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A man with short dark hair and a mustache, wearing a bright green lab coat over a red and white striped shirt, is leaning over a row of rose plants in a greenhouse. He is smiling at the camera. The greenhouse has a metal frame and translucent plastic covering. The rose plants are in white bags labeled 'Power'.

**Hydroponics:
Balancing is the trick**



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Inside

- 6.** Hydroponics
- 12.** Nitrogen's Influence
- 16.** Dutch Flower Group Africa
- 20.** Vacuum Cooling
- 24.** Refrigerated Transport of Flowers
- 28.** Bye...Bye...Mealy Bugs.
- 30.** Shaping the future of horticulture
- 40.** More Visitors, More Decision Makers
- 42.** IFTEX 2016
- 44.** Briefs

The Leading Floriculture Magazine

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LifeScience

Editorial

Where does the buck stop?

'The buck stops here' captures the sublime reality of leadership as viewed by Harry S Truman, the 33rd President of the United States. He famously displayed on his desk as a constant reminder to himself and to the American people that they should expect their President to take full responsibility for everything that happened to their nation under his watch.

It takes a courageous, confident and responsible leader to set and live up to such high standards. That explains why my disappointment with the leadership over the last few months is not entirely unexpected, given global expectations of true leadership. I have somehow become accustomed to the escapist tendencies of our current Kenyan leaders.

To start us off, I have not been blessed with a fuel, which would enable me to fly over potholes without noticing. Therefore, when I make a few trips upcountry to visit flower farms, I'm left wondering what worse the government can do to the highest foreign currency earners. The roads in the rural area where most flower farms are located are appalling and a source of dismay. Every time I drive on these roads, my mechanic's wallet yawns for a few coins. But, lorries ferrying flowers drive through these roads daily. How much are these companies spending on maintenance?

Secondly, for the first time in a long while, last year I listened to a live presidential broadcast. I believe he should have done better than just mention horticulture. He should have improved the investment policies for this sector through the collected taxes among other measures. After serving this industry as a scribe for close to two decades, I now believe time is ripe for better policies. But what is the government doing, burying its head in the sand like the proverbial ostrich for the "buck does not stop there." As though this is not enough devolution has increased more taxes not to mention the long wait for VAT refunds which affects growers cash flow.



Ethiopia, the second largest producer in the region, is being touted as the one to overtake Kenya. When? God knows. The Ethiopian government is doing some admirable work on their policies. This has seen the country attract more foreign investors than Kenya. Some Kenyans.

The flower grower is yet to settle on a niche in which to place the marble of President Calvin Coolidge. He said, "Nothing in the world will take place of persistence. Talent will not; nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education alone will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent. The slogan 'press on' has solved and always will solve the problems of the human race. And so I tell growers "press on!



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A close-up photograph of a woman's face, focusing on her nose and lips. She has red lipstick on. A large red rose is in the foreground, partially obscuring her mouth. The background is a soft, out-of-focus light blue.

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Hydroponics: Balancing is the Trick



All farming endeavours are by definition somewhat risky. Since the beginning of civilization, farmers have had to deal with adversity. Bad weather conditions, poor soil, inadequate water supplies, soil borne plant diseases, transportation complication, cut throat competition etc. Hydroponics helps to overcome some of these barricades to successful farming. By proper management, you provide the crop adequate mineral nutrients and oxygen as well as a reliable water supply to promote strong growth. Such vibrant plants are much more resistant to insect infestation and disease.

According to a research carried by Naomi Chelimo in Van Den Berg, Naivasha, hydroponics saves on water, fertilizer while ensuring better quality and quantity of roses. Worth mentioning are 56% less Water, 44% lower fertilizer costs, 41% more stems, 65% more production in stems of weight and 20% longer stems.

Communitatively, the grower will get 43% higher turnover. Though this will increase the cost of capitalization, but based on these results the payback period for the additional investment cost (calculated excluding costs of financing) is within the second year for a 6 ha production area.

For several years, Kenyan growers adopted it with every new project going into hydroponics and some of the old uprooting and re-planting in hydroponics. But for the last few years the trend has been changing. Most of the new farms are starting in soil and some of the old uprooting and going back to soil.

So, what is making growers make a step back from this unique opportunity to generate substantial profits and participate in an economic boom? Is it the initial capital? But it will be paid in 2 years. Is it lack of the technology? But suppliers in the country provide after sales support. So what is it?

In the next few issues, I will interview experts, researchers, suppliers, production managers and farm owners in depth to discuss the reason, on a three part article.

Growers Experiences

To start us off is Mr. Michael Gathage, a specialist grower.



Florinews: Give a single statement on Hydroponics

Michael: Ideas and ideals are easy to discuss in theoretical terms, but it is the specifics that make the difference between success and failure and the difference between a marginal income and a substandard one.

