January - February 2021

THE LEADING FLORICULTURAL JOURNAL IN THE REGION

FLORICULTURE

Kshs. 400 Tshs. 8,800 S.A Rands 45 USD 6

Diminishing Insects' Population

KORDES ROSES

East Africa

BAYER

IMPULSE®

Trusted and Reliable Performance

against Powdery mildew

Systemic fungicide with protective curative and eradicative action for the control of Powdery Mildew leading to:

1. Improved Stem quality
2. Increased yield with more exportable stems by getting rid of necrotic marks cause by Powdery Mildew

IMPULSE® 15 Years

For more information contact: Maurice Koome: 0704 411 325 \ **Simon Kihungu:** 0704 411 315 \ **Simon Ngucugua:** 0704 411 301 \ **Joseph Ngunju:** 0715 407 193

Contents

The Leading Floriculture Magazine

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

Clean irrigation water, oxygen-rich and chlorine-free

Huwa·San©

A sustainable way of disinfection

Targeted and controlled disinfection with Huwa-San

Huwa-San TR-50 is the original silver stabilized hydrogen peroxide disinfectant. It's a chlorine-free, ecological and biodegradable technology with a long-lasting, controlled effect, thanks to the presence of a stabilising agent. The unique formulation makes Huwa-San TR-50 a powerful broad spectrum disinfectant that is both stable and safe. Huwa-San has proven to be effective against bacteria, fungi and viruses and allows you to disinfect in 3 ways:

Fogging

Quick disinfection of empty areas, inclusive all surfaces

•

Non-corrosive

Irrigation water

Active at a broad temperature and pH range

•

Biofilm removal and re-growth prevention

Surfaces and equipment

No harmful residues or by-products

•

User-friendly, simple and versatile to use

It is important that Huwa-San biocide products are used accurately. To ensure the right amount of product is used according to the advice of our experts, Roam Technology offers user-friendly measuring tools for correct dosing. Additionally, dipslides for the detection of micro-organisms are also available to observe microbiological contamination on surfaces and in water.

Contact our distributor in Kenya for more information on how to acquire the product.

Huwa-San is distributed by Lachlan Kenya Limited.

info@lachlanafrica.com · Tel: +254 722 209474 · www.lachlanafrica.com

Huwa-San TR-50 (BE-REG-00501) is a recognized biocidal product. Use biocides safely. Before use, read the label and product information.
* Certified for use in organic farming in accordance with EU 834/2007 and EU 889/2008.

Roam Technology
YOUR PARTNER IN HYGIENE CONTROL

Editorial

Happy New Yera All

The Zero degrees cold room may not seem like a place for personal reflection, but our cold room staff will tell you they do their best pondering walking around the coldroom counting their eggs before they hatch.

Our drivers find the lorry carrying flowers to the Airport to be a good thinking spot too. Perhaps it is that long view across the landscape afforded from the Lorry cab. Or maybe it is the relief of finally bringing in the crop that's been worried over since the first stem was put in the ground.

Whatever the reasoning, the two categories of employees from the flower sector find the constant thrum of harvested crop to be the perfect spot to contemplate ... well ... everything.

Over the year the flower sector experienced some good, some bad things, but we not only survived but we excelled. We went through the Lock down, we survived the lack of flights, all occassioned by Corvid-19 pandemic. We established ourselves as the leaders in the flower sector globally. All this success is because of you, the growers, so, Thank You. Thank you from the bottom of my heart.

There is much more to do and we will. Today we are here to launch 2021,

the new year and new opportunities it will bring. This demands hard work and we are ready for it. Aren't we?

Masila Kanyingi
Editor

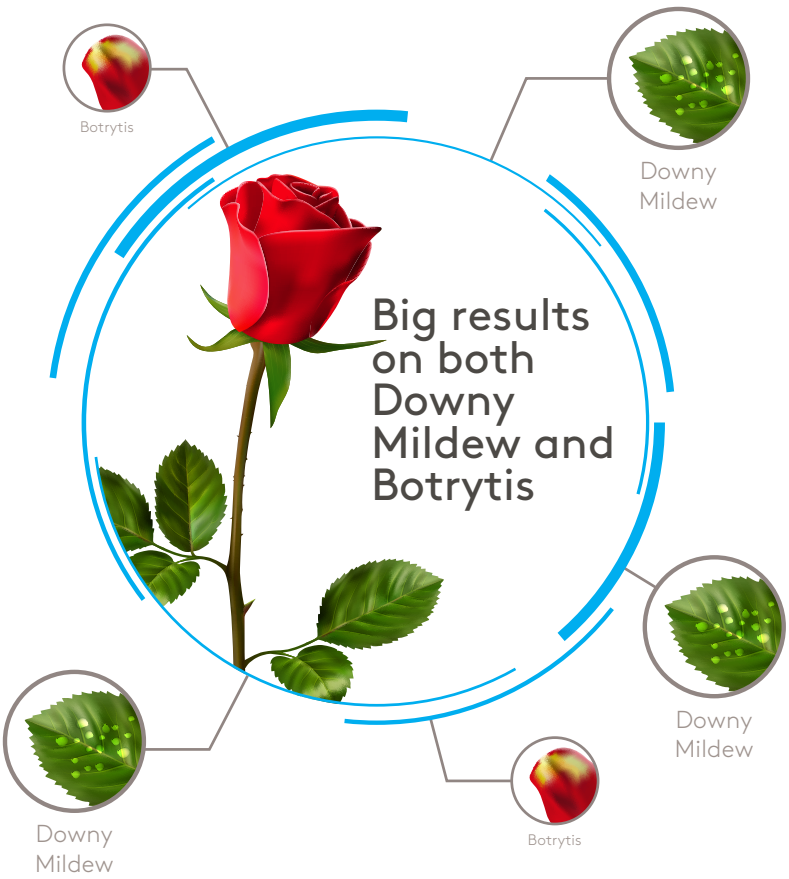
FLORINEWS

Publishers of Floriculture Magazine

P.O.BOX 79396 - 00200, Nairobi.
Tel: 020-2440909 • Cell 0732-558172,
Fax: 020-2244892
Email: info@floriculture.co.ke
Website: www.florinews.com

Bigo

A new fungicide from ADAMA which is a combination of two molecules with 2 modes of action



- Higher efficacy
- Fewer sprays
- Flexibility in timing of application
- A powerful tool to counter resistance development

Distributed by: Amiran

Amiran Kenya
Tel: +254 737 590 146
Mwadzombo@amirankenya.com
www.amirankenya.com

For further information please contact: Robert Wachira
Tel: +254 713 463 937 www.adama.com/east-africa

ADAMA

Find us on Facebook ADAMA East Africa

The Covid-19 pandemic has placed huge pressure on global flower supply chains and their air freight capacity. ***Jeroen van der Hulst (Right) of FlowerWatch*** offers three ways to turn this threat into an opportunity.

The Covid-19 pandemic has placed huge pressure on global flower supply chains. One major challenge is a drop in air freight capacity due to the worldwide slowdown in travel and transport. Air freight capacity from Kenya, for example, has dropped by an estimated 25-30 percent. All around the world the picture is similar. We offer three ways for flower chains to turn a threat into an opportunity: optimized packaging; sea freight; and storage solutions. In all three areas, standardisation is the way forward.

Packaging optimisation

Optimised and standardised packaging results in less damage and fewer rejects, while contributing to a longer average vase life, higher margins, and less packaging waste. It makes economic sense and it's also better for the planet. Today's air freight challenges make it more urgent than ever: with far fewer passenger flights, lower capacity, and even entire supply chain routes falling off the map, every pallet and kilogrammes of flowers that you can get on board to its destination matters.

From 1,500 kg per pallet to 2,200 kg

Our experience in supply and cold chain management for the flower industry has shown us that packaging in flower transportation, more often than not, is an underperformer. One of our customers used to ship two pallets a week of 1,500 kilos each. We helped them develop a better packaging solution, raising the pallet weight to between 2,000 and 2,200 kilos. In another case from our practice, we saw airplanes moving from 30 pallets or 3,000 kilos to 30 pallets or up to 3,400 kilos each. Given the current pressure on air freight capacity worldwide, this kind of packaging optimisation can make the difference between winning and losing.

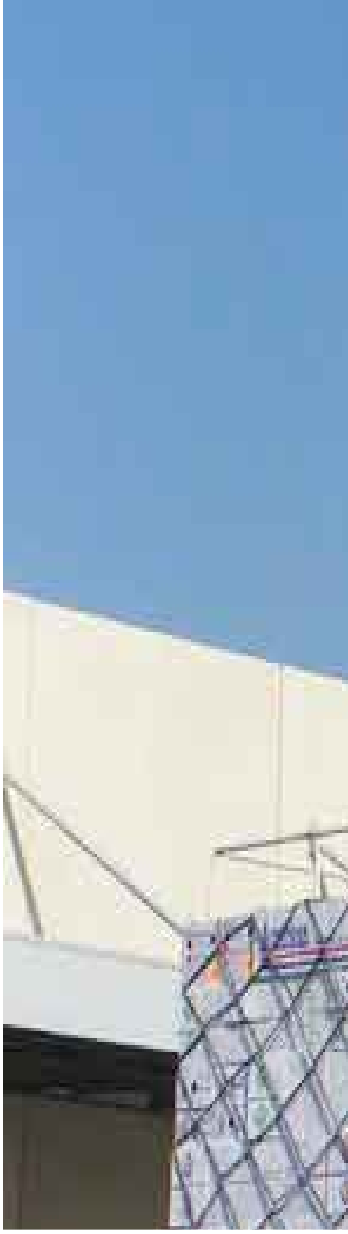
Sea freight

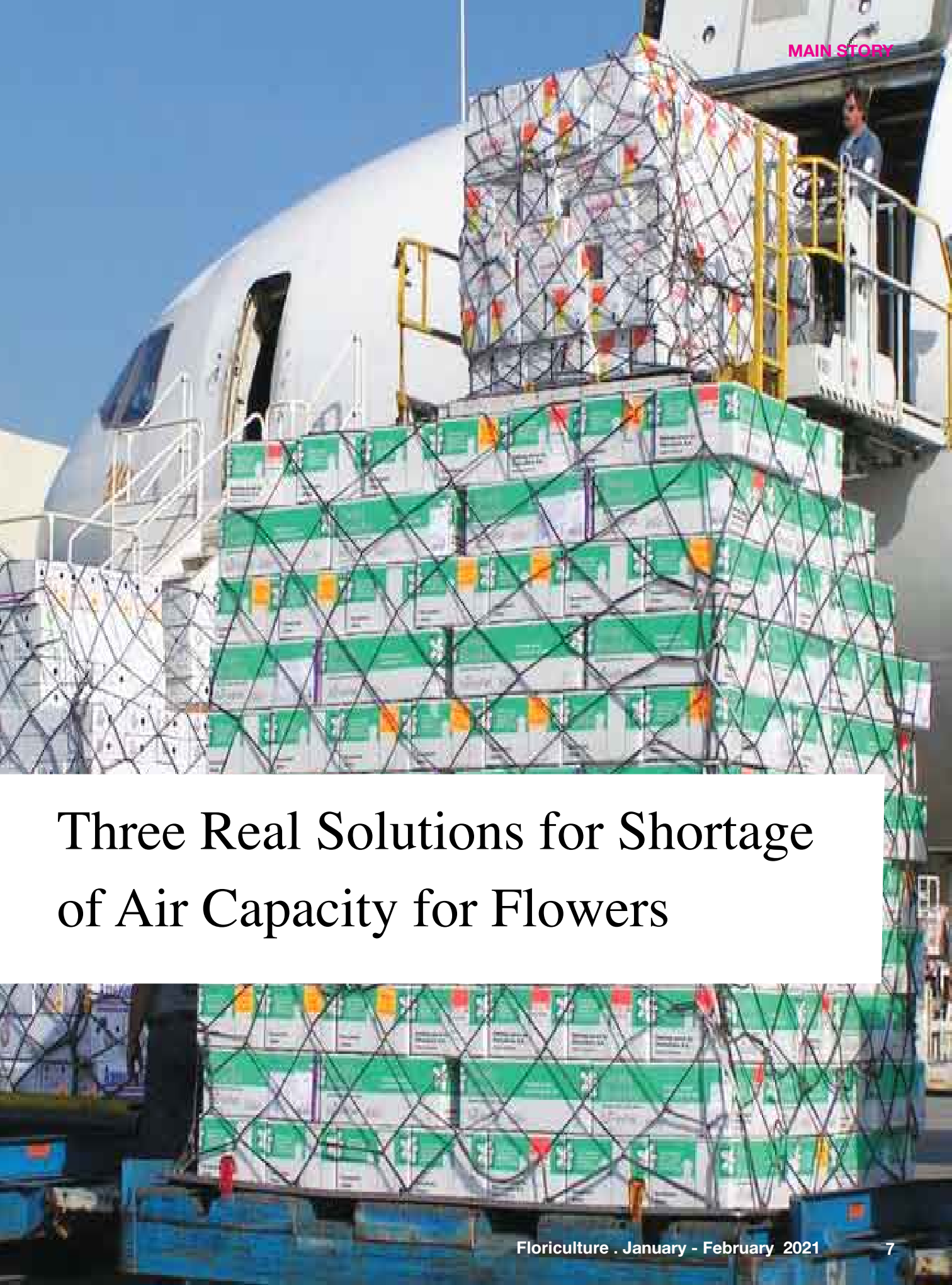
An obvious answer to reduced air freight capacity is to look for alternatives, such as sea freight. In some of the world's flower supply chains, sea freight is common, for example, much of Colombia's flower exports are sent by sea. On other routes, for example, between Kenya and Europe, the long distances can pose a challenge. If the cold chain management on these routes is below par, the challenge becomes a big problem: the exposure of flowers to too many degree hours causes damage and losses. If the cold chain is optimised, however, the challenge of time and distance becomes an opportunity. Players working with our proven cold chain standards benefit from guaranteed quality consistency and vase life extension.

