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JOURNAL
FOR LEADS IN HORTICULTURE



Shri Krishna Overseas Ltd 15-Year Legacy In Packaging Innovation

Navigating the changing world of flower exports,
Panda Flowers' story

Naivasha Horticultural Fair 2024;
A Step in The Future of Farming



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IN MY OPINION

Present-day Kenya Horticulture Sector Struggles

Horticulture business has evolved dramatically. It's no longer what it used to be in the early 2000s, as it has shifted significantly especially the floriculture sector. This has severely impacted businesses, with some farms counting losses and others struggling.

Over the years, the farms have reinvented themselves to maintain a steady supply in the face of fluctuating market prices. These changes are largely driven by shifting generational values, with younger consumers placing less importance on flowers as compared to their predecessors.

Growers are faced with rising operational costs, particularly due to increasing electricity prices with many blackouts, high transport costs especially airfreight, increased salary hikes, high government levies and high farm inputs cost besides others. Additionally, pests and diseases have become more resistant thus causing significant losses to growers.

Of late False Codling Moth has become a major threat to Kenyan-grown roses, a phenomenon that has been exacerbated by climate change. As a quarantined pest in international markets, its presence in exported roses is resulting to bans on exports by regulators for up to two weeks or indefinite.

The acreage of flower farming in the country has over time expanded while the market is still the same and at times even shrinking. The issue is the exaggerated cost of land in Kenya which has become prohibitive especially for new investors and those who want to expand.

In response to the shrinking market of roses and increase in market competition, flower farms have embraced diversification for example to summer flowers to supplement rose production. This has seen a rise in numbers of small-scale summer flowers' growers.

Some of these farmers are being sub-contracted by big established farms, while others are enjoying consolidation.

Flower marketing is shifting from auction and direct selling to contract growing, which involves cultivating flowers in greenhouse spaces specifically for a client. Whereas in customer contracts the grower is contacted beforehand to grow specific flowers purposely for the client.

In other horticultural crops, Kenyan macadamia widely renowned on a global scale, is facing its lowest ever time in sales of the nuts. Since last year, the ban on export of macadamia in-shell was lifted, which has led to significant losses to farmers and processors leading to job loss in the sector. The government is set to deliver its consideration of placing the ban back with interests of the Kenyan people at heart.

The sector has also witnessed increasing pest infestations, such as the spread of Tuta absoluta on tomatoes, a phenomenon exacerbated by climate change.

These and more are the current trends of the Kenya horticulture, which despite the struggles and challenges deserves accolades.

By Carol Mwaura

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

Contributors for this edition includes: Carolyn Barasa - Amiran Kenya, Pauline Ngigi - STIHL East Africa, Daniel Nzyuko - Paul Wanderi and Moris Adipo - Panda Flowers, Idan Salvy - Plantech Kenya Ltd, 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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Contents



5 Naivasha Horticultural Fair 2024, a step into the future of farming



8 How Kenya's flower industry transforms local communities

15 Shri Krishna Overseas Limited's 15-Year Legacy In Packaging Innovation

20 Navigating the changing world of flower exports, Panda Flowers story

26 Kenyan flower growers shape global floral trends



38 Plantech Kenya, Benefiting Thousands of Farmers with Quality Seedlings

44 Mushroom Farming: Transforming Lives Through Its Medicinal Value

50 Orient Enterprises: Why it is Vital Not to Allow Nut-In-Shell Export of Macadamia

60 Dragon Fruit's Rise: How This Exotic Fruit Has Given Farmers Hope

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Naivasha Horticultural Fair 2024; A Step in The Future of Farming

The Naivasha Horticultural Fair is set to return for another exciting edition on the 20th and 21st of September, 2024. Hosted at the Naivasha Sports Club, the gates will be open from 9:00 a.m. to 4:30 p.m., welcoming visitors to one of Africa's largest horticultural fairs, now in its 21st year.

Sponsored by Co-op Bank, the 2024 event is named the Co-op Bank Naivasha Horticultural Fair, with this year's theme being "Sustainable Horticulture for a Resilient Tomorrow". This theme reflects a commitment to advancing the future of farming through sustainable practices "providing a step into the future of farming".

The fair offers a rich display of exhibits, live demonstrations, and engaging discussions. It is an excellent platform for growers to showcase their flowers, network with industry professionals, and explore new business opportunities. Visitors will have the chance to discover innovative farming techniques, eco-friendly solutions, and the latest advancements in horticulture that aim to build a more sustainable, resilient future.

This event presents an opportunity for attendees to meet industry experts, farmers, flower growers, and breeders. They will also be able to explore the latest trends and innovations in horticulture, connect

with like-minded professionals, and gain insights that can inform future business decisions. Cutting-edge technologies will be on display, driving the horticultural industry toward a greener future.

As a dynamic platform, the fair highlights the best



Naivasha Horticultural Fair, Chairman, Mr. Richard McGonnell addressing the attendants during the 2023 Fair

in horticultural excellence while fostering valuable connections and supporting industry growth. It brings together key stakeholders, from flower producers and car manufacturers to financial institutions and suppliers, all exploring new opportunities and sharing valuable insights that celebrate the diversity and richness of the horticultural world.

The show is a nice way to support the needy, for all the proceeds are directed to local charities. It supports impactful projects such as:

- The Safe House; a rescue shelter providing care for abused children,
- Nacohag; a community-based health centre in Karagita,
- Red Cross; providing essential services and support,
- Nyamathi Adopt-a-Village; partnered with the Naivasha Rotary Club, supporting secondary school education, water projects for over 20,000 people, and a maternity clinic.
- The 2015/16 profits were used to build Children’s Protection Unit (CPU) and
- Currently looking at building more classrooms at the Nyamathi Secondary School.

Located in the horticultural area of Kenya, the Fair is run by an organising committee led by the chairman Mr. Richard McGonnel who is the big man behind the event and also he is the one who manages the charities.

For over two decades, the Naivasha Horticultural Fair has been the Crème




Naivasha Safe House: one of the project funded by Naivasha Horticultural Fair

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de la Crème of Kenya’s horticultural industry. “This annual event is not just a fair; it’s a celebration of innovation, growth, and community within the horticultural sector,” Richard said, in regard to why one should not miss the Fair.

“NH Fair is a real like-knows-like fair. And the growers who come along are from the area. Usually, they come out with the whole family for a day out. That makes it a very pleasant fair. The nice thing about this fair is that the Dutch Embassy is represented and always organises something in the evening hours,” Chris Alphenaar, Bosman Van Zaal, General Manager testifies of the show.



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HOW KENYA'S FLOWER INDUSTRY TRANSFORMS LOCAL COMMUNITIES



The Naivasha Horticultural Fair's proceeds go to local charities including establishment of schools, health units, maternal care, toilets, water tanks and rescue center for abused children.

The flower industry in Kenya, a major export sector for the country, extends far beyond its role in global markets. It profoundly impacts local communities through job creation, infrastructure development, and community initiatives funded by flower companies.

The flower industry is a cornerstone of employment in Kenya, particularly in rural areas where job opportunities can be scarce. According to the Kenya Flower Council, the sector employs approximately 150,000 people directly and another 300,000 indirectly through related activities. This substantial workforce is a testament to the industry's role in providing livelihoods and enhancing economic stability.

Flower industry jobs are often better-paying compared to other local agricultural work, providing workers with a more reliable income. For many families, this means improved access to essential services such as healthcare and education. According to a 2023 report by the Ministry of Agriculture, wages in the flower sector are approximately 30% higher than in other agricultural sectors.

In addition to providing jobs, the industry invests in training and skill development. Many flower companies offer educational programs and vocational training to their employees, enhancing their skills and career prospects.

In Naivasha, the flower industry is a lifeline for many families. "The flower industry has transformed Naivasha," says John Karanja, a flower farm worker. "It has provided stable jobs and improved our quality of life. My family and I now have access to better healthcare and education thanks to the industry."

The growth of the flower industry has also spurred infrastructure development in Kenya's flower-growing regions. Investments from flower companies in infrastructure projects are enhancing local amenities and services.

Many flower farms have invested in improving local roads and

transportation networks to facilitate the efficient movement of flowers from farms to export hubs. For example, the development of better roads in Naivasha has been largely attributed to the flower industry's investments. "The improved road networks have not only helped with flower transport but have also made it easier for locals to access markets, schools, and healthcare facilities," explains Jane Wanjiru, from the County Government of Nakuru.

Flower companies have also contributed to water and sanitation infrastructure. Water management is crucial for flower cultivation, and many companies have implemented water conservation projects that benefit local communities. The establishment of clean water supply systems and sanitation facilities has improved living conditions in surrounding areas.

Flower companies in Kenya are increasingly investing in community development projects, demonstrating their commitment to corporate social responsibility (CSR). These initiatives cover a wide range of areas, from education and healthcare to environmental conservation and social welfare.

The Naivasha Horticultural Fair, an event that brings players in the industry once a year has been committed to CSR with the proceeds of the show going to local charities including establishment of schools, health units, maternal care, toilets, water tanks and rescue center for abused children.

"We have seen the numerous benefits previous fairs have had on the surrounding communities and that is why we do what we do," said Richard McGonnell, the

Chairman of Naiuasha Horticultural Fair.

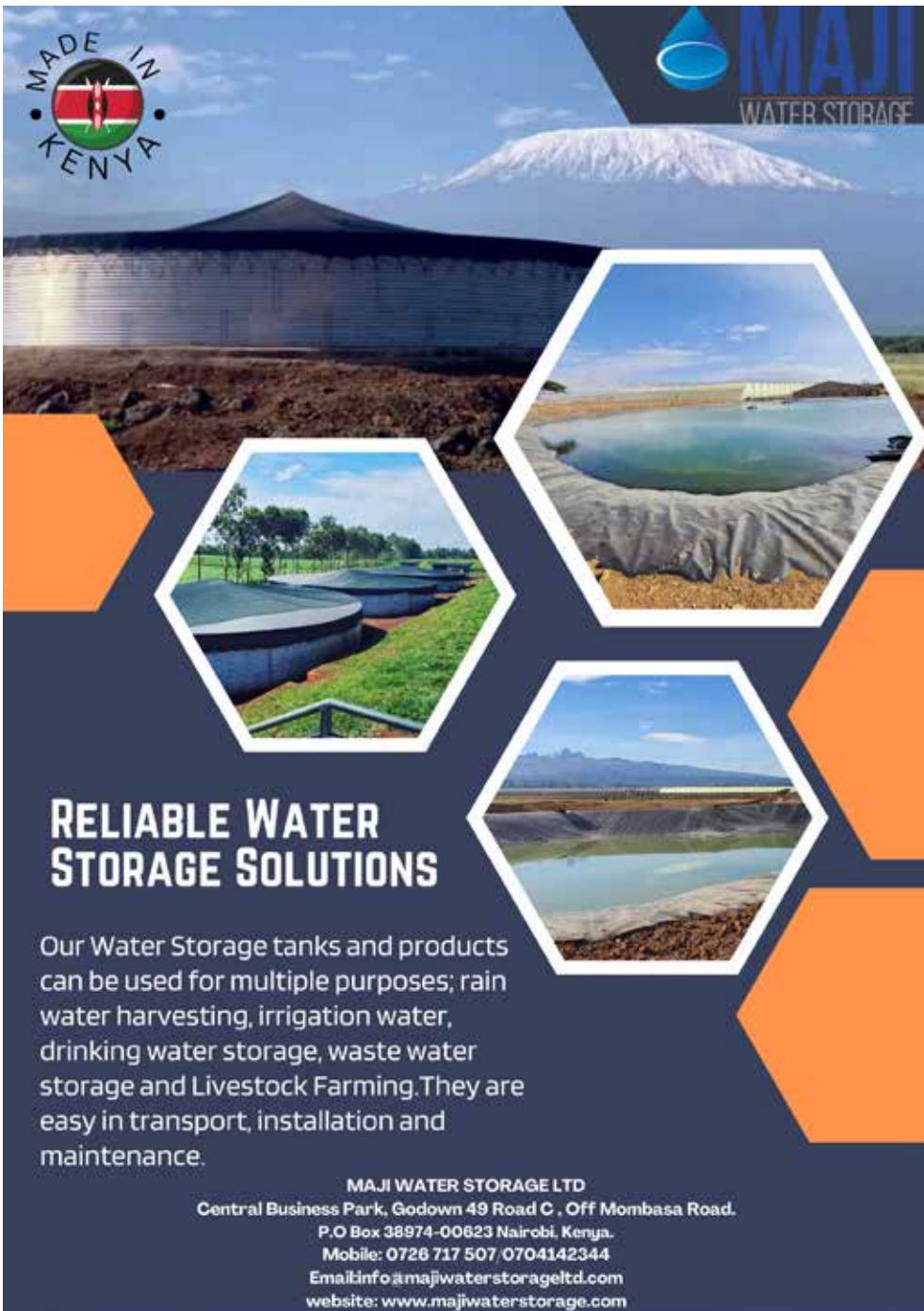
To maintain a good relationship with staff and the surrounding communities, and guided by its core values, PJ Dave Flora has invested in a number of CSR activities. Key among them is education by building schools and paying school fees to needy and bright students, regular free medical clinics on the farm for staff, distribution of gas cylinders to staff and providing watering hole for local herders within the community free of any charges.

In what demonstrates BloomingDale's commitment to people and planet, the company has been involved in CSR activities ranging from investment in the education sector, construction of roads, drainage systems, uplifting the girl child and helping the elderly. It was also actively involved in assisting local communities with various interventions during COVID including giving them food supplies.

Healthcare is one area where flower companies are making a significant impact. Many companies have funded medical clinics and health outreach programs. These clinics provide essential services to our employees and their families, improving overall health and wellbeing in the community."

Environmental sustainability is also a priority. Companies like BloomGreen Ltd. have initiated reforestation projects and environmental awareness programs. "As we grow flowers, we are also committed to protecting our environment," says Patricia Okoth, environmental officer at BloomGreen. "Our reforestation efforts and waste management programs are designed to offset the environmental impact of flower production and contribute to a greener future."

Recent data highlights the significant impact of the flower



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industry on local communities. According to latest figures, flower companies have contributed over \$40 million annually to local development projects. This investment supports infrastructure, education, healthcare, and environmental sustainability, demonstrating the industry's

broader social responsibility.

Looking ahead, the flower industry is expected to continue playing a vital role in local development. With ongoing investments and a growing focus on CSR, the sector's contributions are likely to expand, further enhancing the quality of life in Kenya's flower-growing regions.