Florinews: Discuss why hydroponics

Michael: Naturally, plants are grown on soil. However with continued use of all arable soils, something had to be done to continue enjoying maximum benefits. This saw the invention of hydroponics a system that allows growers to start a farm anywhere including rocky soils that could not be used before.

Additionally, this is a system which was meant for growers not to interfere with the environment, contaminate soil bodies and interfere with natural conditions of soil. With this, it was a great success for growers who were left to consider other factors but not soil when starting a farm.

Florinews: Based on your Knowledge, do you think Hydroponics is the way to go in Kenya Growing?

Michael: Am tempted to say YES, but different growers may look at



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it differently, making it a debatable issue. To back my answer, allow me to discuss:

System Design: This is where you determine whether your venture should be profitable or disastrous. The initial construction of the irrigation systems to the hydroponic system should not compromise the normal growth of a plant. This should consider water drainage to ensure proper aeration on the root system. The water circulation must also be well planned to ensure proper amounts of water is received by the plants. Failure to get this right has forced some growers believe that hydroponics does not work a statement cropping slowly into the industry.

Knowledge and Technical Know-how: Success is based on the knowledge you have on water, the media, weather, pests and disease, and the crop.

Water: The drip solution combines three things; the mother solution, recycled solution and plain water. It is important to understand the ratios to enable you achieve the right EC. When irrigating, you send a drip solution

whose uptake should be between 45% and 55%. Then you will collect back drain solution. It is important to analyse all this so as to determine your cycle, whether an hour or after two hours. The EC of drainage solution vis a vis the drip solution EC portrays the uptake trend by the plants. The ideal drip EC during hot weather period is 1.7-1.8 when water uptake by the plants is high and EC of 2.0-2.4 during cold weather period when the water uptake is low. The ideal supply PH is 5.5-6.5 where most of the elements are in an available form to be taken by the plants.

Media: Currently in Kenya, coco peat and pumice are the most common systems used. Recently, a research on a combination of both was carried and therefore some farms could be combining both. Murram is also been used in some farms. For a start, to use murram, you must be hands on manager and very smart on your hourly drainage analysis for the percentage drainage are crucial. Like murram, Pumice also has a fast drainage capacity but water holding capacity is better than murram. The coarse pumice is put at the base of the trough to enhance drainage

and the fine pumice on the top. Most growers in Kenya uses pumice as it is readily available. The pumice as growing media is used for anchorage purpose for the plant. The nutrients required by the plants are supplied through irrigation systems. There are many irrigation systems in the market used enhance efficient of feeding the plants

Coco peat is another media used in growing of plants, it is mostly used in propagation, pot plants and some growers mix it with pumice. Coco peat has a higher water holding capacity compared with pumice. The feeding strategy for the different media is different. The end result is to ensure the nutrients required by the plants are supplied within conducive environment in the root zone for health growth of the plants.

Weather: Respiration and transpiration is a key factor in success growing. In hydroponics, it is more crucial. In good weather, the uptake is high while in cold weather, there is low assimilation and may end up having a very concentrated drip solution.

Pests and Diseases:

Unlike many believes, nematodes is a serious disease in hydroponics. Nematodes are found in water. In hydroponics water is recycled from one greenhouse to another. After draining, nematodes are left hence recycled to other greenhouses. To stop this, the water should be treated well. Some of the systems locally used may not be very successful. However, UV treatment is commented for killing all the viruses and bacteria in the recycled solution.

Crop: Different crops and varieties have different needs. Additionally, the different stage of the crop also determines the needs. During vegetative growth



stage the plant nutrients demand is high as compared to flowering stage

Management Factor: An important starting point is to realize that hydroponics is not magic. Despite the impressions sometimes given hydroponics does not “give total control of the plant.” When using hydroponic technique, additional skills are needed to manage the system. The fertigation manager should be hands on manager.

Double Loss: In hydroponics there is no room for a mistake. A single mistake may cost you double loss. When you delay a cycle, flowers start bending. In case of power failure and you have no serious power back up; a two days failure is enough for you to forget the crop. It is not a forgiving system.

Finance Management: Additionally, growers need to understand budgeting and accounting. This will ensure they understand the cost units and eliminate the assumption that hydroponics is expensive. Record keeping must be up to date leaving no gaps for misrepresentation.

Balance Crop, Environment and Nutrition: Take care not to be fooled that “hydroponics give total control of the crop”. This is nonsense, hydroponics influences the root system of the plant, but the upper part is influenced by the environment. How a plant grows is influenced by factors such as temperature, light level, competition etc. So before you declare “hydroponics does not work”, a grower must also ensure these other factors are right.



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“Nematodes is a serious disease in hydroponics. Nematodes are found in water. In hydroponics water is recycled from one greenhouse to another. After draining, nematodes are left hence recycled to other greenhouses”.

Better Control: Hydroponic maintain high levels of hygiene and has a quick start and better control. When in hydroponics, you can notice the problem immediately, arrest it and the crop recuperates quickly.