Storage solutions

In some cases, certainly today, sea freight is still a bridge too far and reduced air freight remains a problem. In these situations, we advise flower businesses to integrate storage solutions in the supply chain. The current conditions are already causing forced storage today: reduced air freight capacity means a lot of flowers are spending a lot of time standing still on the journey from farm to florist. In an industry used to keeping its products constantly on the move all the way from farm to florist, this is a new situation. And with freight

To Page 8





Three Real Solutions for Shortage of Air Capacity for Flowers

percentages, and impact your margins. Our experience shows that solid storage solutions are often easier to implement and less costly than expected. The results: fewer hiccups in the supply chain, longer, and guaranteeable vase life, lower losses, higher margins.

Is your chain ready for Christmas, Valentine's, and other peak days?
In the run-up to Christmas, Valentine's, and Mother's Day, we strongly advise florists and retailers to make sure they have a good three weeks of flowers on stock to compensate for delays resulting from air freight capacity drops. Heydays aside, a five-day supply is becoming a basic necessity for surviving flight cancellations. In all of these situations, optimised packaging, sea freight, and standardised warehousing / storage solutions can help your company cross the line from struggler to achiever.

From Page 6

capacity down, the last thing you want is higher rejection percentages due to unplanned standstills in the supply chain.

Our advice: anticipate standstills and prevent bottlenecking by creating healthy storage solutions along the way. As with sea freight, cold chain standards are a vital part of this: even minor exposure to higher-than-ideal temperatures - for example in a poorly cooled transit hall at the airport - can severely reduce vase life, increase reject

Glory 750 WG

FUNGICIDE

Mancozeb 700g/Kg + Azoxystrobin 50g/Kg

A unique fungicide combination, specially formulated for the control of early and late blight on tomatoes and downy mildew on Roses

The ultimate double power against fungal diseases

- This combination will provide enhanced control of fungal diseases
- Easy to mix rapidly in water, dust free and comfortable to use
- Dual & multi-site action provides an increasing valuable disease control
- Growth promoting and greening effect thus improving yield
- Resistance management tool

UPL OpenAg™

DISTRIBUTED BY:

ELGON KENYA
TRANSFORMING FARMS & LIVES THROUGH TECHNOLOGY

4th Floor, Goodman Tower, Waiyaki Way, Westlands
PO Box 14360 - 00800 Nairobi, KENYA
Tel: +254 772 958 602 **www.upl-ltd.com/ke**

Closer™ 240 SC

INSECTICIDE

ISOCLAST™ ACTIVE

Corteva Agriscience™
Keystone Park, Block B, 3rd Floor, Riverside Drive
P.O. Box 53384 - 00200, Nairobi Kenya
Tel: + 254 709 142 000

Distributor: Amiran Kenya Limited
Mobile+ 254 719 095 000
www.amirankenya.com
/AmiranKenya /amiran_Kenya

Manufacturer: DOW **Dow Agrosciences**

For more information call: (+254) 724 221 870
or Whatsapp: (+254 110 095 215)

CORTEVA™ agriscience

Visit us at **corteva.com** **CortevaEAF**

Freight Pressures Remain on Kenyan Horticultural Exporters

Given the recovery of passenger flights serving East Africa is likely to be a slow process the need to identify air freight solutions focussed on East African export needs along inter-continental routes cannot be overstated. This Kenyan fresh produce export trade to the EU28 in 2019 was valued at €794.5 million (although not of this was airfreighted), or almost 60% of Kenya's total export to the EU28 market.

To date the model for this air freighted trade has been based on the lower freight rates offered on commercial passenger services. The sharp reduction in these flights saw freight rates double and even triple at the height of the pandemics' trade disruptions and induced acute shortages of cargo space.

While a partial recovery in commercial flights is underway this is focussed on intra-European flights, with inter-continental flights excluding the EU, still less than 60% of their January levels. With East-West routes better able to bear rising freight costs, African exporters will face continued air freight challenges, particularly as air freight demand rises in the face of the rolling out of a global vaccination programme. Given the economic significance of the air freight export sector to the Kenyan economy, there is a need for the designation of East African focussed air freight services as a 'strategic autonomy' sector, with normal rules related to state supported lending being waived. There is also a need to systematically review Kenyan production and export patterns, to see which export products remain commercially viable at higher freight rates and which export products can be shifted to sea freight. This review will need to take into account the increased costs which will be faced in trading into the UK market via initial ports of landing in mainland EU countries. These new costs along triangular supply chains are now inevitable given the state of play in EU/UK trade negotiations, with the only uncertainty being the scale of these increased costs. This will be impacted by the basis on which the UK finally leaves the EU customs union and single market.

To Page12

From Page 11

Despite a surprisingly strong export earnings performance, which saw Kenyan horticulture sector earnings from January to May 2020 increasing around 11% compared to 2019 (up to Ksh 72 billion compared to Ksh 65 billion), export volumes have remained low at 211,000 tons compared to 230,000 tons (down 8.3%). It is unclear whether the rise in revenues in Kenyan shillings was sufficient to cover the increased cost in getting cut flowers and horticultural products to overseas markets. What is clear is that developments in the air freight sector will be critical to the outcome of Kenya's overall 2020 horticultural and floricultural sector net earnings.

While some level of recovery in commercial passenger flights is underway, following the massive fall in services of 80% which occurred from January to April 2020, this has been most pronounced along intra-EU routes, where commercial flight services have risen to 95% of the January 2020 level. Excluding intra-EU flights, services have only recovered to 57% of their January 2020 levels.

Against this background there remains globally, a continued lack of air freight capacity, with analysts suggesting there will be 'a supply shortage of dedicated freighter aircraft for the foreseeable future'. While freight charges have fallen from the peak level in the early stages of the pandemic, commercial pressures from air freight charges facing Kenyan exporters are likely to continue.

This will not be helped by the a massive upswing in air freight demand which is expected as a result of not only normal seasonal factors but also the huge demand linked to need to rapidly move Covid-19 vaccines from major centres of manufacturing to markets where immunisation programmes are set to be rolled out.

This is a matter of serious concern, with disruptions to Kenya's export trade in the 8 months to August 2020 seeing Kenyan cut flower production down a reported 20%, and production in the vegetable sector down a reported 23%. 'The first round of lockdowns in Europe saw the fresh produce sector in Kenya hit hard by cancellation of orders, costing the economy billions of shillings.' The high value cut flower sector was particularly severely affected by the closure of the Dutch flower auction and many high street florists across the EU, as well as the collapse of demand from the events sector (weddings, funerals, conferences etc).

With more and more areas in Europe entering local and even national lock downs or further restrictions in social contacts, it is becoming clear a second wave of Covid-19 linked trade disruptions is now imminent. This needs to be seen in a context where the coming period normally accounts for 60% of annual earnings from Kenyan horticultural and floricultural exports. This makes effectively getting to grips with inter-continental freight challenges a matter of critical importance.

The hard reality faced is that in a context of intense competition for available air cargo freight capacity the more lucrative East-West routes are better served than South-North routes. As a consequence, in the coming months it is envisaged perishables exporters in Africa and Latin America

will struggle to secure competitively priced freight shipment capacity ‘because the value density of these goods cannot be carried at higher rates.

Against this background exporters in Africa are being advised to ‘commit to certain volumes and block space capacity for the entire year’ so as to incentivise carriers to supply capacity by making longer term commitments. It is argued such ‘long term contracted volumes could drive down the average price’ paid for air freight space. What is clear is that spot market freight services should be avoided wherever possible. The likely continued pressure on air freight prices is seeing some products being shifted over to cheaper sea freight services, although this is only possible for a limited range of products.

Given the reduction in passenger flight-based freight capacity, regionally based freight operators in East Africa have seen an expansion in demand for their services. Nairobi based air freight carrier Astral Aviation (which handles cargoes from Africa to Europe) has seen a 50% increase in demand since March.

The need to fill the freight haulage gap left by the reduction of passenger flight-based services has seen some stop gap measures being adopted. Okisegere Ojepat, Chief Executive Officer at Fresh Produce Consortium of Kenya, has praised Kenya Airways for its close cooperation with fresh produce exporters and its willingness to utilise redundant passenger planes to fly cargoes to Europe, despite the unprofitable nature of this cargo handling arrangement. With a trend towards seeking out more local supply chains in Europe, in the short term maintaining a presence on the European market was seen as more important than making money.

However, converting passenger planes to freight service operations is not economically viable in the long term. Even undertaking a systematic conversion of passenger service Dreamliners to freight cargo aircraft has its limitations. Against this background Kenya Airways is looking to acquire high capacity B777 for its long-haul freight trade, with these being able to carry 100 tons of cargo compared to 40 tons in a temporarily utilised passenger aircraft.

However, the process of acquiring such dedicated freight capacity will not be helped by the $300 million in losses Kenya Airways is projected to make in 2020, in the face of the Covid19 collapse of passenger services. Even with the lifting of some travel restrictions, Kenyan Airways is still only operating along only 37% of its international routes.

The need to get to grips with the freight challenges facing the Kenyan horticultural sector cannot be overstated, since the Covid-19 linked economic disruption are also seeing domestic prices of fruit and vegetables in Kenyan being depressed. This poor local market situation is being compounded by the retrenchment of workers from export orientated commercial farms who often return to rural areas to engage in subsistence farming (something which has been helped by good rains). Getting the export trade operating smoothly once again thus has far wider implications.

Post-harvest Management Procedures that are Critical to Maintaining the Quality and Safety of Horticultural Crops

There is no room for complacency or postponing readiness and adaptation measures in anticipation that an agreement would ensure continuity'.

Packing and packaging of fruits and vegetables

Preparation of produce for market may be done either in the field or at the packing house. This involves cleaning, sanitizing, and sorting according to quality and size, waxing and, where appropriate, treatment with an approved fungicide prior to packing into shipping containers. Packaging protects the produce from mechanical injury, and contamination during marketing. Corrugated fiberboard containers are commonly used for the packaging of produce, although reusable plastic containers can be used for that purpose. Packaging accessories such as trays, cups, wraps, liners, and pads may be used to help immobilize the produce within the packaging container while serving the purpose of facilitating moisture retention, chemical treatment and ethylene absorption. Either hand-packing or mechanical packing systems may be used. Packing and packaging methods can greatly influence air flow rates around the commodity, thereby affecting temperature and relative humidity management of produce while in storage or in transit.

Temperature and relative humidity management

Temperature is the most important environmental factor that influences the deterioration of harvested commodities. Most perishable horticultural commodities have an optimal shelf-life at temperatures of approximately 0 °C. The rate of deterioration of perishables however increases two to three-fold with every 10 °C increase in temperature. Temperature has a significant effect on how other internal and external factors influence the commodity, and dramatically affects spore germination and the growth of pathogens.

Effect of temperature on the deterioration rate of a non-chilling sensitive commodity

Temperature

Temperature (°C)	Assumed Q_{10}*	Relative velocity of deterioration	Relative postharvest-life	Loss per day (%)
0	-	1.0	100	1
10	3.0	3.0	33	3
20	2.5	7.5	13	8
30	2.0	15.0	7	14
40	1.5	22.5	4	25

$$*Q_{10} = \frac{\text{Rate of deterioration at temperature T} + 10\,^{\circ}\text{C}}{\text{Rate of deterioration at temperature T}}$$

Temperatures either above or below the optimal range for fresh produce can cause rapid deterioration due to the following disorders: Freezing Perishable commodities are generally high in water content, and possess large, highly vacuolate cells. The freezing point of their tissues is relatively high (ranging from -3 °C to -0.5 °C), and disruption caused by freezing generally results in immediate collapse of their tissues and a total loss of cellular integrity. Freezing occurs in cold storage systems either due to inadequate refrigerator design, or to thermostat failure. Freezing can also occur upon exposure to inclement weather conditions as occurs when produce is allowed to remain for even short periods of time on unprotected transportation docks during winter.