THE DOWNY MENACE

Downy mildew is a formidable adversary in the production of most horticultural crops. This fungal disease can significantly affect the health, beauty, and productivity of these crops if not effectively controlled.

Downy mildew is caused by different pathogens in roses and tomatoes but manifests in similarly damaging ways.

In Roses: Downy mildew, caused by *Peronospora sparsa*, typically begins as small, purplish to dark brown irregular spots on the upper leaf surfaces. As the disease progresses, these spots coalesce, leading to large, necrotic areas. Severely affected leaves may drop prematurely, leading to defoliation and weakened plants, ultimately diminishing the aesthetic and commercial value of the roses.



In Tomatoes: Downy mildew, caused by *Peronospora* spp., initially presents as pale yellow to green spots on the upper leaf surfaces, often accompanied by a downy white or grayish growth on the underside of leaves. These spots enlarge and turn brown or black, leading to leaf curling, withering, and eventual drop. In severe cases, downy mildew can spread to stems and fruits, drastically reducing the yield and quality of the tomato crop.



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(40g in 20L of water)

Application Timing:

For Roses: Begin application at the very first signs of infection. Roses are particularly vulnerable during periods of high humidity and cooler temperatures, which favor the disease's spread. Continue treatments every 7-10 days, or as necessary, based on regular scouting and weather conditions.

For Tomatoes: Start application at the onset of the first symptoms, typically during periods of wet and humid weather. Consistent monitoring is key, and applications should be repeated every 7-10 days to maintain effective disease control.

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STIHL EAST AFRICA: Empowering African Horticulture Scene with Innovative and Sustainable Products



STIHL East Africa is transforming agriculture and horticulture across the continent with high-quality, innovative products designed specifically for the African market. With nearly 100 years of global experience and a strong presence in East Africa since 1996, STIHL leads the way in providing practical solutions that meet the evolving needs of farmers and professionals. The company's product portfolio is tailored to enhance productivity, sustainability, and environmental stewardship across Tanzania, Uganda, Rwanda, Burundi, South Sudan, and beyond.

Products Tailored for Africa

From petrol-driven power products to the latest battery-powered innovations, STIHL offers a comprehensive range of products for agriculture, forestry, landscaping, construction, and gardening. These include agricultural tillers, water pumps, sprayers, input mist blowers, and more—each designed to improve the daily lives of Africa's small-scale farmers by increasing efficiency and reducing manual labour.

Recognising Africa's unique challenges, STIHL has adapted its products to suit local needs. For instance, petrol products are equipped with 2-MIX engines, designed to reduce fuel consumption and emissions, ensuring compliance with global environmental standards. STIHL has also introduced the 230 product series, also dubbed 'the farmer series' as it consists of a powerful engine specifically designed for agricultural lands, with interchangeable spare parts compatible with the products in this series.

Leading the Way with Sustainable Innovation

In line with global trends towards sustainability, STIHL is introducing its battery-powered products to the African market. Launching in October, these products will offer a cleaner, quieter alternative to traditional power sources without sacrificing performance. STIHL's lithium-ion batteries, designed for a range of interchangeable products, are lightweight and durable, with a lifespan of up to six years. This technology not only reduces emissions but also offers quieter operation, making it ideal for use in residential areas and during sensitive tasks such as conference centre maintenance.

"Battery technology is the future of sustainable power products," says Lucia Ayanda, Product Manager at STIHL East Africa. "The company is proud to offer customers a range of high-quality, sustainable options while ensuring continued access to the petrol-driven products that are well-known and trusted."

STIHL's battery products have already generated excitement, following successful



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field trials and positive feedback from farmers and other users across East Africa. Customers appreciate the flexibility and convenience these products offer, providing a cleaner alternative without compromising the performance STIHL is known for.

Meeting Local Needs, Growing with Africa

STIHL East Africa's mission is to empower local communities by providing the products needed to succeed. One standout initiative is the Indigenous tree seedball project, which encourages tree planting by distributing seed balls to customers. These seed balls can be easily planted by simply tossing them, promoting reforestation in an effortless yet impactful way.

STIHL also offers a wide range of products specifically suited for the horticultural sector, providing practical solutions for everyday tasks. These products are built to cater to the specific needs of the African horticultural industry, making daily farming tasks more efficient and manageable:

Pole pruners: Ideal for pruning tall trees such as mango and avocado trees, providing safe and efficient trimming.

Water pumps: Essential for efficient water management across large areas, ensuring crops get the water they need.

Sprayers: Perfect for distributing liquid inputs and fertilisers evenly across fields, promoting healthy crop growth.

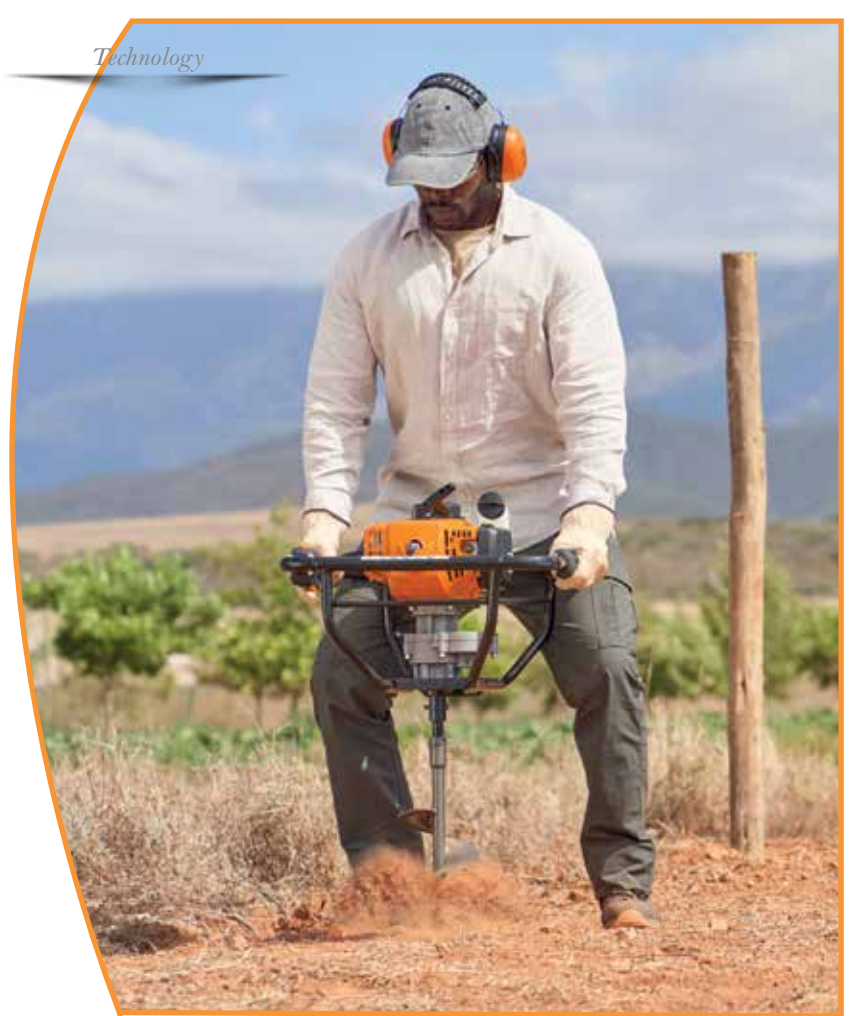
Blowers: Used for keeping work areas clean, enhancing the efficiency and organisation of daily operations.

Mist blowers: Excellent for spreading liquids, granules, and seeds, making it easier to cover large areas effectively.

Cultivators: Ideal for weeding and furrowing in narrow fields, allowing for precision soil preparation and management.

Earth augers: Essential for drilling holes in the ground, making the planting of seedlings or trees faster and more efficient.

STIHL's commitment to sustainability extends beyond its products. As part of its Corporate Social Responsibility (CSR) efforts, the company provides environmentally responsible giveaways, such as plantable notebooks, pens, and pencils. These giveaways, embedded with seeds, allow users to plant them once they are finished. In addition, STIHL has partnered with the Kenya National Highways Authority (KeNHA) on a tree-planting programme along major highways, including a project



near Thika. Using STIHL's earth augers and cultivators, the team was able to dig holes more efficiently, enabling faster and more widespread planting efforts. These projects are aimed at preserving and restoring ecosystems across East Africa.

A Fully Fledged Subsidiary in East Africa

STIHL's East Africa operations were officially upgraded to a fully-fledged sales subsidiary in August 2022, following increased demand for its products across the region. The subsidiary, strategically located at the Red Commercial Complex along Mombasa Road in Nairobi, serves as a hub for local, national, and regional dealers.

This strategic move has improved access to STIHL products and services throughout the East Africa region. It has also enhanced after-sales service and product maintenance support, ensuring that clients have the expertise they need to keep their products performing at their best.

"The dealer presence across the region ensures quick response to any maintenance issues or customer inquiries," says Kimani Muiruri, Sales Relationship Manager at STIHL East Africa. "This level of support has strengthened customer trust and led

to a significant increase in referrals from satisfied clients."

As STIHL continues to expand its footprint across East Africa, the company remains committed to providing high-quality products specifically tailored for the African market.

A Future of Possibilities

As the company prepares to launch its battery products in October, STIHL East Africa is well-positioned to lead the region's transition to more sustainable farming and horticulture practices. By offering products that balance innovation, environmental responsibility, and quality, STIHL is helping farmers across Africa work more efficiently and sustainably.

"The products are made for Africa, and this is an exciting time for STIHL East Africa," says Pauline Ngigi, Marketing Coordinator at STIHL East Africa. "The company is adopting the latest technology while staying true to the core values that have defined STIHL for nearly a century—reliability, quality, and a deep commitment to its customers."

STIHL East Africa is proud to be a part of Africa's growth story and looks forward to continuing to innovate, evolve, and support the communities it serves.



Hon. Dr. Sonvir Singh (R) the founder Shri Krishna Overseas Ltd (SKL), , Nirmal Chaudhary his wife, a co-founder and Finance Director and Mutinda Kyambati at their printing and packaging company in Industrial Area, Nairobi

PRINTS OF PROGRESS: Shri Krishna Overseas Limited's 15-Year Legacy in Packaging Innovation

By: Bob Koigi

Behind the over 150 employees, impressive financial numbers and a portfolio of top-tier clients is the story of resilience and passion that best describes Shri Krishna Overseas Ltd (SKL), a printing and packaging company.

In its 15 year journey, the company has scored many firsts, including introducing world class technologies never seen in Kenya under the leadership of Dr. Sonvir Singh its founder and Nirmal Chaudhary his wife, a co-founder and Finance Director. Together, they have chaperoned the business through the philosophy of commitment, hard work and honesty.

Dr. Sonvir Singh's journey to Kenya began in 2006 when he was headhunted by a local company to lead their factory operations. His expertise in printing and packaging, particularly in self-adhesive labels, marked the beginning of a transformative era for Kenya's FMCG sector. Prior to his arrival, top brands were importing labels from South Africa. Singh's innovative approach, which included introducing high-quality UV ink, not only revolutionized local production but also set new standards in the industry.

Sonvir's professional success was matched by personal milestones; in July 2007, he married Nirmal Chaudhary, who later became a co-founder and Finance Director of Shri Krishna

Overseas Ltd (SKL). Despite the promising start, Sonvir's path was not without obstacles. After leaving his job in the self-adhesive label sector, Sonvir faced a challenging period. With a young family to support and no job for six months, he endured severe financial strain.

"We had to rely on the temple for meals and went months without paying rent," Sonvir recalls. "It was a tough time, and we even considered returning to India. But luck was on our side when a friend organized our work permits, allowing us to stay and continue our journey."

A New Beginning and Setbacks

In 2009, Sonvir and his wife ventured into the import-export business, focusing on spices and rice. Initially buoyed by family support and their accumulated knowledge, they soon faced fierce competition from well-established players like Pakistan. The competition was compounded by global currency fluctuations, which strained their business operations.



Hon. Dr. Sonvir Singh the founder Shri Krishna Overseas Ltd (SKL) and Nirmal Chaudhary his wife, a co-founder and Finance Director. SKL is a printing and packaging company.

Their fortunes took another turn when they decided to close the import business and open a restaurant and supermarket. Sonvir would join his wife on weekends and holidays to help run these ventures. Despite their best efforts, the restaurant and supermarket eventually proved unsustainable.

A Turning Point

A pivotal moment came when Sonvir's career path intersected with agro-input company Elgon Kenya, where he worked under the guidance of Director Bimal Kantaria. Kantaria's belief in Sonvir was unwavering, offering him a role as the head of the cartons department despite Sonvir's limited experience in that area.

Sonvir's impact was swift and significant. Within six months, he reduced production waste from 23 per cent to 6 per cent and increased annual carton production from 350 to 500 tonnes. His proactive approach and eagerness to learn on the job were instrumental in these improvements.

"Elgon Kenya provided me with a crucial footing in the business world," he says. "Bimal Kantaria's support was

instrumental. He not only offered me a role but also his unflinching belief in my abilities."

In 2012, Elgon Kenya shifted focus to agriculture, leading to the sale of their carton business to Dodhia Packaging. Kantaria advised Sonvir to explore other opportunities. Feeling it was the right moment to start his own venture, Singh, with his wife, decided to delve into the carton business.

"Bimal gave me his blessings but told me that the doors to Elgon Kenya would always be open to me at any department of my choice, a word he has maintained to date."

Building Shri Krishna Overseas Ltd (SKL)

Starting from scratch, Sonvir and Nirmal rented a godown and began screen printing. Their perseverance paid off, and within six months, the success of their new business encouraged them to sell the restaurant and supermarket to concentrate fully on SKL.

Today, SKL is a behemoth in carton manufacturing, with 48 state-of-the-art machines and a workforce that has grown from four to over 150 employees. The company's annual turnover is around 400



million, projected to reach 500 million this year.

Sonvir credits the company's success to a culture of loyalty, commitment, and humility. "In our business, we value honesty and hard work above all. Our growth is a collective achievement, and we believe in nurturing our employees," Sonvir emphasizes.

Sonvir sees the company as a learning hub for his employees. He says most of those who started there as machine operators have moved on to other companies and assumed bigger roles

Today, SKL is a behemoth in carton manufacturing, with 48 state-of-the-art machines and a workforce that has grown from four to over 150 employees.

such as supervisors and managers.

At SKL, staff are given to learn about various machines and operations with that freedom allowing them to work at any department they want.

“We want them to enjoy working here, to own the company and while at it, to grow. It is what makes us at SKL unique. Our reasoning is that if we give our employees freedom to work where they feel they fit best, then we are allowing them to work at their optimum. That is what drives us,” Sonvir added.