Florinews: Growers have argued about the high costs in hydroponics, what is your take?

Michael: It is true both the initial and running costs are very high. However, the payback time when well managed is very little. The quality maintenance is good and your customers will be assured of the best. Three things have been raised by growers; high feeding costs, no feeding control, short term results and high power costs. I wouldn't want to dispute any of this but I still believe it boils back to proper management.

High Feeding Cost: Growers argue feeding of the crop is very expensive compared to soil. Despite the fertilizer drain which is available for re-use, the initial application investment is higher. This could be true but how about the crop you get.

No Feeding Control: Growers have no control on feeding when using hydroponics, however in soil one can slow and minimize feeding during low season. In some farms, they even use the traditional fertilizers like NPK, manure etc. Again this could also be true; however this depends on your market planning and also what you need to give the market.

Short Term: Most rose varieties grown in Kenya have an average life span of 7years. Hydroponics gives better yields for the first four years. From the fifth year the grower does not experience any difference in

yield though the running costs remain higher. This leaves the grower with a higher input and same output with soil hence unmanageable.

This is a myth, for I believe more needs to be done to understand whether it is the system or the plant. I believe, it is the plant that is aging and needs to be changed.

Conclusion

More attention should be given to plant nutrition. Most growers concentrate a lot on crop protection than nutrition. But it is important to understand that a healthy crop is disease resistant crop.

Crop management practices such as fertigation, irrigation; pruning, pinching, and disbudding are of great influence in levelling the number of stems and total fresh weight in soil and hydroponics systems. Consequently, stem length, leaf length expansion, and flower head diameter and width do not differ significantly between both systems.

The most important thing to note is that the market of flowers is available for the growers who are ready to go an extra mile and offer high quality flowers.

So are these reasons enough for growers to go back into soil? Is there anything researchers can do to cushion all this? Read our next issue.

Mr. Michael Gathage is Specialist in Rose Growing. He has wealth of experience in growing, breeding, and propagating. He has also worked as a technical person in an agrochemical company. He has 18 years working experience in the flower industry

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Nitrogen's Influence on Growing Medium PH

The pH of a growing medium is influenced by several different factors, two of which have been addressed in previous articles: the alkalinity of the irrigation water, as well as the amount and form of limestone incorporated into the growing medium. This article will focus on the third major factor: nitrogen. by JoAnn Peery

In standard greenhouse fertilizers, nitrogen is supplied as ammonium (NH₄⁺), nitrate (NO₃⁻) or urea. Each of these three nitrogen sources, when taken up by plant roots, produce different chemical reactions with differing effects on the growing medium pH. This article will briefly describe those effects on growing medium pH.

GUARANTEED ANALYSIS	
Total nitrogen (N).....	20%
8.00% ammoniacal nitrogen	
12.00% nitrate nitrogen	
Available phosphate (P ₂ O ₃).....	10%
Soluble potassium (K ₂ O).....	20%
Magnesium (Mg), total.....	0.15%
0.15% Water soluble magnesium (Mg)	
Boron (B).....	0.0068%
Copper (Cu).....	0.0036%
0.0036% chelated copper	
Iron (Fe).....	0.0500%
0.05% chelated Iron	
Manganese (Mn).....	0.0250%
0.025% chaletated Manganese	
Molybdenum (Mn).....	0.0009%
Zinc (Zn).....	0.0025%
0.0025% chelated zinc	

This is a typical analysis of the elements found in a fertilizer. Notice the top three lines indicate the total and nitrogen and the breakdown of ammoniacal and nitrate nitrogen. Source: Premier Tech Horticulture

Ammoniacal Nitrogen (Ammonium): When ammoniacal nitrogen (NH₄⁺) is taken up by the plant, it is converted to ammonia (NH₃) within the root. This process results in the release of a positively charged H⁺ cation from the plant root. The H⁺ cation then reacts with the growing medium causing a reduction in its pH. The higher the concentration of ammoniacal nitrogen in the fertilizer, the greater the impact it has on lowering the growing medium pH.

Ammoniacal nitrogen can also become available to the plant through a process called nitrification. In this process, microbes in the growing medium breakdown ammoniacal nitrogen, thus releasing the H⁺ and resulting in a reduced growing medium pH. This process occurs most efficiently when the growing medium temperature is above 50°F (10°C) and the microbes are most active. Since nitrification needs warmth for the microbes to actively break down the ammoniacal nitrogen, it is generally not recommended as the primary nitrogen source during cool winter months. It should also be pointed out that plants grown with high levels of ammoniacal nitrogen, especially when growing medium temperatures are cold, can show ammonia toxicity, causing chlorosis

and necrotic spotting of older leaves.