Chilling injury Some commodities (chiefly those native to the tropics and subtropics) respond unfavorably to storage at low temperatures which are well above their freezing points, but below a critical temperature termed their chilling threshold temperature or lowest safe temperature. Chilling injury is manifested in a variety of symptoms including

surface and internal discoloration, pitting, water soaking, failure to ripen, uneven ripening, development of off flavors and heightened susceptibility to pathogen attack.

Classification of chilling-sensitive fruits and vegetables according to their lowest safe temperature for transport and storage

'Heat injury' High temperature conditions are also injurious to perishable crops. Transpiration is vital to maintaining optimal growth temperatures in growing plants. Organs removed from the plant, however, lack the protective effects of transpiration, and direct sources of heat, such as sunlight, can rapidly elevate the temperature of tissues to above the thermal death point of their cells, leading to localized bleaching, necrosis (sunburn or sunscald) or general collapse.

Relative humidity (RH) is defined as the moisture content (as water vapor) of the atmosphere, expressed as a percentage of the amount of moisture that can be retained by the atmosphere (moisture holding capacity) at a given temperature and pressure without condensation. The moisture holding capacity of air increases with temperature. Water loss is directly proportional to the vapor pressure difference (VPD) between the commodity and its environment. VPD is inversely related to the RH of the air surrounding the commodity.

RH can influence water loss, decay development, the incidence of some physiological disorders, and uniformity of fruit ripening. Condensation of moisture on the commodity (sweating) over long periods of time is probably more important in enhancing decay than is the RH of ambient air. An appropriate RH range for storage of

To Page 16

From Page 15

fruits is 85 to 95 percent while that for most vegetables varies between 90 and 98 percent. The optimal RH range for dry onions and pumpkins is 70 to 75 percent. Some root vegetables, such as carrot, parsnip, and radish, can best be held at 95 to 100 percent RH.

RH can be controlled by one or more of the following procedures:

(1) adding moisture (water mist or spray, steam) to air with the use of humidifiers;

(2) regulating air movement and ventilation in relation to the produce load in the cold storage room;

(3) maintaining the temperature of the refrigeration coils in the storage room or transit vehicle to within about 1 °C of the air temperature;

(4) providing moisture barriers that insulate walls of storage rooms and transit vehicles;

(5) adding polyethylene liners in packing containers and using perforated polymeric films for packaging;

(6) wetting floors in storage rooms;

(7) adding crushed ice in shipping containers or in retail displays for commodities that are not injured by the practice;

(8) sprinkling produce with sanitized, clean water during retail marketing of commodities that benefit from misting, such as leafy vegetables, cool-season root vegetables, and immature fruit vegetables (such as snap beans, peas, sweet corn, and summer squash).

Cooling methods

Temperature management is the most effective tool for extending the shelf life of fresh horticultural commodities. It begins

Citrus Fruits from Kenya

with the rapid removal of field heat by using one of the cooling methods

Variable	Cooling method				
	Ice	Hydro	Vacuum	Forced-air	Room
Cooling times (h)	0.1-0.3	0.1-1.0	0.3-2.0	1.0-10.0	20-100
Water contact with the product	yes	yes	no	no	no
Product moisture loss (%)	0-0.5	0-0.5	2.0-4.0	0.1-2.0	0.1-2.0
Capital cost	high	low	medium	low	low
Energy efficiency	low	high	high	low	low

Comparison of methods used for cooling

Packing fresh produce with crushed or flaked ice provides rapid cooling, and can provide a source of cooling and high RH during subsequent handling. The use of crushed ice is, however, limited to produce that is tolerant to direct contact with ice and packaged in moisture-resistant containers.

Clean, sanitized water is used as the cooling medium for the hydrocooling (shower or immersion systems) of commodities that tolerate water contact and are packaged in moisture-resistant containers. Vacuum cooling is generally applied to leafy vegetables that release water vapor quickly, thereby allowing them to be rapidly cooled. During forced-air cooling on the other hand, refrigerated air is forced through produce packed in boxes or pallet bins. Forced-air cooling is applicable to most horticultural perishables.

Precise temperature and RH management are required to provide the optimum environment for fresh fruits and vegetables during cooling and storage. Precision temperature management (PTM) tools, including time-temperature monitors, are increasingly being employed in cooling and storage facilities.

Refrigerated transport and storage

Cold storage facilities should be appropriately designed, of good construction, and be adequately equipped. Their insulation should include a complete vapor barrier on the warm side of the insulation; sturdy floors; adequate and well-positioned doors for loading and unloading; effective distribution of refrigerated air; sensitive and properly located controls; refrigerated coil surfaces designed to adequately minimize differences between the coil and air temperatures; and adequate capacity for expected needs. Commodities should be

stacked in the cold room or the refrigerated vehicle with air spaces between pallets and room walls so as to ensure proper air circulation. Storage rooms should not be loaded beyond their capacity limit if proper cooling is to be achieved. Commodity temperature rather than air temperature should be measured in these facilities.

Temperature management during transportation of fresh fruits and vegetables over long distances is critical. Loads must be stacked so as to enable proper air circulation, in order to facilitate removal of heat from the produce as well as to dissipate incoming heat from the atmosphere and off the road. Stacking of loads must also incorporate consideration for minimizing mechanical damage. Transit vehicles must be cooled prior to loading the fresh produce. Delays between cooling after harvest and loading into transit vehicles should also be avoided. Proper temperature maintenance should be ensured throughout the handling system.

As far as possible, environmental conditions (temperature; relative humidity; concentrations of oxygen, carbon dioxide, and ethylene) should be optimized in transport vehicles. Treatment with ethylene to initiate ripening during transportation is feasible, and is commercially used to a limited extent on mature green bananas and tomatoes. Produce should be cooled prior to loading and should be loaded with an air space between the palletized product and the walls of the transport vehicles in order to facilitate temperature control. Vibration during transportation should be minimized, so as to avoid damage due to bruising. Controlled-atmosphere and precision temperature management should, where possible, be observed so as to allow non-chemical insect control for markets which possess quarantine restrictions against pests endemic to exporting countries and for markets that do not want their produce exposed to chemical fumigants.

Mixing several produce items in one load is common and often compromises have to be made in selecting an optimal temperature and atmospheric composition when transporting chilling-sensitive with non-chilling sensitive commodities or ethylene-producing with ethylene-sensitive commodities. In the latter case, ethylene scrubbers can be used to remove ethylene from the circulating air within the vehicle. Several types of insulating pallet covers are available for protecting chilling-sensitive commodities when transported with non-chilling-sensitive commodities at temperatures below their threshold chilling temperatures.

The cold chain and its importance

The cold chain encompasses all the critical steps and processes that foods and other perishable products must undergo in order to maintain their quality. Like any chain, the cold chain is only as strong as its weakest link. Major limitations experienced by the cold-chain include poor temperature management due to either the lack of, or limitations in, refrigeration, handling, storage, and humidity control. Investment in cold chain infrastructure ultimately leads to a reduction in the level of losses and quality degradation in fresh produce, with overall

To Page 18

Precise temperature and RH management are required to provide the optimum environment for fresh fruits and vegetables during cooling and storage.

To Page 17

net positive economic returns.

Return on investment in temperature and relative humidity management

Deficiencies in cold chain management whether due to limitations in refrigeration, improper handling and storage, or inadequate humidity control, can lead to losses in profits as well as in horticultural crops. Overcoming such deficiencies necessitates improvements in methodologies, operations and handling along the chain. Often the level of investment required in overcoming such deficiencies is minimal in comparison to the level of losses sustained over time. A University of California study determined that a one-hour delay in cooling some horticulture produce after harvest can result into a 10 percent loss due to decay during marketing. The resulting economic loss exceed the increased cost of expedited handling by more frequent deliveries of harvested fruit to the cooling facility and initiation of forced-air cooling.

Similarly, a University of Georgia study showed that poor temperature management resulted in a net income loss of US$172.50 per truck-load of 900 cartons.

Maintaining The Cold Chain For Perishables

Harvest· Minimize delays before cooling
· Cool the product thoroughly as soon as possible

Cooling - Store the product at optimum temperature

Temporary -Practice first in first out rotation

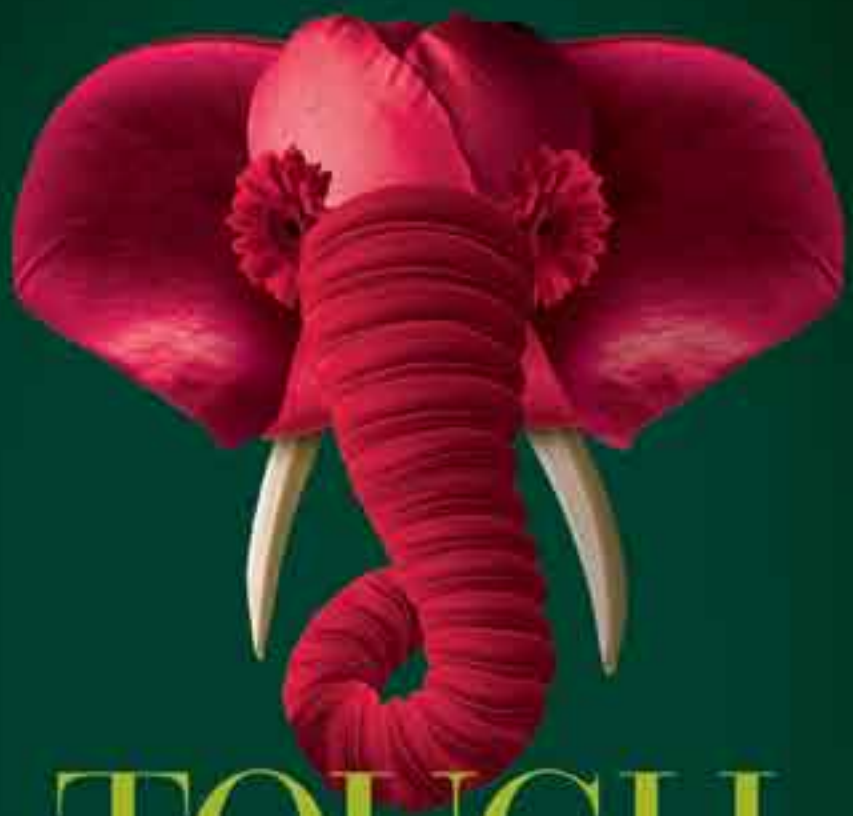
Storage - Ship to market as soon as possible

Transport - Use refrigerated loading area to Market
- Cool truck before loading
- Load pallets towards the center of the truck
- Put insulating plastic strips inside door of reefer if truck makes multiple stops
- Avoid delays during transport
- Monitor product temperature during transport

Handling - Use a refrigerated unloading area at destination
- Measure product temperature
- Move product quickly to the proper storage area
- Transport to retail markets or foodservice operations in refrigerated trucks
- Display at proper temperature range

Handling at - Store product at proper temperature home or Use the product as soon as possible foodservice outlet

A University of California study determined that excess weight loss coupled with color deterioration resulting from delays between harvest and cooling, improper refrigeration temperature and relative humidity control during the shipping result into a 15 percent loss in the value of that commodity. Resultant monetary losses were greater than the cost of improved management of temperature and RH with perforated plastic liners in the boxes and by minimizing delays prior to cooling with humidified, forced air.



TOUGH BUT FRIENDLY

Arima provides an effective and noble control of spider mites that guarantees high quality roses for demanding markets.

- *Highly compatible with biological controls.*
- *Quick knockdown and long lasting activity against spider mites at any stage of development.*
- *Ideal complement for anti-resistance programs.*
- *Safe solution for crops and spray operators.*

EVERY FLOWER TELLS A STORY™

Arima® Miticide

syngenta®

Building a future-proof flower storage strategy

Air freight capacity has reduced drastically due to the COVID-19 pandemic. How can you create a storage strategy to make sure you can ship enough flowers for peak season? In this article, we look at some of the storage solutions FlowerWatch has developed with its partners.

Enough capacity for peak season?

Across the world, lockdowns continue to impact air freight capacity. For example, a decline in shipping volume in France is hitting the floriculture market. With an already-reduced air freight capacity, global demand for vaccines could make air freight even more difficult. At the same time, the market outlook is positive, for the coming peak season, which sees Valentine's Day, Women's Day, and UK Mother's Day lined up in quick succession.