One of the longest-serving employees, Muema, who has been with SKL since its inception, embodies these values. Now 70, Muema is considered family by the Singhs for his loyalty and dedication.

“In him we see the values of loyalty, commitment, hardwork and humility. Important attributes that define our business. He is an inspiration and a role model to the staff here and we are very honoured to have him,” Nirmal noted.

Giving back to the community

Beyond business, the Singhs are deeply committed to CSR. Nirmal Chaudhary serves as a youth Director at the Hindu Council of Kenya, and Sonvir is the national vice chairman of the Hindu council of Kenya.

Their initiatives include providing water tanks in Laikipia County to improve access to safe drinking water and supporting school feeding programs.

Despite their success, Sonvir acknowledges the challenges that lie ahead. High taxation, bureaucratic red tape, and the cost of essential services like work permits and customs are hurdles that need addressing to create a more conducive environment for businesses.

“Investors must see benefits to invest in the country,” Sonvir advises. “Reduced taxes and streamlined processes can attract more investors and facilitate business growth.”



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For Sonvir, the driving force behind his success is a commitment to doing his best for others. “What I can do for myself is okay, but what I can do for others is even more important,” he reflects. “Whatever you do, give it your very best.”

Nimal agrees: “Our company is not a one man’s show. Behind this achievement is a list of people who have given it their all to get the company where it is. Selfless individuals who have the best interest of the company at heart.”

Future focus

The future looks bright for SKL, with plans to construct the SKL Industrial Park on a 5-acre site in Kisaju Kitengela. The park will feature high-tech machines from China, capable of producing 2,000 tonnes of cartons monthly—up from the current 300 tonnes.

SKL is also preparing to list on the Nairobi Securities Exchange, becoming the first printing and packaging company in East Africa to go public. This move marks a significant milestone in their journey.

The company has equally trained its eyes on a cost-effective packaging technology to ensure that horticultural products meant for export reach their destination safely and in good condition.

“We want to disrupt the Kenyan and East African market by ensuring that we are producing world-class products cost effectively. It is our little contribution to the growth of the Kenyan economy. We have the right tools, strategy, a great labour force, the dream and passion to do it, so we will do it,” Sonvir says.

How to select DAM LINING MATERIAL



What Are Dam Liners

Dam liners are impermeable materials used for holding water. Dam liners enable farmers to trap water for irrigation, livestock use, fish farming and for domestic use. Sources of water include run offs, rivers, wells and boreholes

What Qualities Should You Look For When Buying Dam Liners?

- Should be UV treated to tolerate harsh weather and last long
- The dam liner must be chemical resistant
- Easily weld able
- Affordable to the end user
- It should be safe (Especially for fish farming and drinking water)

What Are Dam Liner Types In Kenya?

Dam liners types are categorized as HDPE, PVC and LLDPE Dam liners. HDPE Dam liners are the most stable with excellent UV and weather resistance. They are the best dam liners for long term projects. PVC Dam liners are soft, light and easy to deliver and install. However, they are not stable hence not advisable for long term projects. LLDPE Dam liners are similar to HDPE with almost the same properties, but are very susceptible to tears and permanent deformations. They also have low UV stability. Grekkon Limited stocks HDPE Dam liners which are considered the best in the market.

What Dam Liner Thicknesses Is Best?

Grekkon Limited stocks various gauges for dam liners and the choice will depend on the application. Here is a list of the various gauges available.

0.5mm Damliners

- For medium water storage (From as low as 10m³ to 1,000m³)
- Works on a smooth to moderate rough surfaces with tiny pebbles. 0.75mm Damliners
- For slightly larger projects (Holding 200m³ to more than 10,000m³ or more depending on the surface.
- Can withstand rough surfaces: stony areas.

1mm Damliners

- For holding large water volumes
- Are designed for very stony surfaces.

Note that no matter the type, damliners have to be protected from sharp objects that can puncture them.

How Long Do Dam Liners Last?

UV treated dam liners made from virgin materials can last between 10- 40 years depending on the thickness. Dam liners made from recycled materials will start disintegrating 1 year after installation and exposure to the sun.

Dam lining materials from Grekkon Limited are manufactured from virgin materials and therefore long lasting.

How Do You Calculate The Size Of Dam Liner Needed For Dam Lining.

The dam liner calculator formular is quite simple.

Length (Longer side) add overall length plus twice the maximum depth plus

allowance of a meter or more on either side for overlap

Width: (Short side) add overall length plus twice the maximum depth plus allowance of a meter or more on either side for overlap

For Example. Assuming you have a pond measuring 8m long by 5m wide and 1m deep. Dam liner required =

$$L = L + 2 * D + (1 + 1)$$

$$W = W + 2 * D + (1 + 1)$$

$$\text{So, } L = 8 + (2 * 1) + 2$$

$$= 8 + 2 + 2$$

$$L = 12\text{m}$$

$$\text{So, } W = 5 + (2 * 1) + 2$$

$$= 5 + 2 + 2$$

$$W = 9\text{m}$$

So dam liner required = 12m x 9m.

NB: 2m is the allowance for overlap to ensure the dam liner is properly secured on the edges.

What Are Dam Liner Installation Steps?

1. Excavation: This can be done manually or mechanically using backhoe loaders, bull dozers and caterpillars. It is advisable you excavate the reservoir slanting to prevent collapse of the dam.
2. Smoothing. This includes removal of sharp objects that may puncture the dam lining material. When it's too hot, sprinkle water then compact the ground.
3. Carry out trench making where the dam liner will be tacked in.
4. Actual installation.

Summary

Since its inception, Grekkon Limited has remained the number one supplier of dam liners in Kenya. We have earned the reputation of being the largest dam liner company in Kenya and Africa at large. Our dam liners are the best because they last for many years. We will therefore be very glad to be of service to you.

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METADEW 400EW

Dodemorph acetate 400g/L

Fungicide for control of Powdery Mildew in Roses



PABLO 600WG

(Pyraclostrobin 50g/Kg + Metiram 550g/Kg)

Fungicide for control of Downey Mildew in Roses





Mr. Paul Wanderi, Chief Operations Officer - Panda Flowers Ltd. at their offices in Naivasha, Flower Park.

An employee at Panda Flowers' packhouse sorting *Gypsophila* summer flowers

Navigating the changing world of flower exports, Panda Flowers story

By: Kwabe Victor

Since its inception in the early 2000s as a vegetable and fruit farm, Panda Flowers has undergone significant changes. The farm, located in Naivasha, transitioned to flower farming, specializing in roses, as part of its strategy to adapt to the evolving agricultural landscape. Today, Panda Flowers exports 100% of its produce to international markets, particularly Holland and Europe.

Over the years, the farm has reinvented itself to maintain a steady supply in the face of fluctuating market prices. For example, while a 40cm rose once sold for 10 euro cents and a 50cm rose for 15 euro cents, prices have now dropped to 8-10 euro cent respectively. According to Mr. Paul Wanderi, Chief Operations Officer, these changes are largely driven by shifting generational values, with younger consumers placing less importance on flowers than their predecessors.

“The flower business has changed dramatically. It’s no longer what it used to be in the early 2000s, and this shift has significantly impacted on us as growers,” said Mr. Wanderi.

Panda Flowers prioritizes the welfare of its farmers and employees, with growth coming in a responsible manner. One of the farm’s proudest achievements is its early adoption of Fairtrade, a global platform that champions workers’ rights. However, Mr. Wanderi also highlights several challenges facing the flower industry, including the

absence of a national cargo freights. This forces growers to rely on international carriers, limiting their ability to reach markets swiftly and at affordable prices.

In his opinion the choice of sea freight is viable but it has its own challenges, considering that flowers take more than 30 days to reach customers. “If flowers spend 30 or more days in transit, customers may complain about issues like botrytis, but feedback after such a long time is less impactful than if the flowers had arrived by plane in two days,” he explained.

Secondly, when it takes more than a month for the flowers to reach the customer, the payment duration is widened. The payment is normally fifteen days after reception of the produce hence the delay will deter consistent operations for the growers.

Just like other farms, Panda Flowers are faced with rising operational costs, particularly due to increasing power prices, high government levies and high farm inputs cost. Additionally, pests and diseases

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Rose flowers packing at Panda Flowers Ltd

have become more resistant thus causing significant losses for growers.

According to Mr. Morris Adipo, Sales and Marketing Manager at Panda Flowers, of late False Codling Moth has become a major threat to Kenyan-grown roses. As a quarantined pest in international markets, its presence in exported roses can result in bans on exports by KEPHIS for up to two weeks or indefinite.

The acreage of flower farming in the country has over time expanded while the market is still the same and at times even shrinking. In response to the shrinking

market for roses and increased competition from other flower farms, Panda Flowers has embraced diversification. The farm is growing summer flowers such as Carnations, Gypsophila, Lipidium, and Chrysanthemum to supplement rose production.

Flower marketing is shifting from auction and direct selling to contract growing, which involves cultivating flowers in greenhouse space specifically for a client. Customer contracts the grower beforehand to grow specific flowers purposely for them.

Corporate Social Responsibility

Panda Flowers is deeply committed to the welfare of its workers. In Naivasha's Kayole area, the farm has launched a housing project that allows farmers to own homes through affordable installment payments. The company also supports the education of its employees' children by offering bursaries covering 60-80% of school fees, depending on flower sales through Fairtrade.

Additionally, Panda Flowers has collaborated with other flower farms to fund the development of a modern maternity wing at Naivasha District Hospital. The farm has also contributed to building boreholes in local communities, constructing classrooms at Milimani Primary School, and renovating the Chief's camp in Kinamba.

Despite these efforts, Mr. Adipo laments the public perception that flower farms mistreat their workers. He stresses that such stereotyping are outdated and urges the public to understand the important role flower farms play in supporting local livelihoods.

"We need to stop demonizing flower farms based on isolated incidents from the past. Flower farms are workplace like any other, and the welfare of employees is paramount, we have workers who are able to educate their children to university levels through their work thus we should recognize flower farms contribution to the community rather than demeaning them," Adipo concluded.



Mr Morris Adipo- Sale and Marketing Manager - Panda Flowers Limited, at their Vaselife Display room in the company's offices - Flower Park, Naivasha

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Boosting Profits and Freshness

In the heart of Kenya's fertile farmlands, the horticulture industry stands tall as a pillar of the nation's economy. Accounting for a staggering 29.3% of the country's GDP and employing a remarkable 80% of the national workforce, this dynamic sector is the lifeblood of countless livelihoods. Yet, despite its immense contribution, the industry has long grappled with a unique set of challenges that have tested the resilience of even the most seasoned farmers and exporters.



Jayveer Singh, Commercial Manager
Silafrica Kenya Ltd

"Don't just take our word for it. Farmers and exporters across Kenya who've made the switch are reaping the rewards. One of our customers, an avocado exporter, recently shared on their LinkedIn, "Since I started using Silafrica's foldable crates, my avocado exports have jumped by 30%. I'm more competitive in the European market, and my customers rave about the quality."

Another one, a green bean exporter, wrote to us saying "These crates have transformed my business. The savings on packaging and freight have allowed me to expand my volumes and the rejection rate has plummeted to almost zero."

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But the benefits don't stop at product quality. Let's talk about your bottom line. These foldable crates are a game-changer when it comes to cutting costs. They're incredibly lightweight, slashing your freight expenses. Think about it - lighter crates mean you can ship more produce for the same cost, or pay less to ship the same amount. Either way, you're looking at a significant boost to your profits.

And the best part? They're priced competitively with cardboard cartons, so you start saving from day one.

Durability is another perk you get from these remarkable crates. Their robust construction means they can withstand the rigors of long-distance transportation much better than traditional packaging.

They've also incorporated an ingenious locking mechanism that allows the crates to lock into each other when stacked. This creates a rigid, stable column that significantly reduces damage during transit. No more arriving at the port to find your carefully packed produce has been jostled and bruised - your Foldable Export Crates will keep everything secure from farm to market.

Let's put this all together and see what it means for you, the Kenyan farmer or exporter. By switching to Silafrica's Foldable Export Crates, you're looking at:

1. Higher quality produce reaching your customers, leading to better prices and repeat business
2. Drastically reduced freight costs, both for export and return journeys
3. Significant savings on packaging expenses over time i.e 7% savings as compared to traditional carton boxes in form of labour and glues for binding the boxes
4. Less product loss due to damage in transit. It is estimated that the crates saves upto 8% as compared to the traditional carton boxes
5. A more sustainable operation, reducing your environmental impact

In an increasingly competitive global market, these advantages can make the difference between struggling to get by and thriving as a successful exporter.

Unlocking the Full Potential of Your Supply Chain

For generations, horticulture has been the backbone of Kenya's agricultural sector, nourishing families, fueling economies, and shaping the very fabric of communities. But in today's fast-paced, globally connected world, the challenges facing this vital industry have evolved, demanding innovative solutions that go beyond mere tradition.

At Silafrica, we understand that the success of your horticulture business hinges on the efficiency and sustainability of your supply chain. That's why we've dedicated ourselves to crafting solutions that are as versatile as they are transformative. Whether you're looking to conquer the complexities of cross-border logistics, maximise operational efficiency, or revolutionise space utilisation, our comprehensive suite of crate offerings has you covered.

By seamlessly integrating Silafrica's Foldable crates into your operations, you'll unlock a world of cost savings, environmental sustainability, and unparalleled customer satisfaction. It's a strategic advantage that will have your competitors scrambling to keep up, while you focus on what truly matters: growing your business, empowering your community, and leaving a lasting legacy.

So, why settle for the status quo when you can embrace the future of horticulture exports? Partner with Silafrica and experience the power of solutions that are as versatile as they are transformative. Together, let's redefine the limits of what's possible in this dynamic industry, one crate at a time.



Flower farms in Kenya are increasingly turning to solar energy not just to save cost but to also improve their environmental footprint.

Kenyan flower growers shape Global Floral Trends

Kenyan flower growers, long recognized for their high-quality blooms, are making significant waves in the global floral industry, influencing trends and responding to the evolving tastes of consumers around the world.

As global consumer preferences shift, so too do the trends that shape the floral market. From sustainability to digital engagement, the way people choose, buy, and enjoy flowers is evolving rapidly, driven by a mix of environmental consciousness, technological advancements, and changing aesthetics. This article explores how global consumer trends are redefining the floral industry and what it means for the future of floriculture.

In recent years, the demand for sustainability has become a central theme in consumer purchasing decisions, and the floral industry is no exception. As environmental awareness grows, consumers are increasingly seeking flowers that are not only beautiful but also grown with minimal ecological impact.

