challenges.

In celebration of five years in Kenya, Corteva highlighted improvements in farmers' production thanks to its pocket-friendly products that meet farmers' needs. Embracing the slogan "Success for a farmer means the world thrives," Corteva ensures that farmers receive seeds and crop protection products tailored to their challenges, focusing down to the acre.

This success is due to collaboration between farmers, producers, suppliers, and distributors. Such cooperation has enabled the adoption of the latest technologies to grow better food, sustain the land, and conserve resources.



Corteva Solidifying its Presence

Corteva has focused on crop protection and seed business across Africa, the WESCA region having country presence in Ivory Coast, Ethiopia, Tanzania, Zambia, and Kenya. Within the past five years, Corteva has acquired two biological companies, Symborg and Stoller, enabling the use of both biological solutions and traditional chemical knowledge. The launch of Zorvec Encantia 330 SE in March 2023, a fungicide with a new active ingredient for control of blight in potato and tomato crops has been instrumental for Corteva in Kenya.

Corteva distributes its products through national and regional distributors countrywide.

Corteva prides itself in obtaining feedback throughout the value chain, enhancing market acceptance of its targeted products. This approach has helped Corteva navigate the unpredictable market and empower farmers



nationwide and globally. According to Mr. Mutema, providing farmers with profitable products safeguards their livelihoods. For example, horticulture farmers who meet standards with their flowers earn a better living.

Products like herbicides, fungicides, and insecticides are sold at a balanced rate based on seasons. Sales are well channeled throughout the country, thanks to efficient distribution.

Through teamwork with farmers



and training initiatives, Corteva has created more awareness among small-scale farmers. These initiatives aim to drive product stewardship enlightening growers/farmers on product safety from handling, use, storage and disposal.

Eyeing Sustainability

Corteva continually seeks sustainability throughout its product portfolio, from production to consumer use and container management. Being an R&D organization, Corteva focuses on providing innovative solutions

leveraged on technology to develop hybrid seeds resilient to climate change. For instance, PAN 3M-05 under Pannar® brand is a drought-tolerant hybrid seed maize that yields in semi-arid and arid areas.

Corteva Agriscience also meets farmers' needs by developing crop protection solutions that handle unpredictable farm situations. These agrochemicals, with outstanding rainfastness (not washed away by rain) are crucial in reducing potential losses.

These innovations, position Corteva Agriscience as a solutions provider for farmers, helping them overcome challenges and increase yields.

Future Goals Amidst Challenges Tackled

One of the greatest challenges that Corteva and the sector of agro-chemicals faces is the issue of counterfeits that are siphoned into the country despite being of low standards and quality.

This has been an issue that the sector has grappled with for long including the taxation matters. Whereby taxes are high on products that are essential for the farmers hence making the pricing

shift from what the farmers are used to and can budget for.

According to the Marketing Lead these matters if collectively addressed, the way of doing business would function with ease and seamlessly deliver solutions to farmers.

Corteva Agriscience going forward looks forward to strengthening partnerships with its partners, stakeholders and majorly with its primary customers the farmers. This is aimed at through bringing more innovative products in the space that address specific problems for specific diverse regions.

The company targets increased interactions with the farmers to enhance the tailor-made solutions for their issues faced in marginalized areas throughout the country. Innovation is key for Corteva as it stamps its footprint in the Kenyan market and region beyond with an aim of increasing sales considering easier availability and ease in reach.



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Mushrooms, Transforming Lives through their Medicinal Value

With over 2,000 types of mushrooms, the conditions for their growth and the benefits they offer are as numerous as their diversity

Mushroom, often overlooked, has been recognized for centuries in traditional settings as a delicacy cherished for its nutritional and medicinal value. Traditionally known for its growth in the wild, particularly during rainy seasons, mushroom cultivation is now gaining traction. As Mr. Roussoss Demisee Odhiambo, the founder of Mushroom Kenya, points out, the sector is witnessing a renewed interest.

Before venturing into the mushroom industry, Mr. Roussoss was an IT expert with a degree from Mount Kenya University. After graduating they began a tech startup of IT that offered digital services for companies. His interest in mushroom farming was piqued during a work project with the Centre for Agricultural and Biosciences International (CABI) an agricultural research company around Muthaiga. Through this project, they were analyzing the company's data collected from field, then feeding it digitally and finally generating reports.