Nitrate Nitrogen: Nitrate nitrogen works differently by causing the release a negatively charged OH⁻ or HCO₃⁻ anion when it is taken up by the plant root. These negatively charged anions are bases and when they react with the growing medium, they cause the growing medium pH to increase. If the fertilizer used has a high concentration of nitrate nitrogen, then it will have a greater influence on increasing the pH of the growing medium.

Urea: Urea nitrogen ((NH₂)₂CO), the third nitrogen source, is often broken down by microbes in the growing medium to form NH₄⁺ (ammonium) and CO₂⁻ (carbon dioxide). As stated above, when a plant roots takes up ammoniacal nitrogen, it emits H⁺ into the growing medium, thereby reducing the pH of the growing medium. However there is significant evidence that shows plants roots take up some urea, which has no electrical charge. Therefore, urea is considered neutral and therefore does not have an impact on growing media pH.

Plants often can only take up nitrogen in the form of ammonium or nitrate. Organic fertilizers must be broken down to one of these two forms by microbial activity in the growing medium before being taken up by the plant root. Therefore the effect of organic fertilizers on growing medium pH will depend on how the organic component of the fertilizer is broken down. However, most organic fertilizers break down to the ammoniacal form of nitrogen and therefore will cause a drop in growing medium pH.

Other than nitrification, the impact of nitrogen form on growing medium pH only occurs when the plants take up the nitrogen. If plants are very small or not growing, the plant uses little fertilizer and therefore the growing medium pH will not be affected by the addition of fertilizer.

Understanding the function of nitrogen form on growing medium pH is an additional tool in a grower's arsenal for optimizing nutrient availability. Combined with knowledge of the alkalinity of the irrigation water, a grower can choose the fertilizer formulation that will maximize plant growth. As a general rule of thumb, growing medium pH can be controlled through the choice of nitrogen form as long as the alkalinity of the irrigation water does not exceed 235 ppm CaCO₃. Once it rises above 235 ppm CaCO₃ the amount of acid needed to maintain a desirable growing medium pH can no longer be provided by fertilizer source alone and acid injection is recommended.

In order to maintain optimum growing medium pH and nutrient availability, growers should test the growing medium pH of various crops on a regular basis. By monitoring growing medium pH, slight modifications in fertilizer applications can be made before nutrient problems are manifested in plant growth.

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Merrily Down the Path of Destruction



Soil compaction means we must apply yet more quantities of artificial fertilizer, pesticides, and other oil-based inputs on our nation's soils. This kind of serious soil structure destruction means the further erosion of nature's secret for our survival on this planet.

When plants are in knee height walking through the "best" planted, fertilized, sprayed fields finds the evidence that we are happily on the path of our own destruction. There are the distinct absences of snakes, turtles, skinks, June bugs, natural fauna, and so which are all the harbingers of the life cycle of our planet.

By Stephen Carr

The destruction of soils plus a second wave of attacks from oil-based inputs, means of short term economic advantage for a very few in the present moment in time at the expense of us all in the long run on this earth. The phrase, "Those who fail to learn from the mistakes of the past are doomed to repeat them." has never been more true than when applied to the historic record of agricultural output of mankind. Life on this world is replete with examples of societies who damaged, exhausted, or failed to adapt to changing climate conditions. The dynastic history of China alone is a tale of the rise and fall of empires based on the effects of non-adaptation to seasons of flood and drought.

I continue to be amazed at how much money and technological development goes in to the race for space, as if the death of this world were a fore drawn conclusion. I propose that we are not doomed, but we have stretched the food value chain to its breaking point. In the past we have seen failures of civilizations to adapt to the use of finite natural resource use and as a result, those societies are no more. In the past those failures have been regional in nature and the loss of those societies, with their art, science, and knowledge base tragic

though it was, was limited to specific regional areas around the globe, since the breakdown of their food value chain was limited to their own region.

Yet the lessons taught to use by their loss have yet to be learned by us today. The critical difference today and hence the need for urgency is that we no longer have just pockets of regional crop systems but rather we have a global food chain. The breaking of this chain caused by any reason would throw the entire world population into turmoil causing chaos like we've never known in our short time on earth. Look at the impact on droughts alone on world commodity prices. The effect is the rise of food prices beyond the ability of 70% of the world's population to buy food. Here is where chaos is born, here is where societal law-and-order begin to become situational. Go for two weeks without food and watch the same forces entrap your family and you will find yourself committing acts you would not normally dream of doing.

It has rightly been said that, "The distance between order and chaos is seven meals." Some would argue that today's global food chain is more resilient than in the past, because a single regional failure of agricultural output can more easily be absorbed than was the case in the past. If you can't get beans from Africa because of a drought, then we just pay a bit more to get beans from say Europe or America. This holds true so long as the price of transporting the beans from those locations to my local market stays stable, or like in the case of Thailand, the world's largest rice producer some country doesn't put a ban on bean exports, or we don't face a global drought as we have in the past. More resilient, you say? I think not. I say there are more conditions likely to impact our global food chain than ever before with our economics driven global food chain.