“Sustainability is no longer just a trend; it’s an expectation,” says Laura Mwikali, a

sustainability expert. “Consumers want to know that the flowers they purchase are produced responsibly, with attention to water usage, carbon emissions, and ethical labor practices.”

Another significant trend is the growing desire for personalized and customized floral arrangements. Consumers are increasingly looking for flowers that reflect their individual tastes, special occasions, or personal stories.

This trend is evident in the rise of bespoke floral services, where customers can work directly with designers to create arrangements tailored to their specific needs. From hand-picked selections of rare blooms to bespoke packaging and delivery options, the floral industry is embracing customization as a way to stand out in a competitive market.

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The Rise of Kenyan Floriculture

Kenya has long been a powerhouse in the floral industry, supplying approximately 40% of Europe's cut flowers. But beyond the sheer volume, Kenyan growers are now leading the charge in shaping global floral trends. This shift has been driven by a combination of high-quality production, innovative practices, and a keen awareness of international consumer preferences.

Adapting to Trends

One of the key trends Kenyan growers are capitalizing on is the increasing demand for sustainable and ethically sourced products. As global consumers become more environmentally conscious, the floral industry is seeing a surge in demand for flowers that are not only beautiful but also responsibly produced.

"Consumers are looking for transparency in their purchases, and they want to know that their flowers are grown sustainably," says Maria Njeri, Director of Bloom Kenya Farms. "We've responded by implementing eco-friendly practices such as water recycling, organic fertilization, and reducing carbon emissions."

The farm has invested significantly in sustainability. They use solar energy to power greenhouses and employ rainwater harvesting systems to reduce water consumption. This commitment has not only improved their environmental footprint but also resonated with eco-conscious consumers in Europe and beyond.

Innovation in Floral Varieties

Kenyan growers are also making a mark with innovative floral varieties that cater to emerging consumer preferences. In recent years, there has been a growing trend toward unique and exotic flowers. Kenyan farms have embraced this trend by cultivating rare and distinctive varieties that stand out in a crowded marketplace.

One notable example is the rise of the "Kenyan Rose," a specially bred variety known for its vibrant colors and long-lasting freshness. "Kenyan growers have specially developed roses to offer a wider range of colors and a longer vase life," explains Joseph Mwangi, a horticulturist. "These features are highly valued in the international market, especially for events like weddings and high-profile corporate functions."



Kenyan flower farms have invested in various sustainable practices to ensure production of a competitive brand Kenya flower.

Meeting Demand for Seasonal and Local Flowers

The push towards seasonal and locally sourced flowers is another trend Kenyan growers are adeptly addressing. The desire for flowers that reflect the seasons and local environments has led to an increased interest in varieties that are unique to specific times of the year.

"Kenya's diverse climate allows us to produce a wide range of flowers throughout the year," notes Annette Wanjiku, CEO of Eden Flowers. "By aligning our production with seasonal trends, we can offer fresh, relevant options to our international clients."

Eden Flowers has been particularly successful with its seasonal collections, which feature flowers that align with various global celebrations and trends. Their "Spring Serenade" collection, for instance, showcases a vibrant array of tulips, daffodils, and hyacinths, reflecting the springtime enthusiasm of European markets.

Embracing Digital Trends

The digital revolution has also impacted the floral industry, and Kenyan growers are not lagging behind. Online flower sales and digital marketing have become crucial components of the global floral market, and Kenyan farms are leveraging these tools to reach new audiences.

"We've embraced digital platforms to

showcase our flowers and connect with customers around the world," says Njeri. "Social media and e-commerce have allowed us to build a brand presence and engage directly with consumers, which has been instrumental in expanding our market reach."

Challenges and Future Prospects

Despite the strides Kenyan growers have made, challenges remain. The industry faces issues such as fluctuating market prices, logistical hurdles, and the ongoing need to adapt to rapidly changing consumer preferences. However, the resilience and adaptability of Kenyan growers position them well for continued success.

Looking ahead, the future of Kenyan floriculture appears bright. With a continued focus on sustainability, innovation, and market responsiveness, Kenyan flowers are poised to remain at the forefront of global floral trends.

As Maria Njeri aptly puts it, "The global floral market is ever-evolving, and Kenyan growers are committed to leading that evolution with excellence, creativity, and a deep respect for both our environment and our consumers."

In a world where floral trends are as dynamic as the flowers themselves, Kenya's blossoming role on the global stage is a testament to the country's ingenuity and dedication to shaping the future of floriculture.



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Fairtrade certification ensures that workers are paid fair wages and work in safe conditions

Embracing Global Certification for Market Access



Kenya's flower industry, renowned for its vibrant blooms and global reach, faces a complex landscape of international standards that shape its success. As Kenyan growers strive to meet the rigorous demands of global markets, certifications like Fair Trade, Rainforest Alliance, and GlobalGAP have become crucial in maintaining quality and ethical standards. This article explores how Kenya is navigating these international benchmarks, the importance of these certifications, and the impact of recent developments on market access.

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 Fair Trade, Rainforest Alliance, and GlobalGAP is not only about meeting regulatory requirements but also about aligning with consumer values and ensuring long-term sustainability.

Fair Trade 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.

“Fair Trade 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,”

says Laura Mwikali, a sustainability expert.

“These certifications not only open doors to international markets but also help improve the overall sustainability of the industry.”

One of the most significant benefits of these certifications is enhanced market access. In Europe and North America, consumers and retailers increasingly demand products that meet high ethical and environmental standards. Certifications like Fair Trade and Rainforest Alliance serve as guarantees that flowers are produced responsibly.

“Certification is often a prerequisite for entering certain markets,” explains Maria Njeri, Director of Bloom Kenya Farms. “Without these credentials, it’s challenging to compete in high-value markets where consumers are very conscious of the origins and practices behind their purchases.”

Certifications also play a vital role in maintaining the quality of Kenyan flower exports. GlobalGAP, for example, ensures that flowers meet stringent safety and quality standards. This includes everything from pest control to post-harvest handling, ensuring that flowers are fresh, safe, and of high quality when they reach consumers.

“GlobalGAP has been instrumental in standardizing best practices across the industry. It helps us ensure that every stage of production, from planting to packaging, adheres to internationally recognized quality standards,” Njeri adds.

Sustainability is at the heart of Rainforest Alliance and Fair Trade certifications. By adhering to these standards, Kenyan growers contribute to environmental conservation and social development. Rainforest Alliance-certified farms implement practices that protect natural habitats and conserve resources, while Fair Trade-certified farms invest in community projects and provide better working conditions.

“Rainforest Alliance certification has pushed us to innovate and adopt more sustainable practices,” says Annette Wanjiku, CEO of Eden Flowers. “We’re seeing tangible benefits not only in environmental preservation but also in the quality of our flowers.”

The certification landscape is continually evolving, with recent developments aiming to enhance transparency and effectiveness. One notable trend is the increasing integration of digital tools and technologies in certification processes.

Recent advancements in technology have made certification processes more efficient. Digital documentation systems and blockchain technology are being used to improve traceability and transparency in the supply chain. These tools help verify that farms comply with certification standards and provide consumers with detailed information about the origins of their flowers.

“Digital tools are revolutionizing the way growers manage certifications,” says Laura. “They allow them to track compliance more accurately and provide better information to consumers about the ethical and environmental credentials of their products.”

Certification bodies are also strengthening their verification processes to ensure compliance. This includes more frequent audits and the implementation of stricter guidelines to address emerging challenges in sustainability and labor practices.

“Certification standards are becoming more rigorous to keep pace with changing expectations,” notes Maria Njeri. “This ensures that certifications remain relevant and effective in promoting genuine improvements in the industry.”

The impact of these certifications on market access and industry growth is significant. For Kenyan growers, certifications are not only a gateway to premium markets but also a driver of industry-wide improvements.

“The benefits of certifications extend beyond market access. They drive innovation, improve practices, and create a more sustainable and ethical industry overall.”

Kenya's commitment to meeting international standards has strengthened its position as a leading flower exporter. By embracing certifications and adapting to evolving standards, Kenyan growers are enhancing their global competitiveness and contributing to a more sustainable and ethical floral industry.



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Innovation revolutionizing Kenya's flower supply chains



Packaging plays a vital role in the flower supply chain, not just for aesthetic appeal but also for protection and preservation.

Kenya's flower industry has long been a vibrant part of the nation's economy, known for its vast fields of roses, lilies, and other blooms that stretch towards the horizon. This sector, which is a lifeline for thousands of farmers and contributes significantly to the country's export revenues, is experiencing a transformation driven by cutting-edge innovation. From advancements in cold chain technology to revolutionary packaging solutions, these improvements are reshaping how Kenyan flowers reach international markets with enhanced efficiency and quality.

Kenya, often dubbed the "Flower of Africa," has been a leading exporter of cut flowers for decades. The country's favorable climate, diverse range of flowers, and skilled workforce have established it as a key player in the global flower market. However, despite its strengths, the industry faces significant challenges related to logistics, quality control, and competition. To overcome these hurdles and maintain its competitive edge, the industry is embracing technological innovations that are redefining its supply chains.

At the core of these innovations is the advancement in cold chain technology. Cold chain systems, which involve

temperature-controlled logistics, are crucial in maintaining the freshness and quality of flowers as they journey from farms to international markets. Kenyan flower exporters have adopted state-of-the-art refrigeration systems to ensure that flowers are kept at optimal temperatures throughout their journey.

Recent advancements

Modern refrigerated trucks equipped with sophisticated temperature control systems allow flowers to be transported from farms to airports without compromising their freshness. These trucks maintain a constant cool environment,

crucial for preserving the quality of delicate blooms.

"Our new fleet of refrigerated trucks has been a game-changer," says David Mwaura, logistics manager at FlowerLink Kenya. "They maintain a constant temperature throughout the journey, which is essential for keeping the flowers fresh from the farm to the airport." These trucks are equipped with state-of-the-art cooling systems that regulate temperatures to ensure optimal conditions for the flowers.

The integration of Internet of Things (IoT) technology has introduced smart sensors

that monitor and adjust temperature and humidity levels in real-time. These sensors send alerts to operators if conditions deviate from the set parameters, allowing for immediate corrective actions.

New energy-efficient refrigeration units are reducing the carbon footprint of flower transport. These units use less energy while providing reliable temperature control, which is crucial for both sustainability and cost-effectiveness.

Upgraded cold storage facilities at export hubs and airports ensure that flowers remain in peak condition before they are shipped. These facilities use advanced cooling technologies to maintain a stable environment, which is essential for extending the shelf life of the flowers.

Innovative Packaging solutions

Packaging plays a vital role in the flower supply chain, not just for aesthetic appeal but also for protection and preservation. Innovations in packaging are enhancing both the efficiency of flower delivery and the quality of the product upon arrival.

Modified Atmosphere Packaging

(MAP) technology involves altering the composition of gases inside the packaging to slow down the aging process of flowers. By controlling oxygen, carbon dioxide, and humidity levels, MAP extends the flowers' freshness during transit.

"MAP has been a breakthrough for us," says Richard Ndegwa, a packaging specialist. By controlling the levels of oxygen and carbon dioxide, we can extend the freshness of our flowers, even during long-haul flights."

In response to global sustainability trends, the industry is shifting towards eco-friendly packaging materials. Biodegradable wraps and recyclable boxes are reducing the environmental impact of flower transport while meeting the growing demand for sustainable practices.

Advances in packaging design now allow for customized solutions that cater to specific types of flowers. For instance, delicate varieties can be packaged in cushioned, moisture-resistant materials that protect them from damage and dehydration.

"Our custom packaging ensures that each flower type is handled according to its specific needs," explains Maria Njeri, Director of Bloom Kenya Farms.

"This attention to detail helps maintain the quality and appearance of the flowers."

Some packaging solutions now incorporate QR codes or RFID tags that provide real-time tracking information. This technology allows stakeholders to monitor the flower's journey and ensure it is handled properly throughout the supply chain.

These innovations have significant implications for the Kenyan flower industry. By improving efficiency and quality, Kenyan exporters are better positioned to compete in the global market. The use of advanced cold chain technology and packaging solutions not only ensures that flowers arrive in excellent condition but also helps reduce wastage and lower operational costs.

While these advancements are bringing remarkable improvements, challenges remain. The industry must continuously adapt to fluctuating market demands, environmental regulations, and the need for further investments in technology. Moreover, maintaining a balance between cost and innovation is crucial for ensuring that these advancements benefit all players in the supply chain, from smallholder farmers to international retailers.

Looking forward, the continued integration of technology promises to further enhance the efficiency and quality of flower deliveries from Kenyan farms. As the industry embraces these innovations, it is poised to strengthen its position in the global market, ensuring that Kenyan flowers remain a symbol of beauty and excellence worldwide.

Upgraded cold storage facilities at export hubs and airports ensure that flowers remain in peak condition before they are shipped.



"The key is to stay agile and responsive," says David. "Innovation is not a one-time effort but a continuous process."

Nemguard Boosts Yields by up-to 25% for Kenya's Basil and Broccoli Farmers

By Lewis Wachira & Lee Kaigai

Early in 2023, **Nemguard** was granted a label extension by the Pest Control Products Board (PCPB) for use in Kenya's basil and broccoli farms. Initially approved in 2018 for countering nematodes in roses and French beans, this solution has seen widespread adoption among Kenyan farmers due to its efficacy, cost savings, and positive environmental impact. We took a tour to Kimana, Ngong' and back to Naivasha, where we spoke to some of our customers to gain insights into their experience with Nemguard and the notable improvements they've seen in crop yield.

What our Farmers have to Say: It's a Proven Solution against Nematodes and DBM

Farmers from various regions have praised **Nemguard** for its effectiveness in managing nematodes, one of the biggest threats to agriculture, responsible for a 12.3% yield loss worldwide. "**Nemguard** has been a game-changer for us. I use it in Broccoli to counter Diamondback Moth, and in Basil and French beans to counter nematodes affecting the roots." says Douglas Murungi, the Lead Agronomist at New Agrodeal, a herbs and vegetable exporter with farms in Solai and Naivasha. Murungi emphasizes that **Nemguard's** mode of action, which utilizes garlic-derived polysulphides, triggers a lethal oxidative stress reaction, that not only eliminates the pests but also promotes root health. "Since incorporating it into our integrated pest management plan, we've seen a 28% increase in broccoli yield, stronger root systems and healthier plants overall, which helps us meet market demand."