It was at this time that when a client came with inquiries about mushroom farming, Mr. Odhiambo was intrigued about mushroom farming hence he went around engaging with farmers. Upon understanding more, he started with his small farm mainly as a side job. From there with his four colleagues, they opted to



White button mushrooms ready for harvest

register the farming venture as a company which was done in 2015.

Mr. Roussoss points out the Mushroom Kenya's farms were at first very demanding and sensitive which urged for more concentration and fully being



Lion's mane mushroom for cognitive enhancement, boosting memory, focus and learning

involved. This he says opened doors for his networking with policy makers, scientists and farmers as it also gave back to the community through employing some of the members.

Farming the diverse mushroom species enabled the company to thrive and assert its footprint as a major mushroom



Mushroom to relieve stress and make you look young

producer. This tapped into vast consumer markets from both consumers and interested farmers majorly in Nairobi, Mombasa due to hotels presence and farmers coming from across borders to inquire.

Driven by customer inquiries about certain mushroom types recommended by doctors and those seeking mushrooms for consumption, the company decided to provide solutions for both segments of the business. This led to further research and the development of a value addition system for mushrooms, expanding their use beyond consumption to include medicinal benefits, flour for baking, porridge, capsules, and liquid dose forms.

A pivotal moment came when an increasing number of farmers from



Pinning turkey tail mushrooms at the farm. Turkey tail mushrooms boost immunity and helps with inflammation

Uganda sought Mushroom Kenya for skills on how to manage mushroom farming. This prompted the company's invitation to showcase its project at Kyambogo University in Kampala, Uganda. Their presence there was met with an enthusiastic reception, followed by recognition at the Agricultural Show, leading to the establishment of a branch in Kampala.

Based on the demand for consumption mushrooms in hotels, and the challenge of perishability being high, the company resolved to open a branch in Mombasa, to address the challenge, since they used to incur losses when in transportation from Nairobi.

Revealing the perishability challenges, Mr. Roussoss highlights that mushroom consumption is primarily concentrated in urban centers, necessitating proximity to Nairobi and Mombasa. However, securing a farm with suitable long-term farming conditions near the city is a big challenge as evidenced by their loss of up to four farms a while after they had secured them.

The primary mushrooms grown for consumption are Oyster and Button mushrooms, typically sold fresh. Additionally, the company is doubling its efforts in cultivating medicinal

mushrooms, such as Chaga mushrooms, known for boosting immunity, and Turkey tail and Reishi garnodama, which improve gut health and immunity, respectively

Looking Towards the Future

Mushroom Kenya's research has shown that the medicinal mushroom upon value addition is able to support in addressing numerous health issues. "One great achievement was when the child of a client with autism was



Lime used for supplementing oyster mushrooms substrate

given doses of medicinal mushrooms. Over four to six weeks, there was a positive response in the child, and the parent reported an improved relaxation in the kid. This came as a motivation for us to delve deeper in research," Mr. Roussoss shared.

He reveals that Mushroom Kenya is on a path to building its own information bank on the diverse mushroom types, which numbers up to 2,000 species. He emphasizes the necessity of this bank due to the limited and often missing localized information about mushroom farming.

"Despite the wealth of information available online, the way mushroom farming is done in China, Europe, or elsewhere is completely different from how it is done here. The conditions vary which necessitates different approaches," Mr. Roussoss explained.

From its offices in Karen, Mushroom Kenya is currently doing the farming at Kitengela, Mombasa and Kampala. This is seen as a significant stride in consistently offering consumers best grades of mushrooms for their satisfaction in consumption and medicinal form.

Mushroom Kenya aims to increase its distribution to meet the rising demand,



Preparing white oyster mushrooms substrate at the farm

which they attribute to a more health-conscious population. As people increasingly opt for organic foods, mushrooms are gaining attention as a nutritious alternative to red meat.

"We envision making mushrooms and value-added products more accessible to citizens so that as they learn about the benefits, they are also be able to find them easily," added Mr. Roussoss.

In the value addition segment, he stresses that considering the medicinal benefits, the company is focused on offering products in both capsule and liquid forms. This approach has proven crucial, especially as many parents inquire about the appropriate dosage for their children.

"The future for Mushroom Kenya is more research, and more research for us as we intentionally focus on developing more value-added products for the customers' needs," said Mr. Roussoss.





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