In recent weeks, FlowerWatch has been working with a number of our business partners to optimize their storage strategies, both at the farm and with forwarders, as well as with importers and traders.

No shortcuts at the farm

As we work with farms to ensure better storage solutions, we follow a number of basic rules, with no shortcuts. These rules tie in with key questions that have to be asked before forwarding, for example: Are your spray programmes put together in the right way? Have we eliminated the chance of resistance development in botrytis? Are buckets clean? Do we have a clear idea of what extra treatments are needed, and are the staff-trained to perform them?

The right packaging for long-term storage

Long-term storage brings its own unique challenges, as we need to control dehydration and respiration. While standard packaging can work, we can greatly increase the chance of success by

choosing an optimized, storage- and sea freight-proof packaging material. Together, FlowerWatch and its partner Silpack are currently finalizing a new solution: a cross between an advanced air freight box and a sea freight box. We are confident that this packaging solution will offer a better load rate, a better net-to-gross weight, require less handling, and will be ready for both air freight and storage.

Optimizing air freight and storage

The FlowerWatch 500 degree hour norm is key to keeping an optimal cold chain. If we want to optimize storage, we need to keep both the air freight and storage parts of the chain below 500 degree hours too. In this area, FlowerWatch has worked closely with two forwarders at Nairobi airport, KN and TotalTouch. By fully monitoring the forwarding stage, we can ensure that your flowers have an excellent start to their journey.

A guaranteed 'less than 500 degree hour' cold chain

Together, Air France KLM Cargo and FlowerWatch have worked to create a guaranteed 'less than 500 degree hour' cold chain. The cold chain involves direct flights and excellent facilities at Amsterdam airport.

Key results:

- fast clearing;
- an important "make cool" step upon arrival;
- and fast delivery to your dedicated warehouse.

With this guarantee, you can have confidence that your fresh-cut flowers won't lose vase life through a suboptimal cold chain.

"We are proud to be the first airline combination to be FlowerWatch approved. By complying with FlowerWatch's high standards for handling flower shipments, we have drastically increased the vase life of the flowers we carry out of Kenya, Colombia, and Ecuador" - Eric Mauroux, Global Head of Perishables at Air France-KLM Cargo

Storage as solution

As we have seen in this short article, FlowerWatch is working with its partners to create optimized storage solutions, from farm to florist. Looking ahead, this approach to storage and forwarding can offer a new option for dealing with today's air freight capacity reduction: combining air freight shipping optimization with new storage solutions, letting you ship flowers earlier, and use storage to build up stock.

Through FlowerWatch Standards and Monitoring, you can ensure that your supply chain is perfectly optimized for this approach. We offer you a way of building up stock without overhauling your shipping system or losing vase life through imperfect storage. In unsettling times, developing futureproof storage solutions gives the floriculture industry a firm handle on air freight reduction.

Courtesy: Flowewatch

ROSE DIP SERVICE

Keeps your roses Botrytis free • Enhances colours • Prolongs vase life

Would you like to have better quality flowers and increase profit?

Chrysal Rose Dip; beautiful roses and reduced rejections. Every grower wants to produce beautiful flowers with minimal wastage, complaints and rejections. However, according to a study by Innovative Fresh, the amount of waste caused by botrytis in supermarkets is on average 12%. Waste also occurs at the farm, during transport and at the final customer. The total cost of botrytis damage amounts to millions of euro's every year.

Chrysal Rose Dip Service

In June 2019 Chrysal Africa launched the best treatment for botrytis in roses: the innovative Chrysal Rose Dip Service, which has since grown to the leading premium anti-botrytis treatment in Kenya. This service is a unique concept, that provides the perfect solution to the problem of botrytis losses. Rose Dip is extremely effective against botrytis and helps growers to keep their beautiful roses fresh for longer, full of colour and free of botrytis. We offer a unique, tailor made service that fits seamlessly into the process of harvesting prior to shipment. Every farm and grower has their own unique flower processing, whereby different factors need to be taken into consideration. Different farms will have different handling and dipping procedures, and we work together with every grower to ensure our service integrates seamlessly with these requirements. The Chrysal Rose Dip Services is providing the dipping tools, the preparation of dipping solution, and the oversite of the process. We also provide training of the dipping personnel, ensuring that they understand the importance of the process as well as how to recognize botrytis related issues.

Botrytis

Botrytis Cinerea (grey mould) is a fungus which causes a loss of quality in flowers like Rose, Chrysanthemum, Gerbera and Lisianthus. The place of origin, season, hygiene during processing and storage, weather conditions and climate control play an important role in the appearance and development of botrytis. The fungus thrives on both living and dead plant materials. The infection starts when miniscule little mould spores, spread through the air. Starting as a little speck ('pock') on the flower petals, it spreads right to the bottom of the flower. It gradually changes its colour to brown and becomes moist and finally makes the petals fall off. Unfortunately, botrytis is an irreversible condition. Whilst infected flower petals are often removed by hand, there can be no guarantees that the fungal infection as not already damaged the rest of the petals.

Combination of registered ingredients

Chrysal Rose Dip is one of the only registered combination of post-harvest anti-botrytis products in Kenya. It is safe to use and extremely effective at controlling botrytis within the entire flower chain. In addition, by reducing a roses' vulnerability during the challenges of transportation, Rose Dip gives customers the ability to consider longer transport options and extended storage opportunities. The application of Chrysal Rose Dip also enhances a flower's colours, makes opening of flowers more uniform and increases vase life. Growers can save costs while improving their quality.

It's an all-round winner: Happy Grower, Happy Retailer and Happy Customer.

For more info please contact us at: info@chrysal.co.ke

CHRYSAL

Water Management For Production

Water is the horticultural sectors' most precious resource. The efficient and effective management of water use should be top of mind for production throughout the year, but even more so as we head into the warmest months across the country.

In addition to ensuring that plants are receiving the optimal levels of water to support growth, plant health and nutrient absorption, nursery production managers must also be cognisant of the environmental impact of water use, particularly as much of the country comes off one of the most severe droughts in recent history.

In this issue, we discuss the best practice water management, irrigation methods as well as providing information on the environmental, economic, and social importance of efficient water use.

Summary

- Water management is an important task for a production, particularly as we enter warmer months

- As society becomes more environmentally conscious, there is a greater expectation among agricultural industries to manage the volume of water they use, and the impact of water runoff into ecosystems

- Good water management is also good for the bottom line of production nurseries, reducing input costs and improving quality of stock

- It is important to leverage robust research to provide growers with best practice strategies to improve their water management operations, enhancing productivity and profitability

- This will assist growers in being good custodians of water in the ecosystems in which they operate

- Consultation of available resources will assist growers in ensuring their water infrastructure is set up to be efficient and effective during warmer months, and improving their environmental footprint at the same time.

Background

The use of water in flower growing has been a focus for managers and researchers for a long time. Correct water use has clear and demonstratable benefits

.

General improvement in crop health including quicker and healthier plant growth, improved crop uniformity, higher production and reduced stock losses and discards, are all typical outcomes from a successful watering program.

Increased temperatures and threats to water supply mean businesses are often required to buy in more water, more frequently. With the price of water on the rise, this critical input should be monitored closely.

To Page 26

BESTFIELD

LEGEND 600WDG

BF 500 WDG

ACCURATE FC 525 WDG

3 PACK SOLUTION AGAINST DOWNEY MILDEW

Bestfield East Africa Limited
Saku business park.North Airport Road.
P.O.Box 51369 - 00200 City square, Nairobi Kenya.
Tel: +254 704380212
Email: info@bestfield.co.ke | www.bestfield.co.ke

> The best way to ensure correct watering volumes is choosing and implementing an irrigation system that is best suited and designed for your business and what you have grown.

From Page 24

The importance of water management transcends the productivity and profitability of the business itself. With issues like climate change and the most recent drought firmly at the forefront of national conversation, water use in agriculture and horticulture production is under increased public scrutiny.

This means there is greater pressure on production managers to be socially and environmentally conscious of their water use. By implementing effective water use minimisation strategies, farms can position themselves as responsible custodians of the land.

This article provides growers with a starting point on building effective water management strategies. Farm managers are also encouraged to stay up to date with the latest innovation on water use, irrigation technologies and remote monitoring technologies to stay ahead of the curve.

This article is set to ensure farmers have a resources available to advice on best practice water management. Leveraging robust research, developed over a number of years both locally and globally, the guidelines are focused on achieving the most favourable productivity and efficiency outcomes for growers contributing to environmental sustainability and reducing production costs.

The guidelines look at six key elements of water use in production nurseries

1. Efficient water use to minimise the business' demand on the water resource.
2. Irrigation management tools to ensure more productive and efficient use of water.
3. Increased reuse of wastewater to minimise the demand of the business on the water resource.
4. Effective management of sediment and litter.
5. Maximising the retention of nutrients to improve efficiency of production and maintain water quality.
6. Environmentally responsible use of plant protection products to produce quality products

Efficient water use to minimise the business' demand on the water resource.

Ineffective and uneven irrigation are contributing factors of poor or inconsistent product quality.

Applying the correct amount of water evenly will result in reduced water consumption, less wastewater and more efficient fertiliser uptake, driving further cost saving through reduced inputs.

The best way to ensure correct watering volumes is choosing and implementing an irrigation system that is best suited and designed for your business and what you have grown.

Farmers should consider whether top watering or bottom watering work best for their business. In many cases, a mixture of both system types will be most effective.

By choosing the best irrigation method and designing a system that meets the constraints of the business, demand for water can be minimised.

Irrigation management tools to ensure more productive and efficient use of water.
Even with a well-functioning irrigation system, there are many considerations for the day-to-day operation of the farms that are important for efficient water use.

Conducting a water audit is a great place to start. In order to continue to strive for improvement in water management, you need a base-level upon which to conduct measurement.

Details on average water use, water costs, pumping costs, maintenance costs, labour costs and throw-out percentage should all be measured and tracked.

It's also important to ensure that staff are brought along the journey. Each staff member should be accountable for their own water usage and play a part in accurate and reliable record keeping.

Other considerations to ensure that the day-to-day running of your nursery is allowing for maximum water efficiency include: using the most appropriate growing media for your irrigation style, irrigating at the correct times of day and reviewing watering schedules aligned to rainfall and other weather events.

Increased reuse of wastewater to minimise the demand of the business on the water resource.
The use of wastewater is increasing in flower production and is an invaluable method for reducing top-line water usage. However, care must be taken to ensure recycled water is fit for reuse in the production cycle.

Water to be recycled should be pre-treated to improve quality and remove plant pathogens. Different methods are available to growers including clarification, filtration and storage.

Water should be tested and managed for nutrients like nitrate, phosphate and potassium as well as pH, salinity, turbidity and presence of other chemicals.

Recycled water can also be used for non-production uses such as use in other cropping areas, or for the artificial creation of wetlands to encourage biodiversity.

Effective management of sediment and litter.
To minimise the effect of runoff water on the environment, an erosion, sediment and litter control plan should be prepared for production. Site-specific plans can take topographic limitations, climate patterns, soil types, drainage system, and product being grown into account.

There are some simple steps and procedures farms can follow to reduce the environmental impact of their run off, including keeping land clearance to a minimum and revegetate where possible, installing appropriate drainage, minimising fertiliser and chemical inputs and keeping vehicles to roadways and paths. Physical control devices such as traps and fences are also recommended.

Maximising the retention of nutrients to

Water should be tested and managed for nutrients like nitrate, phosphate and potassium as well as pH, salinity, turbidity and presence of other chemicals.

To Page 28

From Page 26

improve efficiency of production and maintain water quality.

The key to minimising nutrient losses in wastewater is reducing leachate through the adoption of practices which result in more efficient use of water and fertilisers.

Ultimately there are five key ways that this can be done. Improvements can be made in the delivery of fertilisers, on the delivery of water, in the retention of fertilisers, in the retention of water and by recycling nutrient-rich waste water.

Environmentally responsible use of plant protection products to produce quality products

Farms have the potential to cause local pollution through spray drift and water runoff caused by the use of plant protection chemical on-site.

The best way to reduce the environmental impact of chemicals in wastewater is to use less and by prioritising Integrated Pest Management as an alternative to using excess amounts of chemicals.

In addition to simply using less pesticides, nurseries can also investigate ways of impounding and capturing runoff for recycling and reuse, as mentioned above.

Managing Water For The Environment

With increasing pressure on all agricultural sectors to be responsible environmental custodians, it is more important than ever forfarms to consider and consult NEMA Guidelines.

NEMA supports farms in the implementation of good sustainable practices to help position themselves and the broader industry as being committed to sound environmental and natural resource stewards. Water management is a major focus for NEMA.