Similarly, other large-scale farmers have shared their success stories. Ngong' Veg, a grower that exports over 105,000 tonnes of herbs and vegetables annually has used **Nemguard** in its farms spread out across Mwea, Ngong' and Kimana. "We've used **Nemguard**, for years since it is very effective at controlling nematodes in French beans and DBM (Diamondback Moth) in broccoli," says Wycliffe Otieno, a senior agronomist at Ngong' veg. "Since we began applying **Nemguard**, we've consistently reported a 24% improvement in yields, and have continued to cut down on the use of synthetic chemical pesticides, which is a win for both our costs and the environment."

Challenges Facing Herb and Vegetable Farmers in Pest Management

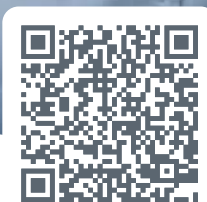
While **Nemguard** has delivered significant benefits, Kenyan farmers still face numerous pest management challenges. Nematodes remain one of the most problematic pests, with their ability to destroy root





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Farmers are advised to integrate it with other biological control products for enhanced results



systems, stunting crop growth and reducing yields. According to Kenya's Horticultural Crops Directorate (HCD), nematodes cause yield losses of up to 40% in crops like broccoli, and the problem is exacerbated by limited access to effective and affordable pest control solutions.

Nemguard's approval as a pest management product ideal for use in herbs and vegetables, offers a cost-effective, zero-residue solution with no pre-harvest interval. Mourice Ojow, from the Technical Crop Protection team at Shalimar

Fresh - Maitri Farm in Naivasha, highly endorses the adoption of biological solutions like **Nemguard**. They applaud the products' effectiveness against lethal nematodes that affect roses and chrysanthemum yields.

Numbers Don't Lie: Transforming Pest Management in Kenya

Nemguard's impact over the past year has been measurable. According to a survey by Bioline:

- 29% of basil farmers reported an 18-30% increase in yields due to better nematode control and improved root systems.
- Broccoli farmers using **Nemguard** have seen an average 22% reduction in losses caused by nematodes and Diamondback moth.
- Over 39% of farmers using **Nemguard** in Kenya have adopted it to counter Diamondback moth, significantly reducing their reliance on chemical pesticides by almost half.

The Road Ahead

Lee Kaigai from Ecospray, the manufacturer of **Nemguard** domiciled in the UK, remarked that "The future of biological pest management in Kenya looks promising. As we seek regulatory approval to expand the use of Nemguard to cover off-label uses like thrips management, I am confident that a combination of increased IPM training and wider product availability will empower more farmers to harness the full potential of **Nemguard** on their herbs and vegetables."

To wrap things up, **Nemguard's** label extension into the Basil and Broccoli market has been a resounding success, as evidenced by the testimonials from Kenyan farmers and the statistical improvements in yield and pest control. The product has proven itself as a vital tool in the battle against nematodes and DBM, providing a natural, cost-effective, and sustainable solution for Kenya's herb and vegetable growers.

Mode of Action

Nemguard works by utilizing garlic-derived polysulphides that penetrate nematodes' cuticles, triggering a lethal oxidative stress reaction that kills the pests while preserving beneficial organisms. It is applied as a soil drench or spray, with a recommended dosage of 8 liters per hectare, up to three times per year. To ensure maximum efficacy, Nemguard should be applied to moist soil during the final stage of irrigation. Farmers are advised to integrate it with other biological control products for enhanced results and store it in a cool, dry place for up to 24 months.



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Diseases	Late blight and Downy mildew
Active ingredients	Dimethomorph & Ametoctradin

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Workers at Plantech Kenya Ltd, watering seedlings in their hightech Greenhouses

PLANTECH KENYA, Benefiting Thousands of Farmers with **QUALITY SEEDLINGS**

Today's seedlings raising and propagation is purely technical and professional where no commercial farmer dealing with nursery crops will think of doing it on the farm. In the region, Plantech Kenya Ltd, pioneered revolutionization of seedling raising, thereby transforming farming in leaps and bounds.

Plantech's Sales and Marketing Director Idan Salvy, was initially in Naivasha farming and exporting vegetables. However, the farm was faced with losses due to lack of high-quality seedlings, which led to the idea of the nursery. Recognizing the challenge that farmers were faced with of germinating their own seedlings, the company took on the responsibility of this crucial farming process, offering customized solutions to meet the specific needs of each farmer.

Plantech as fondly known, began their operations in Naivasha, Kenya in 2015. Initially, they focused on tomato seedlings due to the high market demand, despite the significant input costs, before broadening their supply to meet the risen demands. However, they have since diversified their product range to include flowers, grass, herbs, fruits and trees.

They now propagate over 100 different crops, serving approximately 80% of the

local market, with flowers and vegetables being their primary offerings. The investment employs up to 650 plus staff members with some employees being trained in Israel.

According to Idan, Plantech identified the significant gap in the market and decided to import advanced technology and expertise from Israel. "Farming and seedling raising are two distinct activities and no farmer in Israel will think of doing



Mr. Idan Salvy - Sales and Marketing Director, Plantech Kenya Ltd, a seedling raising and propagation company situated at Naivasha Flower Park

their seedlings. Any commercial farmer needs quality seedlings, but without the right knowledge and tools, it can lead to significant losses. Flower and vegetable farming lagged behind because of lack of quality seedlings,” says Idan.

High-quality seedlings production has been instrumental in reducing the losses previously experienced by many farmers. “Seedlings are the foundation of farming, and there should be no compromise on their quality. We started seedling production 9 years ago and with our quality seedlings we have changed the market, changed farming in terms of yields increase, benefiting farmers greatly,” emphasizes Idan.

Over 5,000 farmers who have adopted Plantech’s seedlings have seen substantial improvements in their yields. Many have reported an increase from 6-8 tons per acre to over 15 tons per acre. This boost in productivity has allowed farmers to increase their income and reduce dependence on middlemen, empowering them to manage their operations more independently. A move that has since enhanced the relationship and built trust between the farmers and the company.

Plantech is currently expanding to 14

more hectares, making it one of the largest of its kind in the continent, after South Africa. The company has heavily invested in technology, automating every aspect of their production. Focusing on delivering quality, they have maintained a competitive edge over their competitors thanks to their self-sufficiency, producing materials essential for all the production value chain like Styrofoam trays produced in-house.

One of its key strengths is the trust it has built with farmers as it offers sales teams present in every region ensuring they bond with farmers, understanding their needs, challenges and working on addressing them.

Plantech as an Intermediary

The company’s primary mission is to produce high-quality seedlings and to protect the interests of farmers. In the event of any farmer complaints, Plantech coordinates with seed companies to ensure a swift resolution. It has continually served as an

intermediary ensuring fair practices.

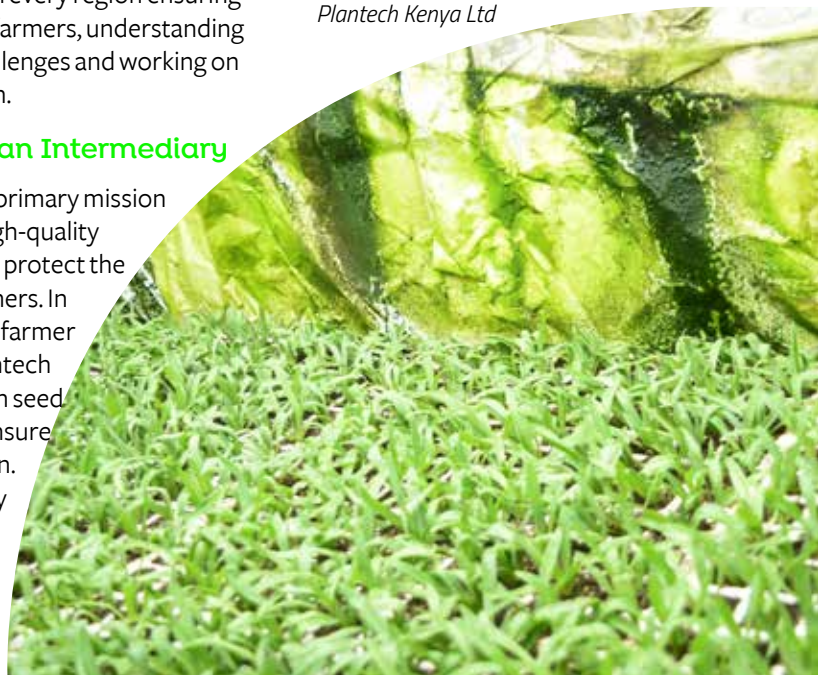
The company’s technology expertise like the use of seed counting machines to guarantee accuracy ties down to ensuring that seed companies offer the quantified seeds. This in a way is standing up for farmers since they are not able to ascertain the number of seeds.

“When we first entered the market, farmers had little trust in anyone. Today, we supply seedlings, and provide agronomists to advise farmers,” said Mr. Idan.

Plantech’s commitment to quality and its close relationship with farmers has enabled it to deliver services that rival global standards. “What you get at Plantech is what you would get in Israel,” Mr. Idan remarked.

In offering advice to budding propagators, Mr. Idan emphasized the importance of having a clear vision and strategy. “Seek knowledge and aim to diversify. Don’t just copy others. This is a high-risk business, but if you do it right the margins are high.” The company remains committed to its mission of empowering farmers and ensuring sustainable growth in the agricultural sector.

Seedlings growing in a Cold room at Plantech Kenya Ltd



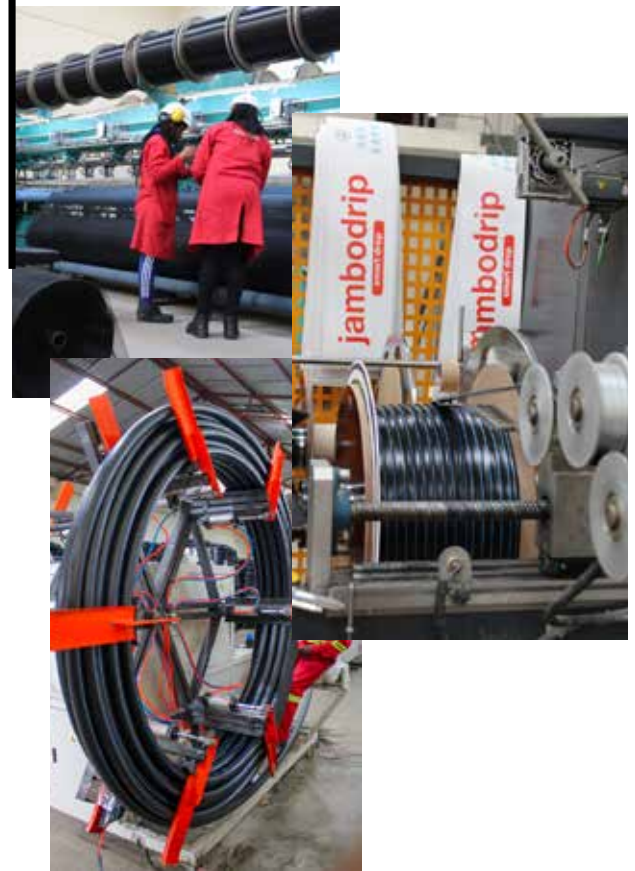


AFRODRIP LIMITED

“Pioneering Agricultural Solutions in Kenya”

Manufacturers of HDPE Pipes, Shade Nets, and Driplines

Afrodrip Limited stands out in the agricultural sector as a leading manufacturer of HDPE pipes, shade nets, and driplines. These products are crucial for efficient water management and crop protection. HDPE pipes ensure durable and reliable irrigation systems, while shade nets offer essential protection against harsh weather conditions. Driplines, on the other hand, facilitate precise watering, significantly improving water usage efficiency and crop yields. Afrodrip's dedication to quality and innovation helps farmers optimize their resources and enhance productivity.



Suppliers of HDPE, PVC, and Drip Line Fittings

In addition to manufacturing, Afrodrip is a top supplier of HDPE, PVC, and drip line fittings in Kenya. These fittings are essential for creating robust and leak-proof irrigation systems. The company's extensive range includes connectors, valves, and other critical components that ensure the seamless operation of irrigation networks. By offering high-quality fittings, Afrodrip ensures that farmers can maintain efficient and effective irrigation systems, reducing water wastage and improving agricultural outputs.

One-Stop Shop for Farmers

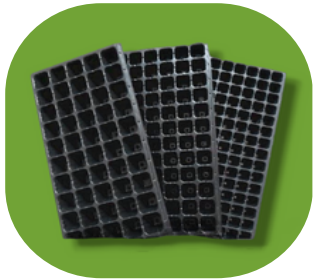
Afrodrip is more than just a manufacturer and supplier; it is a one-stop shop for farmers. The company provides a comprehensive range of agricultural products and solutions, including greenhouse accessories, fertilizers, insect nets, mulch films, and solarization films. This wide array of products means that farmers can find everything they need under one roof, simplifying their procurement process and ensuring they have access to the latest agricultural innovations. Afrodrop's commitment to supporting the farming community extends beyond products, as they also offer expert advice and customer support to help farmers achieve the best possible results.



DAMLINERS



DRIPLINES



SEEDLING TRAYS



INSECT NETS

Conclusion

Afrodrip Limited is revolutionizing agriculture in Kenya by providing high-quality products and solutions that address the unique challenges faced by farmers. Their role as manufacturers of essential irrigation products and suppliers of critical fittings, combined with their comprehensive product range, positions them as a pivotal partner for farmers looking to enhance their productivity and sustainability. With Afrodrop, farmers can confidently invest in the future of their farms, knowing they have a reliable and innovative partner by their side.



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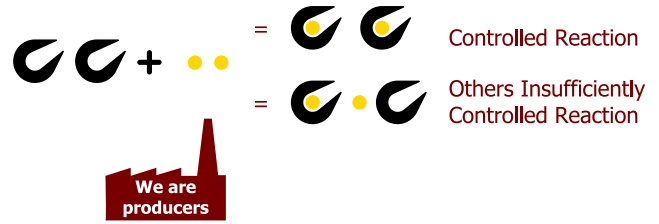


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Ms. Kabaka Loraine - a mushroom farmer harvesting mature mushrooms at her farm

MUSHROOM FARMING

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Ms. Kabaka Loraine defies the odds by venturing into mushroom farming with a focus on value-added products

Mushroom farming has slowly earned recognition as a means sustainable to address nutrition issues propeling sustainable growth and prosperity. Ms Kabaka Loraine is an iron lady who has focused on the mushroom venture with a goal of tapping in to its lucrative value addition products. Her inspiration she points to having been bore out of Ecovative-Mycelium Technology an American company that has focused in production of leather from the mushroom.