Already, Nigeria is urging government support for the protection of companies that ADD nutrients to flour when it is milled because the naturally occurring soil nutrients are missing as a result of agricultural practices there. Nothing new we've allowed added nutrients to be added to our food for years. Why you may well ask? Because for many years now, we've seen our natural soil fertility washed away through wind and water erosion as well as by the genetic erosion through plant genetic disruption.

Kill the earth's top soils and you kill life on this planet, and that is exactly what we are permitting for the economic benefit of a few. The governments of the world, especially our own are promoting our own destruction by perpetuating the farm welfare system that encourages farming "fence row –to fence –row" planting that destroys needed natural habitat like hedge-row, fence rows, wetlands, and woodlands, and pays farmers to over produce crops and encourages the abuse of economic payment systems design as a safety-net for days gone by.

Instead of devoting our investment in money and thought on reaching another planet that a few select rich could live on, let's instead see that investment directed towards inner space, namely our soil and water. Why not develop cropping systems that follow the rule of the Hippocratic oath, "To first do no harm." Only let us apply this general principle to our natural resources as we use them for our own and our planet's sustainability. For example, we need new sources of energy that we can use to plant our crops that does not compact and destroy the soil's structure. We need safe pesticides that discourage infestations without killing the insects, which are important parts of life's larger eco-system.

Have we maximized the use of the next generation of hydrostatic driven power equipment? What about other yet to be discovered other soil saving approaches? I have a few ideas, but current patent laws prevent me from exploring or developing their use. And while we are on the subject, funding for new product development must come from new funding sources for many of these "out of the box," ideas. Reliance on existing agricultural stakeholders is what has gotten use here today. No, the funding and thinking about different ways to manage our natural resources must come from new ways of thinking and lot's of trial-and-error effort.

Just think about it, if our current food production methods have killed off or driven off all forms of wildlife, how good can this system be for the rest of us? Why are instances of cancer, autism, general immune disorders so prevalent, the world capital of modern agriculture, and far less prevalent in the East and in emerging areas?

Will we pay more for our food in the future you ask? The answer is yes, provided we have available natural food in the future, for rich and poor alike.

If we can have a goal of colonizing life on Mars then surely we can envision new ways of sustaining life on this planet first. The cost of a few field pests is a small price to pay for bio-nutrient dense soils and crops. Let us measure and value crops by their Brix value rather than their government supported economic value. Let's work to improve this planet's soil structure and health before we go to other world's to destroy theirs.

It is worth noting that God didn't create us as software designers, automobile builders, or even fishermen and fisher women. God created us to be gardens, protectors of His life giving soil and water. Let us not delude ourselves that we can be like God and create or sustain life by other means than what was naturally and sustainably ordered.

Stephen Carr, CEO: International Soil & Water Renewables Group

Dutch Flower Group Africa:

Linking Retail And Wholesale Consumer Markets Globally

Dutch Flower Group Africa is all about linking Retail and Wholesale consumer markets, all over the Globe, with flower growers in Africa. Being the supply chain partner for overseas DFG companies, the Nairobi based DFG Africa organisation aims to develop long term sustainable relationships in the chain and fosters transparent partnership with growers.

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DFG Africa stands for:

- Developing long term relationships and market growth for both growers and customers.
- Demand and Supply Management, order fulfilment and timely delivery to markets.
- Facilitate cool chain management by ensuring compliance to International Standards.
- Quality Assurance and Control throughout the Supply Chain, from Grower to Market.
- Support growers on Social, Ethical and Environmental compliance and sustainability.
- Product Development through bouquet design, value adding and research activities.

Our aim is to cooperate in a sustainable way with all the parties in the chain - from breeders, growers, logistics to our end customer.



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Nairobi, Kenya



THE WAY TO THE CONSUMER



Flowerwatch

So here's their guarantee for business

Longer vase life guaranteed: Assess, benchmark & optimise your cold chain performance with FlowerWatch.

Satisfied customers and optimised profits are within the reach of every player in fresh flower supply chains around the world. The key is uncompromising cold chain management. FlowerWatch, has developed a method of using that key to perfection. The result: optimised supply chains, guaranteed vase life or shelf life extension by several days, satisfied customers, an improved branch image and, of course, maximum profitability. How does it work?. Beat the competition not just with better flowers, but with an optimised, streamlined supply chain.

The problem: Suboptimal cold chain performance

Cold chain management has emerged in recent years as a vital success factor in the post-harvest life of fresh flowers. Temperature exposure during storage and transportation contributes to discolouring, wilting, poor flower opening, premature ageing and botrytis. The end result is reduced vase life, often by several days. Not only does this lead to rejects, decreased product value and customer dissatisfaction, it also frequently results in costly claims – particularly as even quality loss incurred at retail outlets can be traced back to inefficiencies in the cold chain.