Waste water management

There is growing community concern about environmental impact of human activity on waterways including increasing frequency of algal blooms, increasing nutrient loads, pollution and reduced flow rates of our rivers and creeks, Growers are at risk of

contributing negatively to environmental impacts due to nutrients, chemicals, sediment and litter in water discharged from nurseries into stormwater outlets. The close proximity of many farms to populated areas and sensitive water catchments sharpens community concern about nursery wastewater.

Responsibility for ensuring healthy waterways and protecting water quality in catchments is shared between the community and all levels of government. The specifics vary from county to county, but in most cases the local council, community and water authorities have developed a series of values relating to parameters like aquatic ecosystems, visual amenity, chemical levels and irrigation

water supply aligned to the waterways in the country.

The objective for wastewater management is to maintain these environmental values of local and downstream waterways and aquatic habitats as developed by the community.

Therefore, farms that do not collect all wastewater have an obligation to protect waterways, by ensuring they are not contaminated with nutrients and chemicals.

This can be done through physical barriers, IPM strategies and the regular testing of runoff for dangerous levels of chemicals, pH and nutrients. Growers should consult local authorities on more specific information on waterway objectives and guidelines.

Water use efficiency

Kenya is a dry country and water is one of our most precious resources. Excess water use depletes surface and underground supplies and makes our rivers and streams vulnerable to degradation. Water efficiency is a major focus.

In addition to collecting wastewater and runoff, farms can minimise their use of water by prioritising bottom-water systems which are typically much more efficient than top-watering systems.

However, if using top-watering systems, drip irrigation is likely to be the most efficient with less over-watering. Mobile boom systems are also fairly efficient. Other top watering systems like hand watering and fixed overhead sprinklers can be efficient with the right management practices in place.

Mealybugs: Early Intervention is Key to Avoid a Costly Infestation

Mealybugs pose a serious threat to growers in warmer climates as they can significantly reduce the productivity and yield of greenhouse crops. But lessons-learnt from greenhouse rose farms in Kenya demonstrate that it is possible to manage Mealybugs when the right tactics are deployed, such as early intervention supported by an effective scouting system. Dr Geoffrey M. Macharia, Managing Director for East Africa, at global crop pest and disease mapping experts, Scarab Solutions, outlines five control methods to help farmers manage the spread of Mealybugs.

Mealybugs have taken on a renewed significance with the recent arrival and rapid spread in Kenya of the Papaya mealybug, *Paracoccus marginatus.* Although not the same species as the Coffee mealybug, *Planococcus kenyae,* generally found on roses in Kenya, both are quarantine pests that have the potential to spread viruses along fresh cut flower pathways. Now more than ever, rose growers in the global cut flower trade need to keep track of the Mealybug situation and stay alert to the pest's potential to spread to other markets. The Australian government reports that they have seen a steady rise of the pest over the last thirty years, with one-fifth of Mealybug interceptions on cut flowers and foliage, most of those were found on roses.

In the past, strong miticides used to manage the spread of spider mites were also effective at controlling the spread of Mealybugs and other pests. However, recent developments in pest management have resulted in pesticides being replaced by biological controls, and this has allowed Mealybugs to develop at uncontrollable rates. The warm temperatures of greenhouses also contribute to the Mealybug problem, as they are ideal conditions for crawlers to hatch. Once the immature scale crawlers emerge, Mealybugs can quickly spread to new plant parts and new hosts.

Left untreated, Mealybugs can severely affect crop productivity, in terms of quality and quantity, as they produce a toxic saliva that interrupts plant growth. Unlike other crop pests, they hide in the crevices between branches and the underside of plant leaves and steps. This means their rapid development often escapes detection until it is too late to contain the spread. The bugs' ability to avoid detection means it is hard to begin the required aggressive investment in control and eradication measures, especially as the pests don't show up in post-harvest figures.

Scarab Solutions experts have used their fifteen years of experience working closely with greenhouse rose

growers in Kenya to develop an effective scouting system that is crucial to consistent and effective Mealybug management. By catching the Mealybugs early and focusing interventions when and where needed, Scarab Solutions experts have helped growers contain the infestation in their greenhouses before it becomes too widespread and costly to address. We advise industrial rose growers to adopt several essential control methods to deal with Mealybugs, which begin right from the initial stages of the crop cycle.

1. Detection is key during the initial stages

A widespread Mealybug outbreak in the greenhouse can be avoided if you detect the pest early and take immediate action to contain the infestation. If allowed to spread, Mealybugs can become extremely difficult to eliminate due to their high reproduction rates – adult females can lay up to 600 eggs and reach damaging population levels quickly. To avoid this development, an in-depth knowledge of the insect's biology is crucial to early scouting efforts.

Plant material needs to be checked for white cotton-like substances and sticky honeydews – clear signs that Mealybugs are present. If you miss this step, Mealybugs can produce large amounts of honeydew that supports the growth of black sooty mould, which interferes with plant respiration and transpiration.

2. Keep it clean with cultural and mechanical controls - good greenhouse hygiene can keep the unwanted pest at bay

But more is required during the initial stages of Mealybug intervention. When introducing crops to growing areas, you should thoroughly inspect all plant materials to protect clean areas of the greenhouse from infestation. During the early stages of crop development, it is essential to raise an alarm at the sight of Mealybugs so that management is informed and can take immediate steps to prevent a widespread infestation in the greenhouse.

To manage an early infestation, it is key to practice good greenhouse hygiene right from the initial stages of crop development.

For instance, debris needs to be regularly swept away from the greenhouse floor, as this tends to be a hotspot for Mealybug egg sacs. Growers should also avoid the tendency to over-water and over-fertilize the crop, as plants with high nitrogen levels and soft growth attract Mealybugs.

Unwanted material such as weeds, dead foliage, and hanging leaves should also be cut to allow the crop to open up during the early stages of plant development. This increases the level of coverage and can improve the effectiveness of intervention methods, such as spraying, that might be used in later stages.

Critical greenhouse hygiene measures also require a combination of cultural and mechanical controls to prevent the spread of infestation. For instance, you can protect clean areas of the greenhouse with the immediate removal of affected plants, crop and weed debris, and other plant parts. If agrobacterium tumefaciens sets in, growers need to monitor the rose crop for any fresh crown galls, as Mealybugs tend to hide inside and suck on the gall juice. On the detection of Mealybugs, you will need to dispose of the galls straight away and follow this step with a disinfection of the contaminated area. This way growers can significantly minimize Mealybug build-up and reduce the chances of re-infection. However, physical contact with infested plants should be kept to a minimum as Mealybugs easily adhere to clothing and implements.

3. Time for intervention? Start young - map for hotspots

As Mealybugs can be hard to eradicate from the crop, you will need to follow up with early intervention tactics. It is key to start this intervention when Mealybugs are in the crawler stage and have yet to develop their white wax. For smaller spots, a small paint brush coated in undiluted alcohol can be used to control the pest.

High volume spraying to achieve good coverage of the infected area may only be necessary where the infestation is widespread. But regardless of the volume deemed appropriate, you need to target the Mealybugs in their hiding areas to disturb them from their colonies. At this stage an accurate

To Page 32

From Page 31

mealybug map is essential to guide scouts to the hotspots where you need to target intervention.

4. Follow up with a rinse and repeat - high volume of soapy water followed by a chemical spray

Despite initial success in disturbing them from their colonies, Mealybugs can continue to be a problem. We find a two-pronged approach extremely effective at this stage. First, you should spray soapy water or detergent onto the plants to desiccate and crack the waxy layer of the Mealybugs.

To target the Mealybugs, you will need a high-water volume and a suggested size 16 or 18 nozzle should help with effective coverage. During this step, growers need to direct the spray of soapy water or detergent on the hard leaves to avoid scorching the younger and less developed leaves.

Secondly, follow with a chemical spray with a pH between 5.0 and 6.0 to effectively curb the spread of the Mealybug infestation. Recommended chemical sprays can include systemic chemicals such as Acephate, Imidacloprid, Sulfoxaflor, and Acetamiprid.

To achieve widespread coverage, growers should apply the chemical spray two or three hours after the crop has been washed with soapy water or detergent. For cases where the Mealybug infestation is well-established, weekly or semi-weekly intervals between sprays is suggested for effective management. When you have the best control for Mealybugs using the right pesticides, it is important that you achieve a good coverage and use the right volumes and pressure.

5. Guarantee long-term sustainability with biological controls

To meet the ever-increasing demand for sustainable pest management, growers can incorporate biological controls into their long-term Mealybug strategies. The introduction of natural Mealybug enemies - such as parasitic wasps, ladybird beetles, and lacewings - can be a real game changer in pest management as worldwide production of these predators and parasitoids starts to increase. In particular, the predatory ladybird beetle, *Cryptolaemus montrouzieri* can feed on Mealybug eggs from the beginning of their larvae stage.

This development helps growers reduce the population density of the pest. Growers can achieve a similar outcome if they place pheromone traps around their greenhouses, especially in Mealybug hotspots, to attract the winged males. The traps are an effective and sustainable measure to disrupt further reproduction.

The use of biological insecticides, which are a sustainable alternative to chemical pesticides, can also be a viable and effective way for growers to manage Mealybug infections in the long-term. Insecticides such as Neem Oil are a relatively new biological control method, but this does not discredit their effectiveness.

In recent years, the use of insecticides is gaining importance due to their potential to prevent the chances of a Mealybug resurgence. In particular, many Integrated Pest Management companies are continuing to develop biopesticides that minimize the development of resistance in key insect pests and protect non-target biodiversity — this has the potential to significantly alter Mealybug control strategies in the future.

Incorporating new control methods into pest management helps in the battle against an insatiable pest

Industrial growers need to meet the challenges of Mealybugs head on to protect crop productivity in greenhouses. This is where investing in an accurate and effective scouting system will help you achieve a successful long-term pest management.

While early intervention methods such as the use of undiluted alcohol, soapy water, and chemical sprays can be critical in reducing the size of the infestation, most sprays do not give the contact needed to eradicate the Mealybugs entirely. This is why a team of scouts armed with the knowledge and a reliable system to detect infestations early on is key to immediate intervention and will help growers win the battle against the insatiable pest.

Image Auctioning a success and Better end Times each Day”

Eelde Future-Proof was officially launched on Monday, 21 September, 2020. After a year of thorough preparations, distribution took place for the first time according to the fulfilment concept. In addition, auctions were conducted through Remote Buying (KOA) only. With the support for image auctioning in the auction room, the auction had a good attendance during the first week.

Eelde is the first Royal FloraHolland location to switch entirely to order picking. This makes it possible to offer customers tailored logistics services. There were a couple of hiccups during the first auction days due to technical problems in the order-picking process. As a result, distribution did not run perfectly yet, and buyers did not receive their products at the desired time, especially on Monday. Thanks to the constructive attitude and great effort of the whole Eelde team, Royal FloraHolland have been able to improve the lead times on each auction day since last Monday. They are now back to the regular lead times.

Implementation of Image Auctioning and Clock Presales

The implementation of image auctioning in Eelde is a success, according to Royal FloraHolland. Buyers in Eelde now trade through Remote buying (KOA) only. A life-size projection of all the trolleys can now be seen in the auction room. Specially for Eelde, the company developed a photo corridor where they photograph each trolley before auction. They will soon, in conjunction with buyers, evaluate the use of the photo corridor to determine whether any further development is needed.

They are currently providing support to buyers who need help with the new auction method, both in the auction room and beyond. It has been positively received.

Clock presales (KVV) have also been available since last week, and the auction can see that several transactions are already taking place.

‘The Future Starts in Eelde’

The Royal FloraHolland location in Eelde is to become the main auction and logistics centre for the north of the Netherlands and north-western Germany. That is why, over the past year, they have worked closely with buyers and growers to ensure that the new services with regard to auctioning and logistics meet customers’ needs. In order to make this possible, the location has been fully connected and integrated with Royal FloraHolland’s corporate systems. The link with the digital trading platform Floriday will make it possible to further digitise and expand services in the future. Thanks to the preparations they have made over the past few months, including an adapted layout of the building, Eelde has now become a modern hub.

Diminishing Insects' Population, a Major Threat to Food Security

Insects which constitute around 1.4 billion insects from an estimated 5.5 million species for each person alive today, are currently facing massive threats from human activity such as the use of pesticides resulting in their decline. A report dubbed 'INSECT ATLAS 2020' recently released by Heinrich Böll Foundation and Friends of the Earth has revealed.

According to the report, intensive farming, mono-cropping and over-reliance on pesticides poses one of the biggest challenges to the world of insects and as a result, both their diversity and their absolute numbers are declining, especially in agricultural areas threatening food security.