Inspired by the fact that mushroom farming in Kenya is a lucrative business, she has taken strides into the sector with a search for the right skills then delving into production. According to the data by National Farmers information Survey, Kenya produces 500 tons of mushroom annually while the demand is at 1200 tons. This data showed the gap which Miss Loraine believes with proper practice of the farming one would be assured of good yields and thus higher returns.

As an environmental conscious youth, she points out that mushroom farming offers the capability of doing a full cycle from production to management of the wastes. Through its farming she says, agriculture can be more resilient as the farming can be done in any area, minimum land space needed with just a simple structure.

Additionally, mushroom relying on agricultural waste to feed and grow and in the process is a catalyst of a full circular economy. She explains that mushroom breaks down the organic wastes hence its name decomposer and upon the total decomposing of the wastes its able to grown and the wastes can also be fed back to the soil.

One of the major challenges Miss Kabaka stresses is the inadequacy of information on the subject, hence after showing interest in the field it forced her father to pay for her study and training at the Jomo Kenyatta Institute of Agricultural University. This journey utterly called on her determination which saw her research get support by the institution as she was given a laboratory space for her research.

A research Kabaka Loraine says she focused on use of mushroom mycelium with the goal of replacing plastics bag use that are widely used in growth of seedlings to packaging despite their un eco-friendly issues. However, the starting capital she says was the main challenge coupled with understanding of the planting process as she reveals having lost her first farming batch.

“The first time I started mushroom farming I encountered something called fungus gnat insect which destroyed my whole crop. So, I had to redo the whole process again,” said Miss Kabaka Loraine.

Process of Setting up a Mushroom Farming

The farming for consumption was a section I went into but research and



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AR 30 BARE SHAFT PUMP

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GAMMA 85 - 105 - 125 SERIES PLUNGER PUMP



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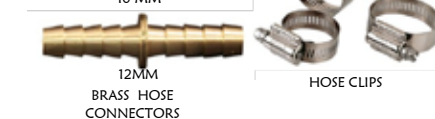
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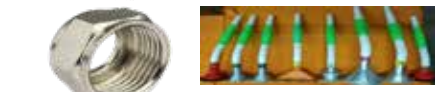
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Mushroom planted in substrate bags

susceptibility of pests and diseases attacking the mushrooms.

“Another thing that most farmers don’t get right as witnessed during my first trials at mushroom farming is the rate of proper pasteurization of the substrate,” she said.

This is a step that when not well done you are likely to encounter green mold – Trichoderma, which is devastating as it kills the mushrooms survival.



Mushroom packaged ready for consumption

more development is what Loraine envisions. She stresses that growing for consumption is essential however to address the perishability she wants to focus on value addition more.

Meeting the optimal growth condition and humidity for your mushroom she points out takes a lot of expertise. When doing Button mushroom production for example, there is the incubation period when you wait for mushroom mycelium to colonize the whole substrate.

During the incubation period the temperature needs to be higher at around 23-25 degrees, after which for formations of mushrooms, the temperatures need to again be lowered.

Fruiting of mushrooms to be successful the temperatures have to be lowered to 15-19 degrees. This stage is crucial since when not done the right way could lead to

A Passion-guided Mushroom Farming

“The best part for me as a researcher is watching the microscopic pores grow into a nutritious product,” said Loraine.

The first harvest came as a motivation for her to venture more into the business. She prides herself in having created the first prototype of the biodegradable planters even though wasn’t able to foresee the scalability due to funding issues.

Loraine has been accepted at the International Center of Insect Research and Physiology where she’s doing more research on mushroom production. This is aimed at finding out if it’s possible to reduce input costs using insect frusts and increase yields.

She is also doing more laboratory experiments to find a way of producing locally made spores instead of relying on imported

spores that are way expensive. This she believes will ease accessibility of the mushrooms for farmers in diverse regions of the country including Arid and Semi-arid lands (ASALs).

Loraine has also partnered with Medicines Sans Frontiers (MSF) where she will be training some of their staff. This is aimed at curbing the protein shortages while recycling their organic waste through planting of mushrooms.

Fruiting of mushrooms to be successful the temperatures have to be lowered to 15-19 degrees. This stage is crucial since when not done the right way could lead to susceptibility of pests and diseases attacking the mushrooms.



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Chilly Farming, A Lucrative Venture Yielding Highly



once in each season with a continued manure addition that enables me to keep on harvesting for up to six months entirely,” he says.

Chilli farming has increasingly attracted more consumers as there is a better understanding of its nutritional value. “My consumers majorly prefer taking the chillies when they are still green which is also an advantage for the farmer considering that the harvests can be done on a weekly basis after maturity,” says Jonathan.

Chillies, despite their health benefits, have a low supply since most farmers aren’t aware of this hidden gem’s lucrative potential. As pointed out by Jonathan Simiyu, chillies are readily demanded by consumers to an extent that it can be sold both in raw-green form as well as in dried red form.

He further stresses that in its dried form and bulk size, companies that process chilli sauce are able to purchase it for value addition. This is an additional advantage for the farmer as he’s enabled a double return with his product’s longer shelf-life abilities.

Mr. Simiyu, reiterates that the benefits of chilly farming in terms of returns are as much as 100,000 ksh for his quarter an acre in a span of two seasons.

“Chillies farming has been a great venture for me as I have been able to reap its benefits while only embracing the use of manure. I can therefore attest to farmers that the bold step into chillies farming will earn you a better income with minimum labor,” says Mr. Simiyu.

Benefits of Chilli Consumption

Chillies are widely consumed in food either in raw form when green or when dried red or at times in powder form after being processed. Its major health value is the improvement of the digestion channel in a systemic way that eases food breakdown entirely.

Chillies are rich in vitamins A, C, and antioxidants, offering numerous health benefits. The capsaicin in chillies boosts metabolism, aids in weight loss, and acts as a natural pain reliever, particularly for conditions like arthritis.



Mr Jonathan Simiyu, at his chillies farm at Bungoma County in Webuye area

Regular consumption can improve heart health by lowering blood pressure and cholesterol while also enhancing digestion and reducing inflammation.

Chillies support the immune system, help clear nasal congestion, and even suppress appetite, aiding in weight management.

Additionally, they enhance the flavor of dishes and can trigger the release of endorphins, improving mood and overall well-being.



The rise in chilli farming is as a result of farmers embracing the crop for its lucrative earnings with minimum labor required for its production. Chilli farming has earned recognition among farmers who have been in the agriculture sector even though focused on other crops like corn, legumes and vegetables for decades. Mr. Jonathan Simiyu in Bungoma is one such farmer who resorted to chilli farming back in 2022 and has harvested for two seasons now.

He assures with a bright smile of the gains he has witnessed in farming of the chilli, a crop he has resolved not to part ways with now or in the near future. The growing of chillies he says, begins in a well laid seedbed where they germinate in two weeks, and after having first leaves, he is able to transplant them to the farm with organic manure. Once in the farm, the chillies take one to two months, before he adds in fertilizer then awaits the weeding season.

According to Jonathan, the resolve was attributed to the less labor intensity that growing the chillies demands. “In comparison to the nurturing of tomatoes, vegetables like kales, among other horticulture crops, chilli growing sparked my interest as it eased the process for me with its characteristics that are outstanding and make it way easier to farm,” he said.

Chilli farming is especially beneficial as it is resistant to pests. “I spray the chillies

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WHO Classification: III

ADDING TO OUR THRIPS MANGEMENT SOLUTIONS:

Delegate™ 250 WG

Jemvelva™ Active

INSECTICIDE

Active Ingredient:

Jemvelva™ (Spinetoram) 250g/Kg

Application Rate:

150g/Ha

WHO Classification: U

Tracer* 480 SC

Qalcova™ Active

NATURALYTE INSECTICIDE

Active Ingredient:

Qalcova (Spinosad) 480g/L

Application Rate:

0.2 Lts/Ha



Orient Enterprises: Why it is Vital Not to Allow Nut-In-Shell Export of MACADAMIA

NUT-IN-SHELL EXPORT HAVE TREMENDOUSLY AFFECTED THE PREVIOUSLY BOOMING PROFITABLE BUSINESS

Kenyan macadamia widely renowned on a global scale, has seen a thriving growth of nuts with the central regions of the country soaring in delivery of up to 50,000 metric tons of macadamia nuts in a season. This range of production has stamped the Kenyan brand name of macadamia not only for its nutritious values but also for the quality of the nut. “Made in Kenya Macadamia is our heritage and footprint in a world full of nuts all around,” says Mr. Rajiv Pandya.



By: Kwabe Victor

Mr. Rajiv Pandya, the managing director Orient Enterprises Limited (OEL) in Juja, Kiambu County, expresses his love for their superior value-added macadamia products. These have earned them recognition as a boutique company, scaling the ‘made in Kenya’ far and beyond. He reveals that through the value addition on the macadamia nuts for production of kernels, oil, milk, butter and premium roasted nuts, they are able to transform a farmer’s life more than when exporting in-shell.

Mr. Rajiv Pandya points out that good policies are an instrumental pillar for the macadamia nuts to thrive in Kenya as history has shown. He further highlighted how in January, and the whole of early 2023 the macadamia sector faced a lowest ever time in sales of the nuts, as a result of opening up of borders for inshell exports. A move he decries to have born unreversible effects to the sector as the exports largely to China, has disadvantaged the Kenyan processors and farmers.

“We work hand in hand with the farmers who offer the raw materials, and build initiatives that ensure the thriving of the sector. We walk the journey with our farmers by not

only creating jobs in communities, but also conserving our ecosystems for longevity. Well, this is something an in-shell buyer doesn’t consider at any point, rather they concentrate on purchasing the produce,” says Mr. Rajiv.

Being a processor, he details how they offer farmers better macadamia seedlings variety based on the region, offer support in dealing with pest infestation, diseases, and also provides harvesting manpower, does the dehusking and handles the logistics of transporting the nuts to the factory. In addition, they purchase at a higher price, more than double as compared to the brokers.

According to Carolyn Mulilya, Production and Quality Assurance OEL, through the Enterprise Resource Planning (ERP), there is a seamless flow of macadamia weighing to payment of the farmer. “Through the ERP payment system, we are able to track from farm to fork of the macadamia nuts. This has improved our payment systems as we are able to send an update to the farmer details such as accepted quantity, rejected quantity

and amount payable via the digital system,” says Carolyn.

Export of unprocessed macadamia should be banned

Value Added Nuts are more profitable and have an increased means of traceability.

The government is set to deliver its consideration of returning the ban on exports of the macadamia in-shell in November 2024, and Mr. Rajiv’s hope is that there is a firm stance on the regulations with interests of the Kenyan people at heart. To him, this is a question of salvaging the situation or worsening it as he considers macadamia a vital export for the economy of the country.

“As we await to hear of the ban of in-shell export this coming November, all we hope for as farmers and Macadamia Nuts Association (MacNuts) is restoration of our prestige. Recognizing that processors support the farmers in spraying pesticides, offering biochar, and most tolerant varieties of macadamia seedlings, consequently increasing yields for mutual benefits,” said Mr.

Rajiv.

Orient Enterprises, full value addition and direct distribution of macadamia to US and UK markets, has made it possible for them to provide employment to 200 employees and up to 30 field officers who visit at least six farms daily, and exports of up to 25 tonnes of value-added products. However, with the current situation they had to reduce their workforce by almost half.

Gender Balanced Staff

The company has a gender balanced staff, with 50% women in the executive and over 60% of their staff in production being women. Grace Muchiri, Finance Manager at OEL, emphasizes that the operations within the firm need women for their efficiency to some levels, revealing that there are stations where women perform outstandingly well as compared to men in the company.

“Women are significantly needed in the sectors of sorting and crosschecking where over time they have performed exemplary compared to men. This has earned the sections a nick name, ‘women’s job’ whereas the men are well versed with sections where masculine work is involved such as loading. This division and specialization of labor has been a critical aspect for our company in delivery of quality products,” added Ms. Muchiri

Corporate Social Responsibility Initiatives

Orient Enterprises Limited is focused on transforming lives by giving back to the community to propel mutual growth. The company has a seedling propagation scheme tagged to the Greening Earth Initiative, that aims at distributing one million seedlings, yearly. The farmers are also able to get the most eligible seedlings with more tolerant traits, ensuring easier survival and better yields.

Another project of giving back to the community, is the investment on a biochar production system enhanced by the company. This is executed by breaking down the shells and husks which are then decomposed to form 80-90 tons of biochar product. This is crucial for boosting soil health in turn giving farmers better yields.

OEL has also ventured in supportive programs like financial literacy trainings,



An employee sorting macadamia kernels at Orient Enterprises, at their premises in Juja, Kiambu County

and women health education, improving the living standards of the farmers and community.

Moreover, they have a Sacco which empowers the over 1,000 registered farmers in monetary needs like; emergency loans to cater for medical emergencies, to pay school fees dues and other needs.

A testament to the power of financial literacy trainings is the recorded increase in the farmers’ savings within the Sacco. The other major outcome is a reduced number of farmers and staff members

Embu and Meru, while cashew nuts mainly in coastal regions, has placed Kenya on the global map as a quality nuts producer.

Based on the nutritious values of the macadamia, there’s an increasing demand of value-added products in the international markets. With the anticipated macadamia high season, farmers are urged to avoid dealing with brokers and rather deal with processors directly for better gains.