Under-performance is the rule rather than the exception

Everyone who works with fresh flowers knows they need to be kept cool. And everyone tries to ensure that. The reality, however, is that very few supply chains succeed in keeping flowers under consistently optimal conditions all the way from farm to florist: there is always a cold chain break somewhere along the line.

Unfortunately, even the slightest, or briefest, temperature exposure at any point in the chain can have a disastrous effect on overall quality and consistency. Cold management sounds simple, but in the global fresh flower business, underperforming supply chains are the rule rather than the exception.

The solution: An unfailing failure tracking method

Now for the good news. FlowerWatch, have developed a dependable method for tracking down temperature exposure points throughout the entire chain. With numerous leading, international customers in their portfolio, they are experienced in using this method to perfection, tracing even the minutest flaws in the supply chain – and mapping in detail their effects on the business.

...and a QA system that fixes the failures permanently

That's not all. On top of the unique, market-leading assessment services, they have also developed a failure-proof Quality Assurance system. It will not just identify the challenges in the cold chain – it will help to permanently fix them at surprisingly low costs.

How it works – and what's in it for you

Temperature exposure & degree hours

The central concept in the approach is time temperature exposure, which they express in degree hours. This is the average temperature of the fresh flowers throughout transport multiplied by the

number of hours (1 degree hour = 1 hour x 1°C). Every 500 degree hours reduce vase life by 1 day. The key to successful cold chain performance is to minimise the number of degree hours. The industry benchmark suggests that vase life loss in the supply chain should never exceed 1 day. Many supply chains fail to reach this target. Here's an example:

We will calculate your performance and identify every cause of under-performance.

With this method, they can help one calculate temperature exposure and identify the causes. Following that, they will outline the most cost-effective measures for fixing the key problems. Their experience shows that most problems can be solved with relatively simple and inexpensive measures (such as optimised stacking and box positioning in cold storage). With their protocols and Quality Assurance system in place, one can be sure their supply chain will be more competitive than ever. Permanently.

Benchmarking and improvement guarantees

In support of their services, they have performed extensive global studies on acceptable levels and feasible improvements. their conclusion is that, given free rein, they can help reduce temperature exposure in the supply chain to as little as 300 degree hours – no matter how high it is today. The results for your business are easy to spell out:

- Consistent high quality
- Minimal reject percentages
- Longer vase life (guaranteeable)
- Strong & lasting business relationships
- Improved competitiveness
- Better margins
- Maximum profitability

So here's their guarantee for business

They are so excited about their method and its potential results for their customers, business and the brand as a whole that they would like to offer growers a solid guarantee. Here it is: if growers and partners allow them to assess their cold chain performance and if they then implement the improvement measures they recommend, FlowerWatch promises growers that the number of degree hours in their chain will drop to levels between 500 and 300 – or a vase life extension of at least 1 to 2 days. As they said before: their focus is not just on superb flowers, but on permanently happy customers and consistently maximised profitability.



 **High Performance**

 **Quality Assured**

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 **Reduce loss of produce**

 **Over Euro 300,000 Saved in Airfreight already**



Exceeding Packaging Expectations

Boxes, SFK, Partitions and FlowerSleeves

PACCESS
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Vacuum Cooling

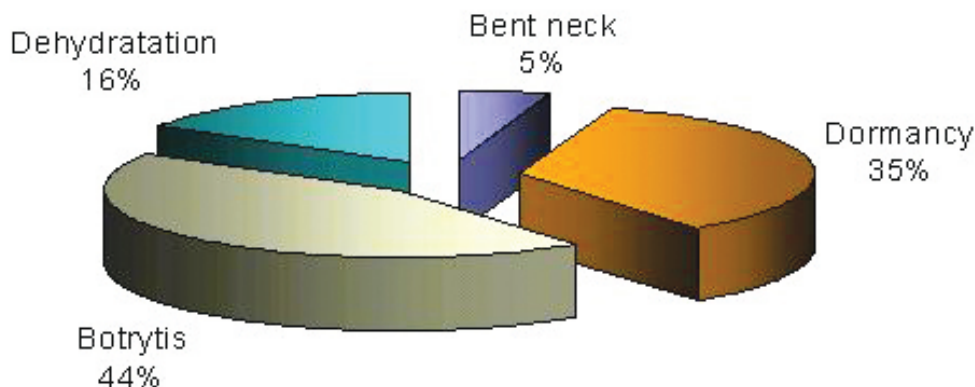
The Best Postharvest of Cut Flowers



Floriculture is an agricultural sector of worldwide importance and of paramount social and economical influence. Roses account to a large percentage of all flowers grown. After flowers are harvested, temperature is the one factor affecting them the most. This is the time to evaluate different cooling methods used in the postharvest of roses, by measuring their effects over floral longevity and other quality variables. The residual effects of passive, forced air and vacuum cooling methods were evaluated, after transport simulation. The test was performed at a flower-exporting farm. It was found that those flowers exposed to vacuum cooling showed the longest longevity while those that took forced air had the lowest.