Most plants are reliant on insects because their flowers are not self-pollinating, and their pollen is not carried by the wind. For instance, bees must visit around 10 million plants to collect enough nectar to make half a kilogram of honey. In doing so, they carry pollen from flower to flower enabling the plants to produce seed and fruit, and over generations to adapt to a changing environment. If this activity is reduced, harvests of many fruits and vegetables such as watermelons, cucumbers, apples and pumpkins, are at risk and might almost disappear, the report argues.

Addressing the media during a virtual roundtable, organized by the Route to Food Initiative (RTFI), Dr. Faith Toroitich, Entomologist and lecturer at Egerton University said ecosystems and humanity largely depend on insects. "We cannot talk about food security without highlighting the role insects play in agriculture and food production. It is true that some insects impact agriculture by damaging crops and harvest. However, provision of food, silk, medicines, maintaining soil fertility, seed dispersal, and decomposing dead plant and animal materials, are just some of the reasons why we need insects. That said, we need to employ policies that shun the use of toxic pesticides to avoid their extinction."

While it has proven a challenge to combine farming and the protection of insects, farming must become part of the solution as itself too need insects. Worldwide, pollination by insects is valued at hundreds of billions of dollars.

Dr. Dino Martins, Entomologist and Executive Director of the Mpala Research Centre, noted insects play a critical role in the production of quantity and quality food, combating pests, source of food for other animals, cleaning up water supplies, and nutrients cycle. He added they are also critical for pollination; an activity we should not take lightly for the ecosystem. "Kenya is still lucky in that pollination is provided by wild insects. Other nations such as China, have to employ laborers to hand pollinate their crops. New York and California have to pay for colony bees to be brought to their farms by commercial pollinators. This is as a result of overuse of pesticides and development. It is an expensive exercise and we do not wish to get there." He said.

He further added there is a need for more research and funding of existing facilities in charge of monitoring and identifying agriculturally useful insects to ensure that their population thrives and to identify safe ways of destroying pests.

If insect diversity was to disappear, nature would change, and our diet as well as nutrition would have to change with it. It is for this reason we need to adopt organic and agro-ecology farming practices which avoids using pesticides and artificial fertilizers, but relies on crop rotations that control insect numbers while providing them with a range of suitable habitats.

Dr. Fathyia Khamis, an Integrated Pest Management (IPM) expert at the International Centre of Insect Physiology and Ecology (ICIPE) explained that whereas there is an urgency to eradicate invasive insects, how this is done should put into consideration their survival. She noted persistent use of synthetic toxic pesticides only threatens food safety, human and health, environment and biodiversity.

"We need to embrace methods such as the IPM that is equally effective in curbing the negative impacts of insects if we are keen on protecting our environment. This is an ecosystem-based strategy that focuses on long-term prevention of pests through a combination of strategies such as deploying biological control tools, habitat management, modification of farmers cultural practices, use of resistant cultivars, and use of bio-pesticides." She added.

MORE POWER HIGHER QUALITY

The double action of Solvit® ensures faster, more effective and longer-lasting control of Powdery Mildew and Rust diseases securing high quality cut flowers and profits.

EVERY FLOWER COUNTS

Solvit® Fungicide

syngenta®

Syngenta East Africa Ltd., P.O. Box 30393, 00100 Nairobi, Kenya.
M: +254 703 018 000, +254 703 019 000, +254 733 622 788
E-mail: syngenta.east_africa@syngenta.com | www.syngenta.co.ke

Fundamentals of Growing Media

Growing media are one of the most widely used materials for growing greenhouse crops. With many different formulations available for growers, it can be a challenge to choose which is the best blend to use. Understanding the composition, functions and intended use can make the selection process easier.

What are the functions of growing media? They provide a reservoir for water holding, a nutrient holding and exchange system, a zone for gaseous exchange for the plant root system and anchorage for plant roots. These physical characteristics of a growing medium are determined by the components used and the proportions in which they are blended together. What is important to remember is that the resulting physical characteristics do not equal the sum of the ingredients. First, let's look at the components used in formulating growing media, then focus on the characteristics of growing media, and finally biological additives.

Growing Media Components

Growing media components are either organic or inorganic. Organic components include, but are not limited to: peat moss, bark, coconut coir, rice hulls, wood fiber, etc. Inorganic components include, but are not limited to: perlite, pumice, vermiculite, sand, hydrogel, etc. Some of these components hold water on their surface, while others hold water on their surface and within their structure, and others hold very little, if any water, such as perlite. Keep in

mind that a specific type of ingredient can vary in its water holding capacity and physical structure, depending on its origin and how it is processed.

For example, bark can vary greatly in its source and its structure depending on how it is processed, aged, composted and screened. This is also true for peat moss. Light brown, fibrous peat moss has a porous structure and can hold up 16 times its weight in water. However, if this same peat moss is processed into fine particles, the water holding capacity can be reduced and the air porosity decreased dramatically. If you blend your own growing media, your source materials should be consistent to produce a quality and predictable growing medium. It is important to know the structure, chemical and physical properties of the ingredients you use to be sure that the growing medium blend you produce is the same, batch after batch.

“Flower market is at an all-time high and is becoming more competitive and demanding in terms of taste, size and firmness”

Physical Characteristics of Growing Media

While there are a number of laboratory tests for physical characterization of growing media, the three most familiar measurements are bulk density (weight), water holding capacity and air porosity. Water holding capacity is the volume percentage of water retained by a saturated growing after it is allowed to drain. Air porosity is a measurement of the volume of pore space occupied by air after a saturated growing medium is allowed to drain. For the most part, peat-based growing media products have a low bulk density, since the majority are made with a base of Sphagnum peat moss and have higher water holding capacity. Bark-based media are heavy weight products that are suitable when high drainage and container stability are required. Both types of products typically have good air porosity in a range of 10 – 18% by volume, which is a good range for most growing media.

Chemical Characteristics of Growing Media

Two important measurements for growing media are pH and EC (Electrical Conductivity). pH is a determination of how acidic or basic a substance or solution is. EC reading measures the ability of soil water to carry an electrical current and is an indication of the amount of nutrients available for crops to take up. For general purpose growing media, the ideal pH range is between 5.2 – 6.2 with a target of 5.8 when wetting out. (Wet-out is the pH measurement after adding water to packaged growing medium) Desirable EC for general purpose growing media is between 1.0-2.0 mmhos/cm.

For seed germination and rooting of cuttings, the desired pH range will be slightly lower between 5.0 – 6.0, with a target wet-out at 5.6. This pH range is slightly lower, since pH can tend to rise during use from minimal fertilizer applications and water alkalinity of irrigation water from constant misting. Desirable EC for germination and propagation growing media is between 0.5 - 1.1 mmhos/cm.

Most commercial growing media are pH adjusted with either calcitic or dolomitic limestone and contain a balanced starter fertilizer to help plants acclimate after planting. It is generally recommended to begin fertilization once new plant leaves begin to emerge and new roots develop. The amount of fertilizer and frequency of applications will vary based on the crop type, stage of development, container size and frequency of plain water applications. Keep in mind that some ingredients used in formulating growing media may contain mineral salts, such as coir. It is recommended that coir should be leached thoroughly before use to reduce salt levels and potentially high nutrients (i.e.: potassium, chloride, sodium). The same is true for bark, since aging and composting can release undesirable elements. To be sure, laboratory tests are recommended to check pH, E.C. and individual nutrient levels.

Uganda: Flower Farms Call for Expedited Review of the Minimum Wage Bill

By Agnes Nantambi

Workers in flower firms have called for expedited review of the Minimum Wage Bill as means of protecting workers from exploitation.

The bill which was passed by parliament in 2018 suffered a setback when the president declined to ascent to it.

The Minimum Wage Bill, 2018 empowers the Minister of labor to appoint a Minimum Wage Board to fix all minimum wages for various sectors and is also mandated to announce the minimum wages annually.

According to Yvonne Nagujja the Human Resource Manager Jambo Roses, a minimum wage is very important because it puts an employee on a certain level and also helps them to move forward.

She said that usually in Flower farms it's the employers and union who have been determining the minimum wage noting that at Jambo roses, workers used to earn sh90,000 with an additional of 6.5% before the introduction of the floor wage by Fairtrade Africa (FTA).

She said the introduction of floor wage has improved the relationship between the workers and the union which has been agitating for a better salary for the workers.

"All along, we have been pulling ropes with the union but the introduction of floor wage made the union lose words since what they were agitating for was much lower than what was introduced and being paid to workers currently," she said.

Nagujja explained that before the introduction of the floor wage by FTA, the company could lose workers every month.

"We would recruit someone today and tomorrow they are gone and you find that in a month, around 30 to 40 people would have gone to concentrate on doing their things other than concentrating on the farm.

At the moment, the floor wage paid has made most of the workers concentrate on their work

while committed," she said, adding that several companies are still paying peanut to their workers, calling for them to subscribe to Fairtrade to allow their workers benefit.

Fairtrade is a global movement that addresses the injustices of conventional trade by supporting smallholder farmers and workers to secure better terms of trade.

It's a member of the wider International Fairtrade movement representing Fairtrade certified producers in Africa, and the Middle East producers of traditional export commodities such as coffee, cocoa, tea, cotton, bananas, mango, and non-traditional commodities including shea butter and rooibos tea.

According to Tonny Kibirige, the program officer FTA-Uganda office, the organisation currently represents over 1,050,000 producers across 33 countries in Africa.

FTA secretariat is located in Nairobi, operates in four regional networks: Eastern and Central Africa Network (FTA-ECAN), West Africa Network (FTA-WAN) based in Accra, Ghana; Southern Africa Network (FTA-SAN) based in Cape Town, South Africa; and the Middle East and North Africa Network (MENA)

The Nairobi office represents producers from Burundi, DRC, Ethiopia, Kenya, Rwanda, Tanzania and Uganda with a view of supporting the development of thriving farming and worker communities that have more control over their futures.

Kibirige observed that Fairtrade has done a lot to benefit small-scale farmers and workers, who are amongst the most marginalised groups globally, through trade to enable them to maintain their livelihoods and reach their potential.

"For several years now, various stakeholders have taken a keen interest in East Africa's flower industry, with a particular focus on workers' wages which studies have shown fall below poverty lines limiting workers' ability to meet their essential needs and afford a decent standard of living," Kibirige said.

In Uganda, he stated that workers' wages remain a relevant on-going conversation given the country's minimum wage standing at Shs6, 000. For over 30 years ago.
As a result of the improved wages, the 3 Ugandan flower farms alongside other Fairtrade Certified farms in the country are experiencing lower turnover and improved worker productivity.

"The figure has been overtaken by the changing waves of political, social and economic climates. A change is, therefore, necessary to respond to the existing situation," he emphasised.

He, however, said that in response to this, FTA in 2017 acted to support flower farm workers in Uganda and other similarly affected flower-growing countries in the region especially Ethiopia and Tanzania.

"FTA introduced the Fairtrade Floor Wage in flowers, requiring certified flower farms to adopt the World Bank poverty line of US$1.9 a day as a minimum floor for the cash wages received by workers.

"For instance, at Wagagai Ltd, a flower farm located in Entebbe, workers have received annual increments, cumulatively resulting in a 28.9% wage rise where the lowest paid workers are now earning a monthly wage of sh202,000.

Others like Jambo Roses and Aurum Roses have each increased their base wage by an impressive 120%," he said.

He explained that as a result of the improved wages, the 3 Ugandan flower farms alongside other Fairtrade Certified farms in the country are experiencing lower turnover and improved worker productivity.

Achen Josephine, a worker at Jambo Roses said, was first recruited on a salary of sh95,000 but because of patience at work, it was increased to sh202,000 which has changed her livelihood.

"I can now pay fees for my children, pay rent and also start up new projects to sustain myself," she said.