Mr. Rajiv urges more farmers to venture in the production of these lucrative nuts



Machine operator controlling macadamia crushing machine at Orient Enterprises Ltd

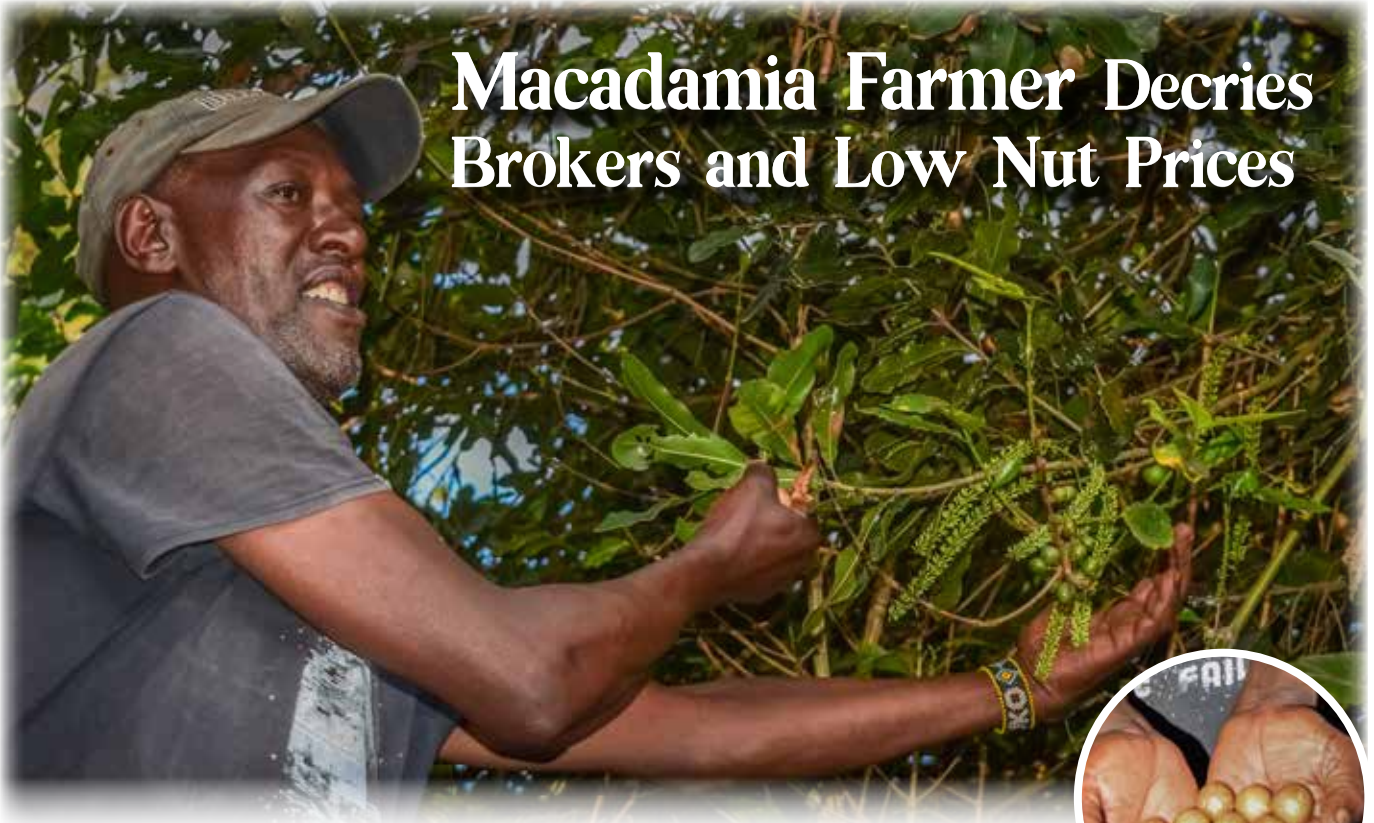
asking for loans or advances as they are able to plan themselves better.

Macadamia Growing

The nuts production, with macadamia in central regions of Kiambu, Murang’a,

and call on Orient for their seedlings that go for 300 ksh each. Macadamia growing is now expanding to counties such as TaitaTaveta, Machakos, Bomet, Kitale and Nyandarua among others.

Macadamia Farmer Decries Brokers and Low Nut Prices



Mr. Sylvester Munene, displaying macadamia growing at his farm, near Mangu, Kiambu County



Macadamia farming has positioned Kenya on the global map as a producer of quality nuts, delivering consistently to international markets. Mr. Sylvester Munene and Mr. George Wahogo are two dedicated farmers specializing in macadamia nut production, alongside other horticultural crops like avocados and vegetables on their homestead in Mang'u area in Thika. On their four hectares farm, the brothers produced up to a 1000 kilograms of macadamia nuts during the last season.

Mr. Sylvester Munene, a former hospitality industry employee, explains that farming is far more lucrative than an 8-to-6 job, which led him to leave his career and focus entirely on farming. He emphasizes the benefits of grafted seedlings, particularly the Murang'a 1 variety, over indigenous seeds.

Grafted seedlings from a nursery bear nuts earlier, typically within 3 to 5 years, compared to trees grown from seeds, which may take 7 to 10 years. Though grafted seedlings are relatively expensive, costing around 600 Ksh each, their high yields make them a worthwhile investment for farmers.

Having ventured into agriculture in the 1980s, the duo possesses extensive knowledge of the macadamia sector. Mr. Munene notes the evolution of macadamia farming, from the use of organic indigenous trees to the now popular grafted varieties has seen an increase in their yields. He describes the difference in appearance between the two, highlighting that the indigenous tree has dark green, thorny leaves, whereas the grafted tree boasts smoother, bright green foliage.

However, despite the demand for macadamia nuts, Munene reveals that sales have faced challenges over time. Before the COVID-19 pandemic, prices ranged between 150 Ksh and 200 Ksh per kilo. After the pandemic, prices dropped significantly, sometimes reaching as low as 80 Ksh, and even 20 Ksh per kilo when dealing with brokers.

This prompted the farmers to focus on dealing with processors more for their better payment rates. Mentioning that when brokers buy at as low as 20 ksh they buy at 90 ksh which is way better for a farmer though still low.

The main macadamia harvesting season begins in July and can

extend through September or even November. Unfortunately, this period is often plagued by issues such as nut theft and broker interference. Farmers, however, prefer dealing directly with processors, as they offer better prices and greater satisfaction.

Mr. Munene highlights the superior performance of grafted macadamia trees, which yield more nuts and mature more quickly compared to their indigenous counterparts. Adding that the grafted trees for their resistance to pests and diseases, making them easier to cultivate. Additionally, with the use of organic manure from livestock, these trees grow efficiently and rapidly.

Growing Macadamia

When growing macadamia trees, it is important to space them about 6 to 8 meters apart to allow for proper growth and air circulation. Holes should be dug to a size of 2 by 2 meters, twice as wide and deep as the root ball of the seedling. The tree should be planted at the same depth it was growing in the nursery, and the

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hole filled with a mixture of soil and organic matter. Consistent watering is crucial after planting.

Over time, organic manure is mixed into the soil to promote healthy root development. Mr. Munene stresses the importance of soft soil, which allows the roots to spread quickly, helping the tree reach maturity within two to three years. He also emphasizes the need to keep the area around the tree free from weeds, reducing competition for nutrients and water.

Regular application of organic manure throughout the growing seasons has been key to maintaining the health and productivity of his macadamia trees. The constant digging

around the root area and the addition of manure improve soil moisture retention,



ensuring consistent growth, especially during dry periods when macadamia trees are sensitive to drought.

Macadamia Processors Want Nut-In-Shell Export Window Closed



Macadamia Association of Kenya (MACNUT) have asked the government to reverse the recent decision to export raw and unprocessed macadamia. This they say have led to significant loss to farmers and processors leading to job loss in the sector. Seventy five percent (75%) of workers are young people who work for the processors, which means loss of jobs when the nuts are exported in their shells.

Influx of Chinese traders who are purchasing the unprocessed nuts at incredibly low prices meaning less returns for farmers and processors. At the farm the Chinese brokers are buying at Ksh 60 per kg and selling to the Chinese for 200 Ksh per kg, while the processors are buying at Ksh 130 per kg. Chinese are the only market for Kenya unprocessed nuts and they are only purchasing the large grafted nuts, which constitute to 50% of the Kenya crop. This has left the indigenous nuts unsold, and thereby leaving the local processors with no quality nuts to value add for export for both EU and US market.

The sector is asking the government to act swiftly to reinstate the ban of the unprocessed macadamia. "We

had discussed with EU and US markets for the country to export further value added branded nuts, which cannot be achieved if the nuts are leaving the country in their basic raw form," said Jane Maigua, chairperson, Macadamia Association of Kenya MACNUT.

Lifting of the ban resulted to significant revenue losses according to the industry sources. By July 2024 Kenya export of processed macadamia nuts amounted to 3.3 billion Kshs a figure that could have been higher if the unprocessed nuts were available for value addition. Before the ban was lifted the association reported that the country exported processed macadamia worth 6.9 billion Ksh to diversified markets.

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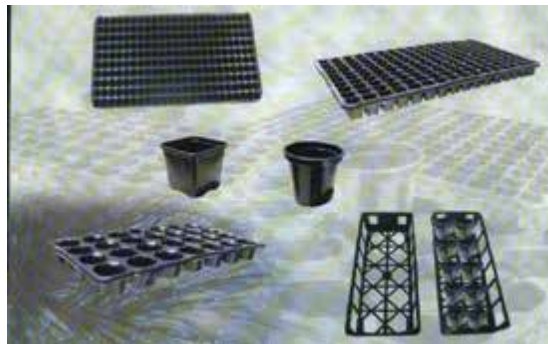
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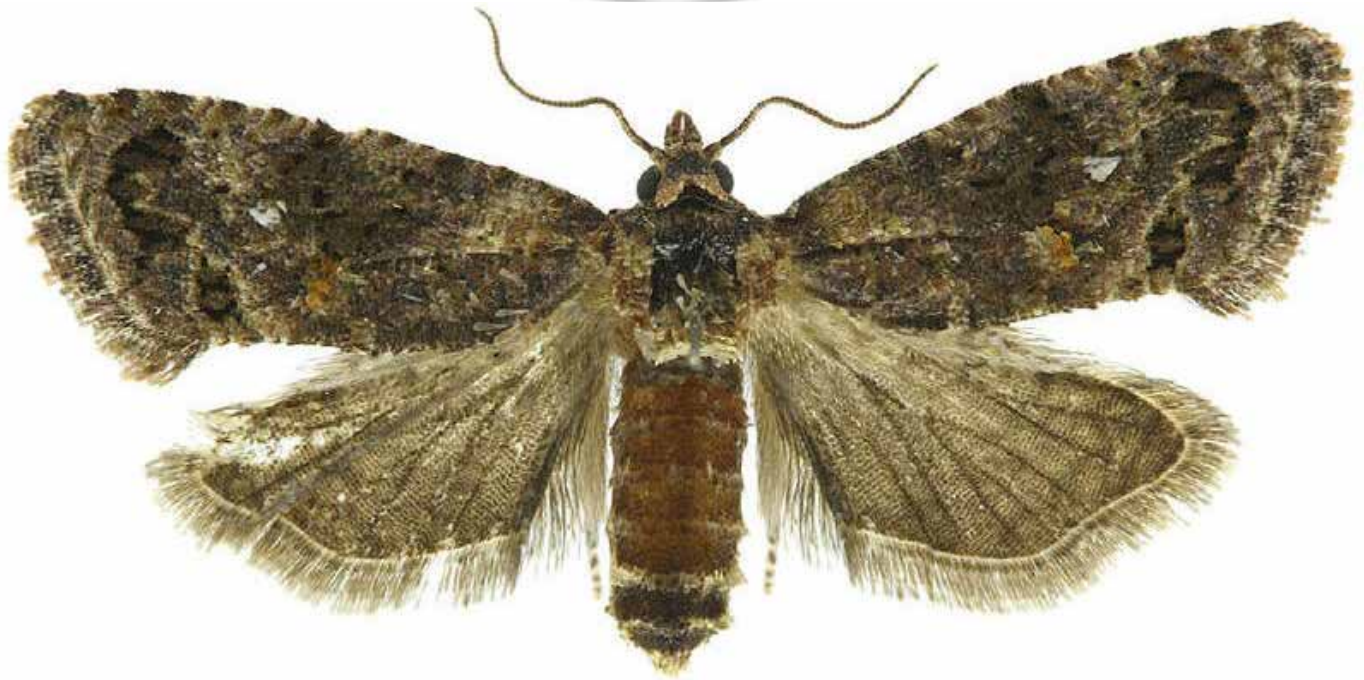
Planting Seed Trays

- 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





Reversing the threats of False Codling Moth

The False Codling Moth (FCM), scientifically known as *Thaumatotibia leucotreta*, is a pest notorious for its voracious appetite and is widespread across various regions of Kenya. This insidious pest has been wreaking havoc on Kenya's flowers, posing significant challenges to growers and threatening the stability of the industry.

Originating from Southern Africa, FCM has made its presence felt in Kenyan flower industry targeting a wide array of varieties.

Kenya's flower industry has been a beacon of economic growth, providing livelihoods for millions and supplying varieties that have won hearts in both local and international markets. The presence of False Codling Moth infestations is inflicting multiple layers of damage to the industry, resulting in significant economic losses and ecological imbalances.

FCM larvae enter into the flower bud then burrow downwards feeding on the inside of the stem, causing internal damage that renders the flowers unmarketable. This leads to reduced yields and financial losses to farmers, impacting the overall productivity of the sector.

"In addition to direct damage, False Codling Moth infestations can indirectly affect flower production by causing stress to plants, reducing their vigor, and making them more susceptible to other pests and diseases," 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 biological pest control

methods like traps enhancing sustainable flower production processes.

The presence of False Codling Moth in flowers triggers quality concerns among importing countries. Strict regulations and quarantine measures are imposed, leading to trade disruptions and loss of market access, further exacerbating the economic strain on farmers and exporters.

Combating False Codling Moth therefore requires a multi-faceted approach, integrating cultural, biological, and chemical control methods to effectively manage the infestations and minimize their impact on horticultural crops.

IPM strategies emphasize the use of holistic and sustainable practices to control pests while minimizing environmental impact. This includes cultural practices such as farm sanitation, pruning to disrupt the moth's lifecycle and reduce breeding sites.

Natural enemies of False Codling Moth, such as parasitic wasps and predatory beetles, play a crucial role in regulating populations. Biological control agents are introduced into farms to prey on FCM larvae and eggs, providing an eco-friendly alternative to chemical pesticides.

Pheromone-based traps are employed to monitor FCM activity and population dynamics in flower farms. By disrupting mating patterns and trapping male moths,

these traps serve as an early warning system, allowing farmers to implement targeted control measures when populations exceed threshold levels.

While chemical pesticides remain a key tool in FCM management, their usage must be judicious to minimize negative impacts on human health, beneficial organisms, and the environment. “Curtailling the menace of False Codling Moth in Kenyan floriculture demands a comprehensive approach that integrates scientific research, community engagement, and sustainable agricultural practices. By leveraging innovative

technologies, such as pheromone-based trapping systems and biological control agents, alongside grower education initiatives, we can effectively manage FCM infestations while minimizing environmental impact and ensuring the long-term viability of the flower sector,” said Simon Andys the CEO, of Premier Seed company, a fresh produce production farm

Integrated with other control methods, selective insecticides are applied strategically during specific stages of the moth’s lifecycle to achieve maximum efficacy.

“The presence of False Codling Moth in flower farms not only affects the aesthetic quality of blooms but also disrupts production schedules and increases production costs due to the need for stringent pest management measures. False Codling Moth can result in the rejection of flower shipments due to quarantine restrictions imposed by importing countries. This not only impacts individual farms but also undermines the reputation of Kenya’s

flower industry as a whole,” noted Stefano Banella, Crop Manager at Red Lands Roses. To tackle FCM, the farm that grows close to 200 rose varieties, has embraced conventional, biological and cultural arsenals.