The main cause of elimination of flowers was the presence of Botrytis (44%) and dormancy (35%). No significant differences in such causes were found among the various cooling treatments; however it was observed that those flowers that went through the passive and forced air cooling methods showed presence of Botrytis much sooner than those exposed to vacuum cooling. Furthermore bent neck in vacuum cooled flowers only were observed after day 12 while in the other treatments that happened within the first five days of the test. With regard to the quantity of stems affected by dehydration, no differences were found among all treatments, which refutes the common belief that vacuum cooling accelerates dehydration of flower stems.

Most flower farms are structured based on management, planning, production, personnel and post harvest divisions. The main objective of each of the above activities is the final obtainment of products of excellent quality. Post harvest is a very important phase in the production process since economic losses due to the reduction in percentage of exportable flowers and claims from the buyers are mostly ascribed to deficiencies in their post harvest.



the temperature of the plant and to transport the nutrients taken by the roots, its usefulness is currently being questioned.

Transpiration rate is affected by relative humidity, temperature and air speed. When water loss out of the stem is higher than absorption, cell turgidity is reduced which leads to wilting and/or what is known as bent neck.

The main problems related to the quality of flowers during the production phase are inappropriate harvest in length of stalks and opening cut stage, bent stems, mechanical damage and sanitation problems. Those related to post harvest are classification and bunch forming, deterioration, hydration and cold chain.

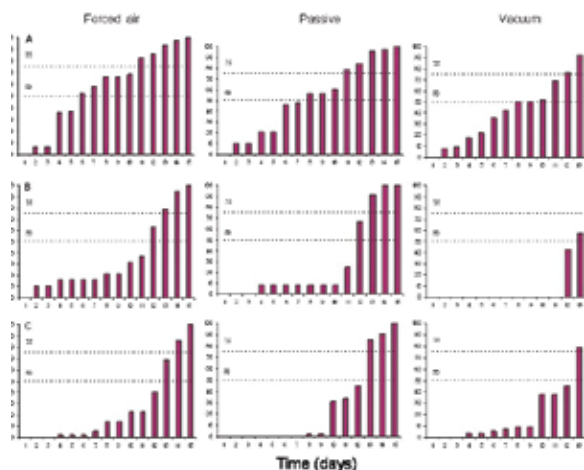
Fresh cut flowers are still live material and metabolically active and therefore subject to the same physiological processes as the plant. However, after being cut they deteriorate faster, under similar environmental conditions.

Thus, longevity of cut flowers is determined by the same factors that affect the growth of plants, such as temperature, humidity, water, light and availability of nutrients.

Transpiration is defined as loss of water from the plant in the form of vapour. Of all the water that a plant absorbs, less than 5% is kept for its growth and even less is bio chemically used. Although traditionally it has been said that transpiration is useful in order to control

Respiration is the process in which the cell metabolites are oxidized and electrons are transferred through a series of carriers to the O_2 . H_2O and CO_2 are formed and the energy, released in several steps, is transduced into ATP.

Upon increasing the respiration rate in the plants, the nutrients' reserves (photo-assimilated) are used faster and flowers' lives are shortened. Temperature is a very important factor in plants, since very small changes can pose dramatic effects over their physiological processes. Generally speaking, such processes occur between two and four times faster if temperature is increased by $10^\circ C$ and two to four times more slowly if it is reduced by the same amount. Respiration rate affects quality of flowers much more than transpiration.



Among plant hormones, ethylene is the main factor exerting influence over their senescence. Flowers synthesize ethylene, especially before wilting and in most species, this causes senescence and abscission. Further, ethylene is involved in inducing changes in the permeability of cell membranes, including modifications in composition, physical and functional properties: a slight increase

in the permeability of membranes is characteristic to those flowers in advanced stages of senescence.

Ethylene and temperature also interact, influencing the quality of flowers. In simple terms, as temperature increases, less ethylene is needed to cause damage. It is worth noting that ethylene levels as low as 0.03 mg L^{-1} are enough to cause problems in flowers kept at $20^\circ C$ ($68^\circ F$).

It is therefore obviously important to help keep the flowers at the right temperature ($2-5^\circ C$, $36-41^\circ F$) during their transportation and storage, in order to preclude quality problems caused by undesirable increases in the transpiration, respiration and ethylene release rates.

Transport Considerations

Among the factors compromising the temperature ranges through handling and transportation of plant materials, it was found that air circulation between boxes and inside them is usually



deficient. The consequence of the above is a very poor control over temperature. Once harvested, flowers are faced by adverse weather conditions, mainly high temperatures and low relative humidity, which will affect their post harvest quality. Some farms hydrate their flowers inside their greenhouses, while most carry them dry to their post harvest rooms.