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
AAA- Flowers-Rumuruti	Roses	Rumuruti	Anil	-	-
AAA- Flowers -Chui Farm	Roses	Timau	Phanuel Ochunga	07522506026	-
AAA-Simba Farm	Roses	Rumuruti	Eliud Wachiya	0727258218	-
Farm-Sunripe		Naivasha	Antony	0711827785	naivasha@sunripe.co.ke
Across Agriculture Ltd	Herbs	-	Emily Chepkemoi	0729080186	chep28@gmail.com
Africalla Kenya Ltd	Cuttings	Eldoret	Meindert	-	meindert@africalla.com
Africa Blooms	Roses	Salgaa	Ramnath Sarbande	0780314387	ramnath.sarbande@xflora.net
Afriscan Kenya Ltd	Hypericum	Naivasha	Charles Mwangi	-	-
Aquila Development Co	Roses	Naivasha	Abhay Marathe	0729776656	gm@aquilaflowers.com
Balaji Flowers	Roses	Olkalou	Ra0 Venkatesh	0726337266	-
Baraka Farm	Roses	Ngorika	Lucy Yinda	-	lucy@barakaroses.com
Batian Flowers	Roses	Nanyuki	-	-	-
Beautyline	Flowers	Naivasha	Peter Gathiaka	0721392559	peter@beautyli.com
Big Flowers	Roses	Timau	Gideon Waweru	0721178974	-
Bigot Flowers	Flowers	Naivasha	Kakasaheb Jagtap	0722205271	jagtap.kt@bigotflowers.co.ke
Bila Shaka Flowers	Roses	Naivasha	Joost Zuurbier	0722204489	bilashaka.flowers@zuurbier.com
Black Petals	Roses	Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
Bliss Flora Ltd	Roses	Njoro	Appachu Sachin	0789101060	appachu7@yahoo.com
Blue Sky	Gypsophilla	Naivasha	Patel Sushant	0725622333	info@blueskykenya.com
Bloom Valley		Salgaa	Karani	0733529666	-
Blooming Dale Roses Kenya Ltd	Roses	Nanyuki	Sunil	0718991182	info@bloomingdaleroses.com
Buds and Blooms	Roses	Nakuru	Shivaji Wagh	0720895911	shivaniket@yahoo.com
Carzan (K) Ltd KS	Summer flowers	Salgaa	Stanley Rotich	0721931710	stanley@carzankenya.com
Carzan (K) Ltd ST	Hypericum, solidago		Adung'o	0716019094	adung'o@carzankenya.com
Carzan - Molo	Carnations	Molo	Charles Chelule	0728784081	charles.chelule@carzankenya.com
Charm Flowers	Flowers	Athiriver	Ashok Patel	020 352583	ashki@charnflowers.com
Chestnut	Flowers	Mt. Kenya	Gabriel Kiai	-	gabriel.kiai@aaagrowers.co.ke
Colour Crops	Hypericum	Nanyuki	Kennedy Wanyama	0716389472	colourcrops@tmu.com
Colour crops	Summer Flowers-	Bahati	Patrick Kipkurui	0727806184	kipkirui89@gmail.com
Colour crops Naivasha	Flowers	Naivasha	Geoffrey Mwaura	0722200972	nva@colourcrops.com
Credible Blooms	Flowers	Rumuruti	Eliud Njenga	0722382859	eliud@pigeonblooms.com
Dale Flora	Roses	Mogotio	Ajay Sutar	0711102266	ajay.sutar24@gmail.com
Desire Flowers	Flowers	Isinya	Rajat Chaohan	0724264653	rajatchaohan@hotmail.com
De ruiters	Breeder Roses	Naivasha	Fred Okinda	0722579204	Fred.okinda@deruiter.com
Double Dutch	Cuttings	-	Pharis Wainaina	0728207661	
Dummen Orange	Flowers Breeders	Naivasha	Steve Outram	0733 609863	s.outram@dummenorange.com
Eco Flora	Roses	Salgaa	Jackson Mbanya	0723565630	production@fontana.co.ke
Elbur flora- kimman	Roses	Nakuru	Daniel Moge	0721734104	kimmanexp@gmail.com
Enkasiti Thika	Flowers	Thika	Tambe	0734256798	enkasiti@gmail.com
Equinox	Flowers	Nanyuki	Harry Kruger	0707266956	harry@equinoxflowers.com
Everest Flowers Ltd	Flowers	Mt. Kenya	-	-	-
Everflora Ltd.	Flowers	Thika	Bipin Patel	0735873798	everflora@dmblgroup.com
Evergreen Crops		Nairobi	Arun Singh	0721941009	arun@evergreencrops.com
Exotic Peninah	Roses/ Carnations	Athiriver	Dan	0734626942	dan@exoticfields.com
Fairy Flowers	Flowers	Limuru	Sylivester	0753444237	sylvesterkahoro@yahoo.com
Fides Kenya Ltd	Cuttings	Embu	Bernard Marindany	0726 366 752	B.Marindany@DummenOrange.com
Finlays- Lemotit	Flowers	Kericho	Japhet Langat	0722 863527	japhet.Langat@finlays.co.ke
Fontana Ltd - Akina farm	Roses	Njoro	Mahindra Patil	0798254199	--
Fontana Ltd - Ayana Farm	Roses	Mau Narok	Osman	-	-
Flamingo Holdings Farm	Flowers	Naivasha	Peter Mwangi	0722204505	peter.mwangi@flamingo.net
Flamingo Holdings-Kingfisher Farm	Flowers	Naivasha	Mr. Isaac Karanja	0720473502	kingfishercarnations@flamingo.net
Flamingo Holdings- Kingfisher Farm	Flowers	Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@flamingo.net
Flamingo Holdings-Siraji Farm	Carnations, Roses	Nanyuki	Peris Muturi	-	-
Flamingo Flora	Roses	Njoro	Sam Nyoro	0721993857	s.ivor@flamingoflora.co.ke
Flora ola	Roses	Solai-Nakuru	Lucas Choi	0721832710	lucas.floraola@gmail.com
Flora Delight	Summer flowers	Kiambu/ Limuru	Marco	0710802065	marcovansandijk@yahoo.com
Florensis Ltd	Cuttings	Naivasha	Anne Marie		annemarie@florensis.co.ke
Florenza Ltd	Roses	Solai	Yogeesh	0737453768	farm.florenza@megaspingroup.com
Fresh Gold Flowers Ltd	Flowers	Mt. Kenya	John Karimi	0721622294	karimi@freshgolgkenya.co.ke

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Gatoka Roses	Roses	Thika	Herman Njuguna	0728 854 844	info@gatokaflowers.com
Golden Tulip	Roses	Olkalao	Umesh Choudhery	0739729658	umesh@bth.co.ke
Groove	Flowers	Naivasha	John Ngoni	0724448601	groovekenya@gmail.com
Hanna Roses Ltd	Roses	Thika	Kadlag Palaji	0723149968	kadlag.paraji@hannaroses.com
Harvest Flowers Group	Roses	Murungaru	-	-	-
Harvest Ltd	Roses	Athiriver	-	-	-
Heritage Flowers Ltd	Roses	Rumuruti	Shailesh Kumar	0722203750	hfl.srk@gmail.com
Highland plantations	Cuttings & Herbs	Olkalau			production@highlandplants.co.ke
Imani Flowers	Summer Flowers	Nakuru	Raphael Otieno	0792302466	raphael@imaniflowers.co.ke
Interplant Roses	Roses	Naivasha	Gavin Mourittzen	0733220333	info@interplantea.co.ke
Isinya	Flowers	Isinya	Rajesh	-	pm@isinyaroses.com
Karen Roses	Flowers	Nairobi	Peter Mutinda	0723353414	pmutinda@karenroses.com
Kariki Ltd- Thika	Flowers	Thika	Mirium	-	production@kariki.co.ke
Kariki Ltd - Nanyuki	Eryngiums	Nanyuki	Richard Fernandes	062-31023/6	bondet.production@karik.biz
Kariki Ltd - Naivasha	Hypericum	Naivasha	Peter Kamwaro	0721758644	hamwe.fm@kariki.biz
Kariki Ltd - Molo	Fowers	Molo	James Oluoch	0716333717	jame.oluoch@kariki.biz
Kariki - Hamwe	Hypericum	-	Benjamin Ribai	0723721748	hamwe.fm@kariki.biz
Kenflora Limited		Kiambu/ Limuru	Abdul Aleem	0722311468	info@kenfloraa.com
Kentalya	Cuttings	Naivasha	Linnet	0733549773	lynette@kentalya.com
Kikwetu		Mt. Kenya	Rathan	0787266007	
Kisima Farm Ltd	Roses	Timau	Craig Oulton	0722205828	craig@kisima.co.ke
Kordes Roses	Roses- Breeders	Karen	Luce	0735995566	info@kordes-ea.com
Kongoni River Farm - Gorge Farm	Roses	Naivasha	Anand Patil	0728608785	anand.patil@vegpro-group.com
Kongoni River Farm - Liki River	Flowers	Nanyuki	Madhav Lengare	0722202342	madhav@vegpro-group.com
Kongoni River Farm - Star Flowers	Flowers	Naivasha	Jagtap	-	-
Kongoni River Farm - Kongoni	Flowers	Timau	Oppaso Bandgar	07120070053	oppasobandgar@vegpro-group.com
Kongoni River Farm -Bemack	Flowers	Timau	Mangesh	0797 874583	
Kongoni River Farm - Galaxy	Roses	Naivasha	Kiran Nangare	0787787544	kiran@vegpro-group.com
Kongoni River Farm- Longonot	Roses	Naivasha	Rakesh Kuttaiah	0724631299	rakesh.kuttaiah@vegpro-group.com
Lamorna Ltd	Roses	Naivasha	Mureithi	0722238474	admin@lamornaflowers.com
Lathyflora		Limuru	Mbauni John	0753888126	info@lathyflora.com
Lauren International	Flowers	Thika	Dilip	0720796629	laurenflowers@accesskenya.co.ke
Laurel Investment	Roses	Nakuru	Rajedra Jadhav	0738359459	rajendra.laurel@bht.co.ke
Livewire	Hypericum	Naivasha	Esau Onyango	0728606878	management@livewire.co.ke
Lolomarik	Roses	Nanyuki	Topper Murry	0715 727991	topper@lolomarik.com
Mahee Flowers	Roses	Olkalao	Natarajan	0738999149	natarajan@eaga.co.ke
Maridadi Flowers	Flowers	Naivasha	Jack Kneppers	0733333289	jack@maridadiflowers.com
Maua Agritech	Flowers	Isinya	-	-	-
Mau Flora	Roses	Molo	Mahesh	0787765684	mahesh@mauflora.co.ke
Milenium Growers	Summer Flowers	-	Sushant Wankara	0731316000	sushant@marvelgreens.com
Molo Greens	Solidago, carnations	-	Justus Metho	0722755396	justus@mologreens.com
Mt. Elgon Flowers	Roses	Eldoret	Bob Anderson	0735329395,	bob@mtelgon.com
Mwanzi Flowers Ltd	Roses	Rumuruti	Ram	0722265845	-
Mzuurie Flowers - Maji Mazuri	Roses	Eldoret	Mark Juma	0727471034	mjuma@majimazuri.co.ke
Mzuurie Flowers - Molo River Roses	Flowers	Kilelwa	Andrew Wambua	0724256592	awambua@moloriverroses.co.ke
Mzuurie Flowers - Winchester Farm	Roses	Karen	Raphael Mulinge	0725848909	rmulinge@winchester.co.ke
Mzuurie Flowers - Winchester Farm	Flowers	Bahati	Raphael Mulinge	0725848909	rmulinge@winchester.co.ke
Nini Farms	Roses	Naivasha	Philip Kuria	0720611623	production@niniltd.com
Nirp East Africa	Roses	Naivasha	Danielle Spinks	0702685581	danielles@nirpinternational.com
Ol Njorowa	Roses	Naivasha	Charles Kinyanjui	0723986467	mbegufarm@iconnect.co.ke
Oserian	Flowers	Naivasha	-	-	-
Panda Flowers	Roses	Naivasha	Vivek	-	farm.manager@pandaflowers.co.ke
Panocol International	Roses	Eldoret	Mr. Paul Wekesa	0722748298	paul.wekesa@panocal.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@pentaflowers.co.ke
Pendekeza	Roses	Nanyuki	Richard Siele	0722716158	tambuzi.sales@tambuzi.co.ke
PJ Dave Flowers	Flowers	Isinya	Sanjiv Dogra	0737576966	pjdaveflowers@wananchi.com
PJ Flora	Roses	Isinya	Santos Kulkarni	0738990521	santosh@pjdave.com
Plantech Kenya Ltd	Propagators	Naivasha	Idan Salvy	0702187105	idan@plantechkenya.com