Amidst the challenges posed by False Codling Moth interceptions, Kenyan stakeholders are mobilizing efforts to safeguard the integrity of flower exports and restore confidence in global markets.

Enhanced Monitoring and Surveillance: Investing in robust monitoring and surveillance systems is paramount to detecting and mitigating FCM infestations at early stages. Through collaboration between government agencies, research institutions, and industry stakeholders, proactive measures can be implemented to minimize interception risks.

Adherence to Best Practices: Embracing best practices in pest management, including integrated pest management (IPM) approaches, is essential for mitigating the risk of False Codling Moth infestations. By adopting sustainable farming practices and adhering to international standards, Kenyan growers can enhance the quality

and safety of their produce for global markets.

Capacity Building and Training: Equipping farmers, exporters, and regulatory authorities with the knowledge and skills to identify and address FCM infestations is critical for safeguarding the competitiveness of Kenyan floricultural exports. Capacity-building initiatives, such as training workshops and technical assistance programs, empower stakeholders to navigate the complexities of international trade while upholding quality export standards.

The battle against False Codling Moth represents a defining moment for Kenya’s flower sector—a test of resilience, innovation, and collective action. As growers and stakeholders unite in their efforts to combat this formidable pest, the path ahead may be fraught with challenges, but it is also brimming with opportunity. By embracing sustainable practices, fostering knowledge exchange, and championing policy reforms, Kenya stands poised to overcome the FCM threat and chart a course toward a more resilient and prosperous floricultural future.

Superior Care Better Farming

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 (16×10), 50 (20×10); **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 mm×7 mm / 3 mm×4 mm / 3 mm×2.6 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





Dr. Monica Waiganjo, CEO Sungreen Harvest, showing dragon fruits at her farm in Kimathina, Meru County

DRAGON FRUIT'S RISE: How this exotic fruit has given farmers hope

There is a fruit that has captivated the world with its unique appearance, nutritional value, and adaptability. This fruit is the Dragon fruit, scientifically known as *Hylocereus undatus*. Dr. Monica Waiganjo give a dive into her journey from the first experience of growing the fruit which was at first striking skepticism among the people being a new sight for them. Yet from her first sales hurdles she maintained a resilience that bore fruits as locals later became lover of the dragon fruit seeing her sales grow to an extent that she now propagates seedlings.

“Dragon fruit has been a game-changer for my farm as it has become my thing since my retirement. Am thankful to the venture for it has empowered my family and it has become our business,” says Dr. Monica Waiganjo, a farmer from Kimathina, in Meru County.

“It has transformed my life, taking me from a retired professional to becoming a renowned resource person by the world bank under the National Agricultural Value Chain Development Project (NAVCDP),” she said.

The NAVCDP is a Community Driven Development Project that seeks to increase market participation and value addition for targeted small-scale farmers in Kenya. Her story is evident of how the dragon fruit has changed countless farmers’ lives not only in Kenya but also worldwide as they embrace it as a source of both sustenance and prosperity.

The dragon fruit’s distinctive name stems from its striking appearance. Its vibrant skin, ranging from pink to red to yellow, is adorned with scales or spikes that resemble those of a dragon. This captivating exterior hints at the treasure within – a flesh that is soft, sweet, and speckled with tiny black seeds.

“It’s name alone was quite scary for the people at the beginning but over time they got to loving it,” says Dr. Waiganjo. “Dragon fruit is packed with nutrients that are good for you.” Indeed, three primary varieties of dragon fruit have gained popularity: white-fleshed, red skin-red fleshed, and yellow skin-

white fleshed. Each variety offers a unique flavor profile and visual appeal.

The fruit has quickly gained popularity from its nutrition values especially citing the vitamin values, and magnesium values. The fruit has been great especially for the control of diabetes, improving digestion, lowering cholesterol, and boosting energy levels.

Beyond its aesthetic appeal, dragon fruit is a powerhouse of nutrients. Its high vitamin C content acts as a potent antioxidant, protecting the body from free radical damage and bolstering the immune system. The abundant fiber content promotes digestive health, regulating bowel movements and promoting a feeling of fullness.

“It’s like nature’s multivitamin,” says a nutritionist. “Dragon fruit is rich in vitamins, minerals, and antioxidants that are essential for a healthy body.”

Dragon fruit is also a good source of minerals essential for overall well-being. Its magnesium content contributes to strong bones, healthy muscle function, and proper nerve transmission. The presence of iron supports healthy blood production, ensuring efficient oxygen transport throughout the body.

The exotic fruit, native to tropical and subtropical regions, thrives in well-drained soil and requires minimal water, making it a resilient and adaptable crop.

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Dragon fruit orchard, intercropping with the high value field bean (Nyota), to maximize profit, at Sungreen Harvest, Yatta, Machakos County



Dr. Monica Waiganjo, CEO Sungreen Harvest, at her dragon fruits farm in Kimathina, Yatta, Machakos County

The cultivation of dragon fruit has gained significant traction in recent years, driven by its potential for profitability and its adaptability to various climates. "It's a crop that can thrive in challenging conditions considering its drought tolerance capability and has inspired youths who are highly engaging in its growth," explains Dr. Waiganjo. "It's resilient and requires minimal water, making it ideal for regions facing drought or limited water resources."

Dr. Waiganjo's success in seedling production and sales demonstrates the growing demand for this fruit, not only locally but also globally. "It's a fruit that's gaining popularity quickly as people continuedly come asking for it hence my choice of propagating its seedlings," she

observes. "People are recognizing its health benefits and its unique flavor."

The versatility of dragon fruit extends beyond its nutritional value. It can be enjoyed raw, allowing its natural sweetness and unique flavor to shine through. Blending it into smoothies and juices adds a refreshing twist to any beverage. Its vibrant color and delicate texture make it an ideal ingredient for desserts and sorbets.

"It's a fruit that can be incorporated into so many different recipes," says a chef. "Its mild sweetness and unique texture make it a versatile ingredient for both sweet and savory dishes."

"It's a fruit that's breaking boundaries in the culinary world," says a food critic. "Its unique flavor profile and versatility have opened up new possibilities for chefs and home cooks alike."

While dragon fruit is generally considered safe for consumption, some individuals may experience allergies or digestive discomfort due to its high fiber content. It is advisable for those with sensitive stomachs to consume it in moderation and monitor their reactions.

The growing popularity of dragon fruit can be attributed to a confluence of factors, including its exceptional nutritional value, its versatile culinary applications, and its adaptability to various growing conditions. Its unique appearance and resilience have made it a symbol of nature's abundance and a testament to the potential for innovation and sustainability in the agricultural sector.

"Dragon fruit is more than just a fruit," says Dr. Waiganjo. "It's a symbol of hope, resilience, and the potential for growth."

As Dr. Waiganjo demonstrates, dragon fruit cultivation offers a promising opportunity for the youth, farmers and entrepreneurs alike. It represents a shift towards a more sustainable and nourishing future, where healthy, delicious, and newly emerging trends can be adopted.

The dragon fruit, with its captivating appearance, exceptional nutritional profile, and versatile culinary applications, is poised to become a staple fruit in kitchens and on tables around the world, promoting health and enjoyment for generations to come.

Dragon fruit's culinary versatility extends even to savory dishes. Its subtle sweetness and vibrant appearance add a touch of intrigue to salads, salsas, and even meat dishes. This

unexpected twist in flavor and texture has made dragon fruit a sought-after ingredient in modern gastronomy.



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Enhancing Cold Chain Logistics with IoT Technology: A Game Changer for the Industry



In the world of cold supply chain logistics, maintaining optimal temperature and humidity levels is vital, especially in industries such as food and pharmaceuticals where product quality, safety, and compliance are top priorities. Imagine a scenario where perishable goods or life-saving medications spoil due to a slight temperature variation during transit. The consequences are not just financial losses but also potential health risks. This is where the Internet of Things (IoT) steps in, offering solutions that revolutionize cold chain monitoring.

IoT enables companies to monitor, control, and optimize the cold chain with real-time data. By integrating IoT sensors and data loggers into logistics operations, companies can ensure the delivery of temperature-sensitive goods in pristine condition while increasing operational efficiency. In this article, we will explore how IoT enhances cold chain logistics, providing practical applications, real-world examples, and current trends that showcase the transformative impact of this technology.

Ensuring Delivery Quality and Customer Satisfaction

One of the most significant advantages of using IoT in cold chain logistics is the ability to monitor the entire supply chain from dispatch to delivery. With IoT-powered devices, companies can track temperature and humidity levels in real-time, ensuring that perishable goods remain within safe temperature ranges throughout the journey. This constant monitoring helps prevent spoilage, reduces waste, and guarantees product integrity.

For example, in the pharmaceutical industry, where vaccines and medications must be stored and transported at precise temperatures, any deviation can render the products ineffective. By using IoT sensors to continuously monitor temperature conditions, pharmaceutical companies can immediately address any issues that arise, ensuring that products reach their destination in optimal condition. This not only safeguards public health but also enhances customer satisfaction as

companies can assure their clients of the quality and safety of their products.

Overcoming Key Challenges in Cold Chain Logistics

Two of the most pressing issues in cold chain logistics are temperature breaches and accountability for damaged goods. When temperature-sensitive products are compromised, companies face costly returns, replacements, and damaged reputations. Moreover, determining who is responsible for mishandling the goods becomes a complex task.

IoT technology addresses both of these challenges head-on. First, IoT sensors continuously log temperature and humidity data, sending alerts when predefined thresholds are exceeded. This allows cold chain managers to take immediate corrective action, potentially saving the products from spoilage. This real-time visibility not only reduces waste but also cuts down on the need for costly redeliveries. Imagine a scenario where a refrigerated truck transporting fresh produce experiences a cooling failure during transit. Without IoT monitoring, the company might only discover the issue upon delivery, when the produce has already been spoiled. With IoT in place, however, an alert is sent the moment the temperature deviates, enabling the company to reroute the shipment or take other measures to save the goods.

Second, IoT provides location-based insights, offering an additional layer of transparency and accountability. Unlike traditional temperature stickers that only show whether

a temperature breach occurred, IoT systems pinpoint where and when the incident happened. This is crucial in proving liability and resolving disputes between suppliers, carriers, and customers. For example, a dairy producer can confidently identify at what point in the supply chain their products were mishandled, holding the responsible party accountable and preventing future issues.

How Cold Chain Monitoring Works with IoT Devices

At the core of IoT-powered cold chain monitoring is the use of advanced sensors and data loggers. These devices are designed to collect and transmit crucial environmental data, such as temperature and humidity, in real time.

A typical setup might include an RHT (relative humidity and temperature) sensor tag that measures temperature and humidity data throughout the transport process. This sensor communicates with an IoT device, which automatically uploads the data to a cloud-based platform. Cold chain managers can access this platform from any device, gaining real-time insights into their shipments. The system is configured to send automatic alerts to users if any thresholds are exceeded, allowing immediate action to be taken.

For example, a seafood exporter transporting fresh fish can rely on IoT sensors to monitor the temperature of their shipment from the moment it leaves the processing facility to its arrival at the grocery store. If the temperature rises above the safe



range at any point, an alert is triggered, allowing the exporter to contact the logistics provider and address the issue before the fish spoils.

The benefits are twofold: businesses gain peace of mind knowing their products are being transported under optimal conditions, and customers are assured that the products they receive meet the highest quality standards.

Practical Applications in the Supply Chain

IoT technology has numerous applications in cold chain logistics, ranging from food and beverage distribution to pharmaceuticals and even high-end electronics. In each case, IoT provides the tools needed to maintain precise environmental conditions and ensure product safety. Here are some practical examples:

- **Food and Beverage Industry:** IoT sensors monitor the temperature of perishable goods, such as dairy products, meats, and fruits, during transportation. By ensuring that these items are stored at the correct temperature, companies can reduce spoilage and minimize waste.
- **Pharmaceutical Industry:** Vaccines, insulin, and other medications require strict temperature control. IoT sensors ensure that these life-saving products remain within safe temperature ranges, protecting their efficacy and patient safety.
- **High-End Electronics:** Even products like smartphones, which are sensitive to humidity and temperature changes, can benefit from IoT monitoring during shipment. Sensors help maintain the integrity of these devices by preventing exposure to damaging environmental conditions.

Current Trends and Future Outlook

The integration of IoT into cold chain logistics is still evolving, with several emerging trends shaping the future of the industry. One of the most prominent trends is the increasing use of blockchain technology alongside IoT. Blockchain provides an immutable record of every step in the supply chain, enhancing transparency and trust. When combined with IoT, blockchain ensures that every environmental change and location update is securely recorded, creating an unbroken chain of custody for goods.

Another key trend is the rise of predictive analytics. By analysing historical data collected through IoT devices, companies can predict potential risks and prevent issues before they occur. For example, if a certain transport route is prone to delays or temperature fluctuations, predictive analytics can suggest alternative routes or additional safeguards to ensure successful delivery.

Furthermore, the adoption of 5G networks will accelerate the use of IoT in cold chain logistics. With faster data transfer speeds and lower latency, 5G will allow for even more accurate real-time monitoring and quicker response times, further enhancing the efficiency of cold chain management.

How IoT Can Grow Your Cold Chain Business

Incorporating IoT technology into your cold chain operations is not just about maintaining product quality—it's about driving growth and efficiency. By leveraging IoT, businesses can streamline processes, reduce operational costs, and

make data-driven decisions that lead to long-term success.

For instance, IoT systems can provide detailed temperature data for regulatory documentation, ensuring compliance with industry standards. Additionally, customers benefit from enhanced communication as companies can provide real-time updates on shipment conditions and alert them to potential delays. This level of transparency boosts customer trust and satisfaction.

Moreover, IoT helps companies identify areas of inefficiency within their supply chain. By analysing data from IoT devices, businesses can optimize routes, reduce energy consumption

in refrigeration units, and improve asset utilization. The result is a more sustainable, cost-effective supply chain that benefits both the company and the environment.

Embracing IoT for a Smarter Cold Chain

The integration of IoT technology in cold chain logistics is a game changer. From real-time monitoring and data analytics to predictive insights and increased accountability, IoT provides the tools needed to enhance operational efficiency, reduce waste, and ensure product safety. As the technology continues to evolve, businesses that embrace IoT will be better positioned to meet the challenges of the modern supply chain and achieve lasting success.

For cold chain managers, the message is clear: leveraging IoT is no longer optional—it's essential. By embracing IoT solutions, businesses can not only protect their products but also grow their operations and deliver better service to their customers.

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