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Porini Flowers	Roses	Molo	Shakti	0739676998	gm@poriniflowers.com
Primarosa Flowers Ltd	Roses	Olnjororok	Peter G. Njagi	0718342381	production.mp2@primarosaflowers.com
Rain Forest Farmlands Ltd	Roses	Naivasha	Lucas Onena Ongere	0718925040	longere@fleurafrica.com
Ravine Roses Flowers	Flowers	Nakuru	Peter Kamuren	0722205657	pkamuren@karenroses.com
Redland Roses	Flowers	Thika	Aldric Spindler	0733603572	aldric@redlandsroses.co.ke
Redwing Flowers	Flowers	Nakuru	Simon Sayer	0722227278	sayer@redwingltd.co.ke
Rift Valley Roses (K) Ltd	Flowers	Naivasha	Peterson Muchiri	0721216026	fm@riftvalleyroses.co.ke
Rimiflora Ltd	Hypericum	Njoro	Richard Mutua	0722357678	richard@rimiflora.com
Riverdale Blooms Ltd	Flowers	Thika	Antony Mutugi	0202095901	rdale@swiftkenya.com
Roseto	Roses	Roseto	Aravind	0786157344	gm.roseto@megaspingroup.com
Savannah international	Geranium	Naivasha	Ignatius lukulu	0728424902	i.lukulu@savanna-international.com
Selecta Kenya		Thika	Robert Khamala	0727 467 464	r.khamala@selectakenya.com
Sojanmi Spring Fields	Roses	Njoro	Ashesh Mishra	0792217088	ashesh@xflora.net
Schreus	Roses	Naivasha	Haiko Backer	-	-
Shades Horticulture	Flowers	Isinya	Ashutosh Mishra	0722972018	info@shadeshorticulture.com
Shalimar Flowers	Flowers	Naivasha	Dinkar Wandhekar	0702418174	dinkar@eaga.co.ke
Sian Roses - Maasai Flowers	Flowers	Isinya	Anthony Kipng'eno	-	-
Sian Roses - Agriflora (K) Ltd	Roses	Nakuru	Charles Mulemba	-	cmulemba@sianroses.co.ke
Sian Roses - Equator Roses	Roses	Eldoret	Nehemiah Kangogo	0725848910	nkangogo@sianroses.co.ke
Sierra flora	Roses	Njoro	Pravin Yadhav	0735741774	farm.sierra@megaspingroup.com
Simbi Roses	Roses	Thika	Karue Jefferson	067 44292	simbi@sansora.co.ke
Sirgoek Flowers	Flowers	Eldoret	Andrew Keittany	0725 946429	sirgoek@africaonline.co.ke
Solai Milmet/Tindress	Flowers	Nakuru	Shantaram	0740212816	solairoses@gmail.com
Subati Flowers	Roses	Subukia	Naren Patel	0712 584124	naren@subatiflowers.com
Subati Flowers	Roses	Naivasha	Naren Patel	0712 584124	naren@subatiflowers.com
Suera Flowers Ltd	Roses	Nyahururu	George Kimathi	0724622638	gkbuuri@gmail.com
Sunfloritech	Roses	-	Peter Wekesa	0729163607	-
Sunland Timau Flair	Roses	Timau	Ken Mwiti	-	info@lobelia.co.ke
Stockman rozen	Roses	Naivasha	Julius muchiri	0708220408	julius@srk.co.ke
Syngenta Flowers - Kenya Cuttings	Flowers	Thika	Kavosi Philip	0721225540	philip.munyoki@syngenta.com
Syngenta Flowers - Pollen	Flowers	Thika	Joseph Ayieko	0733552500	joseph.ayieko@syngenta.com
Tambuzi	Roses	Nanyuki	Richard Siele	0722716158	tambuzi.sales@tambuzi.co.ke
Terrasol	-	Nairobi	Jacques	0705 519 633	jacques@pvdhaak.nl
Timaflor Ltd	Flowers	Nanyuki	Simon van de Berg	0724443262	info@timaflor.com
Top Harvest	Roses	-	Pius Kimani	0721747623	pius.kimani@gmail.com
Transebel	Flowers	Thika	David Muchiri	0724646810	davidmuchiri@transebel.co.ke
Uhuru Flowers	Flowers	Nanyuki	Ivan Freeman	0713889574	ivan@uhuruflowers.co.ke
Utee Estate	Chrysanthemums	Nairobi	Appaso Mane	0737 513 844	mane.uel@btfgroup.com
United Selections	Roses -Breeder	Nakuru	Fred Kisumo	0720107691	fkisumo@united-selections.com
V.D.Berg Roses	Flowers	Naivasha	Johan Remeeus	0721868312	johan@roseskenya.com
Valentine Ltd		Kiambu/Limuru	Joseph Kariuki	0728 093 379	joseph.kariuki@valentinegrowers.com
Van Kleef Kenya Ltd	Roses		Judith Zuurbier		roses@vankleef.nl
Van Kleef Ltd	Roses	Njoro	Karan Mandanna	078500460	karan@vankleef.nl
WAC International	Breeder	Naivasha	Richard Mc Gonnell	0722810968	richard@wac-international.com
Waridi Ltd		Athi River	Julius Ruto	-	farmmanager@waridi.com
Wilham Kabuku	-	Nairobi	Natarajan	0735 792 063	natarajan@eaga.co.ke
Wildfire	Roses/summer	Naivasha	Eliud Kimani	0727598349	roses@wildfire-flowers.com
Wilfay Flowers	Gypsophila/hypericum	Subukia	Makori	0723358644	makoriwilfay@gmail.com
Wilmar Agro Ltd	Summer Flowers	Thika	Alice Muiruri	0722 321203	alice.muiruri@wilmar.co.ke
Windsor		Thika	Pradeep Bodumalla	0736 586 059	farm@windsor-flowers.com
Xpressions Flora	Roses	Njoro	Brijesh Patel	0715469732	brijesh.patel@xflora.net
Zena - Asai Farm	Roses	Eldoret	Japheth Chelal	0721770597	-
Zena Roses - Sosiani Farm	Roses	Eldoret	Jackson Mbanya	-	-
Sololo Agriculture			Andrew Tubei		

Rwanda Launches Centre of Excellence for Cold Chain; Helps in Covid-19 Vaccine Logistics

The Rwandan Government has formally launched the new African Centre of Excellence for Sustainable Cooling and Cold Chain (ACES) that is hosted in-country by the University of Rwanda. At the inception meeting, a high-level cross-department team was established to lead the Centre's development.

In collaboration with the core technical partners - the University of Birmingham and UN Environment Programme's United for Efficiency (UNEP U4E) - progress in setting up the centre has quickened with the official endorsement of planned activities. ACES will help get farmers' produce to market quickly and efficiently - reducing food waste, boosting profits and creating jobs as well as look to improve cold-chains for vaccines and health, now recognised globally as a key challenge for Covid-19 immunisation.

ACES brings together multi-disciplinary UK and in-country expertise with commercial partners to develop and demonstrate ways of delivering affordable lowest carbon emissions cooling and cold-chain systems while meeting Africa's social and economic cooling needs. Associated "Living Labs" will conduct state-of-the-art research and offer technical assistance, demonstrations and knowledge transfer. The first Living Lab is anticipated in rural Rwanda, with others to follow in additional countries.

Mujawamariya Jeanne d'Arc, Rwanda minister of environment, commented, "The Rwanda Cooling Initiative with UNEP U4E has assisted the development of National Cooling Strategy in 2019 and it is now providing the foundation for ACES, which will bring together talent from across Africa to develop and deploy world-class cooling solutions.

Researchers from the University of Birmingham, Cranfield University, London South Bank University and Heriot Watt University are applying their expertise with rural cooling and cold-chain, backed by funding from the UK Department for Environment, Food and Rural Affairs (Defra). The project's first cooling needs and gap assessment report is nearing completion, after in-country interviews with representatives from agricultural co-operatives and communities across Rwanda, as well as key ministries, private companies and NGOs. With analysis of energy consumption and sources, food and value losses, facilities and equipment, refrigerants and cold chain demand, the report will help guide the design of ACES.

Vice chancellor of University of Rwanda, said, "We are delighted to announce that the University has designed part of Rubirizi campus as the site for ACES. The layout of the site is underdevelopment. The location is ideally situated in the capital of Kigali, with existing facilities and space for demonstration of new technologies and future expansion. We also established an inter-disciplinary cohort of experts from across the University's colleges to underpin the development of ACES' cooling solutions."

Project co-developer and technical lead Toby Peters, professor of cold economy at the University of Birmingham, said, "Farmers need robust means of getting perishable produce to urban markets and medical staff must move temperature-sensitive vaccines to rural communities, but cold chain logistics must be sustainable. The Centre's progress means we move closer to this goal in Rwanda and the wider continent without using fossil fuels - giving Africa the means to feed millions of citizens effectively and meet export targets to drive growth."

The project supports the Rwandan National Agricultural Export Development Board's (NAEB) five-year strategy to double agricultural exports by 2024-25 and significantly increase exports of aqua-culture, beef and other temperature-sensitive products. At the same time, the work will contribute to not only supporting the efficient and equitable delivery of Covid-19 vaccination but also design solutions which contribute to long-term cold-chain and energy resilience with a lasting legacy

Kenya Signs Post-Brexit Trade Pact With U.K.

Kenya signed an agreement with the U.K. to ensure continued preferential trade terms with its biggest European partner after Brexit, Trade Secretary Betty Maina said.

Kenya, the biggest economy in the East African Community, broke ranks with other members in forging the bilateral deal because it is designated as a developing economy and would not be eligible for the preferential access granted to least-developed countries, Maina said in emailed statement on Thursday.

Kenyan exports, including tea, flowers, fruit and vegetables will continue to have duty- and

quota-free access after the U.K. leaves the European Union, Maina said.

The U.K. accounted for almost one-third, or 40 billion shillings ($359 million), of the East African nation's 133 billion shillings worth of exports to the EU last year, according data from the trade department.

Kenya, the world's biggest producer of black tea, exported $150 million worth of leaves to the U.K. in 2019, while shipments of flowers amounted to $105 million, Maina said. It imported 35 billion shillings of goods from the U.K. or about 15% of total purchases from the EU. Items included machinery, autos, pharmaceuticals, and electrical and electronic equipment.

The so-called U.K.-Kenya Economic Partnership Agreement comes into effect on Jan. 1 and will be reviewed every five years.

Flower Growers Want Tax-Relief Measures Extended

The Kenya Flower Council (KFC) wants the government to review its decision to end Covid-19 tax relief measures.

The flower farmers lobby group wants the measures extended to the end of 2021 expressing concern that the gains made in reviving the sector could be eroded and lead to massive losses.

National Treasury Cabinet secretary Ukur Yatani announced that the tax relief measures would come to an end with VAT back to 16 percent from 14 while corporate tax would be at 30 from 25 percent.

According to the Council CEO Clement Tulezi, a higher VAT rate would have a direct impact on the sector which is still on its knees.

"There were no consultations among top players and in two weeks we will go back to the old tax regime and this will definitely have a negative effect," he said on Tuesday.

Tulezi called on the government to reconsider the decision and suspend the directive for the whole of 2021 noting that it would have far-reaching effects on export of flowers to the EU.

"We had projected that the sector would fully recover by June 2021 but the move to suspend the Covid-19 tax relief measures and end the stimulus package will hit us negatively," he said.

Tulezi was optimistic that the sector could recover but was quick to note that the second wave of the pandemic had caused concerns and major losses to the farmers.

He said that the lockdown in France, Germany and Netherland among other countries had affected exports with consumers locked indoors.

"We are happy that the lockdown has been eased and we expect exports to increase in the coming days despite the tax challenge we are facing," he said.

Tulezi termed Christmas and Valentine as a very critical period for the sector as demand for flowers shoots up mainly in the EU market. "Our hopes on recovery were pegged on the festive season and Valentine but this will change as the old VAT and corporate taxes come to effect on the 1st of January," he said.

Defending the government's decision, Yatani said that revenue collection had dropped drastically due to the pandemic adding that the country had foregone tax revenue running to Sh65 billion.

"In respect to the foregoing, and given the easing of some of the containment measures and subsequent resumption of normalcy, it has, therefore, become necessary to return to the pre-COVID-19 tax rates effective 1st January 2020," he said in a statement.

Cryptex®

Reg No. PCPB(CR)1969

Cutting edge granulovirus technology for the suppression of False Codling Moth (FCM – *Thaumatotibia leucotreta*) on Ornamentals and Horticultural Crops.

Backed by Science. Loved by Nature.

NATURAL EFFICACY THAT IS RELIABLE

Madumbi aims to change the way food is grown. We believe all people should have access to healthy, nutritious food, free of chemical residues.

Madumbi continues to develop quality biological solutions. Solutions which support growers in building bio-active soils, maximising soil and plant health, and providing proven pest management solutions which have minimal impact on the environment – and everyone in it.

Join us in leading this change.

www.madumbi.co.za | +254 722 888 377 | stephen@madumbi.co.ke

Madumbi Kenya

A member of the Andermatt Group

Equation® Pro

FUNGICIDE

Preventive and curative fungicide for the control of Downy mildew on roses

Manufacturer: DUPONT **Distributed by:** ELGON KENYA

Corteva Agriscience™
Keystone Park, Block B, 3rd Floor, off Riverside Drive
P.O. Box 53384 - 00200, Nairobi Kenya Tel: + 254 709 142 000

CORTEVA™ agriscience

Visit us at **corteva.com** CortevaEAF