Furthermore, some of the farms receive the flowers in the post harvest rooms where temperature averages 19.1°C (66.4°F) but most of the farms use some form of pre-cooling. The above implies that the care given to flower post harvest management is not the best possible, at this stage it is advisable to keep cut roses at 0-5°C (32-41°F), in order to guarantee length of vase life.

When transporting them to the airport, some of the fleets used are not equipped with cooling systems. Upon arriving into the airlines warehouses at the airport, while x-ray scanned and built into pallets, flowers are kept at least one hour out of the cold rooms. which is not convenient.

Pre-cooling methods used in cut flower post harvest facilities.

The most important aspect in preserving the quality of fresh cut flowers is to have them cooled down as soon as possible after harvest and also kept within the right temperature range (2-5°C/36-41°F) up to their distribution. The purpose of cooling is to remove the field heat by lowering the temperature at harvest time to the ideal for transportation.

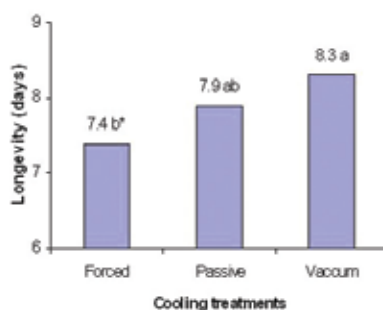
The above benefits the flowers by reducing their respiration and transpiration rates and therefore precluding damages due to dehydration. Also, ethylene release is reduced, delaying maturity during transportation and distribution and increasing vase life. However, the quality of stored flowers will never be as good as that of fresh ones. Some inconveniences of stored flowers are loss of vase life, difficulty in blooming, discoloration of petals, yellowing of foliage, and increased incidence of diseases like Botrytis.

Once flowers are packed, they require a longer period of time for cooling, wherefore

the importance of pre-cooling. The high temperatures in the greenhouses and packing areas increase the respiration rates of the flower stems, making obvious the need to take urgent steps to avoid such situations or at least to minimize their impact.

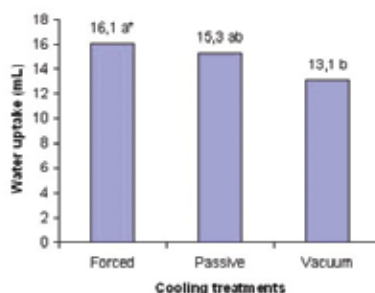
The three pre-cooling methods used in postharvest are Passive air, forced air and vacuum cooling.

Floral longevity



Differences between treatments are noticeable. The increase in the longevity in vacuum cooling over forced air and passive air is significant statistically, five hours in which flowers are taken out of the cold chain, upon simulating transportation, might affect the longevity of all stems.

Water Uptake



Therefore, the highest water loss is caused by the forced air method. Vacuum cooling has the lowest.

Flower opening stages and discoloration of flowers

No differences is found among all treatments in the floral opening stages variable and an average grade of 4.5 is observed at day 15.

Neither are differences in colour between treatments found, and in all cases the flowers show a gradual discoloration from red –brown to purple in all stems.

Shrinkage Variables

After evaluation of vase life no significant differences between the shrinkage variables is found. It is necessary to stress and emphasize the differences that are noticeable during the process of the evaluation.

Botrytis

Flowers cooled by forced air surpass the 50% level of eliminated stems due to Botrytis around day 6. In the case of passive air, that happen around day 8 while in vacuum cooling it takes between 10 and 11 days allows the longest vase life, in such variable.

Bent neck

All three methods reached the 50% shrinkage at day 12 while 75% of stems were eliminated between days 13 and 14. It is necessary to note however that those flowers exposed to vacuum cooling only showed their first bent neck after day 12, which increases their ornamental value.

Dehydration

Flowers reach 50% and 75% shrinkage levels between days 13 and 14. Even though it is expected to find earlier symptoms of dehydration on the vacuum cooled ones.

CONCLUSION

- Vacuum cooling resulted in the longest longevity of all tested floral stems.
- In spite of what was expected, vacuum cooled flowers did not show any more symptoms of dehydration than the other cooling methods.
- Forced air statistically showed the least floral longevity and higher water uptake when compared to vacuum cooling. It also showed the earliest bent neck and dehydration symptoms and the highest incidence of Botrytis.
- No statistic differences were found between vacuum and passive cooling in any of the evaluated variables, which is a good argument when choosing between them.

REPUBLIC OF KENYA



MINISTRY OF AGRICULTURE, LIVESTOCK AND FISHERIES

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Refrigerated Transport of Flowers



"Temperature is the single most important factor that affects flower value. Therefore, keeping flowers in low temperatures from the farm to the final destination is vital. Among the key areas of consideration is the transport from the farm to the airport. A well known and an increasingly more used tool to achieve this is the use of insulated refrigerated bodies.

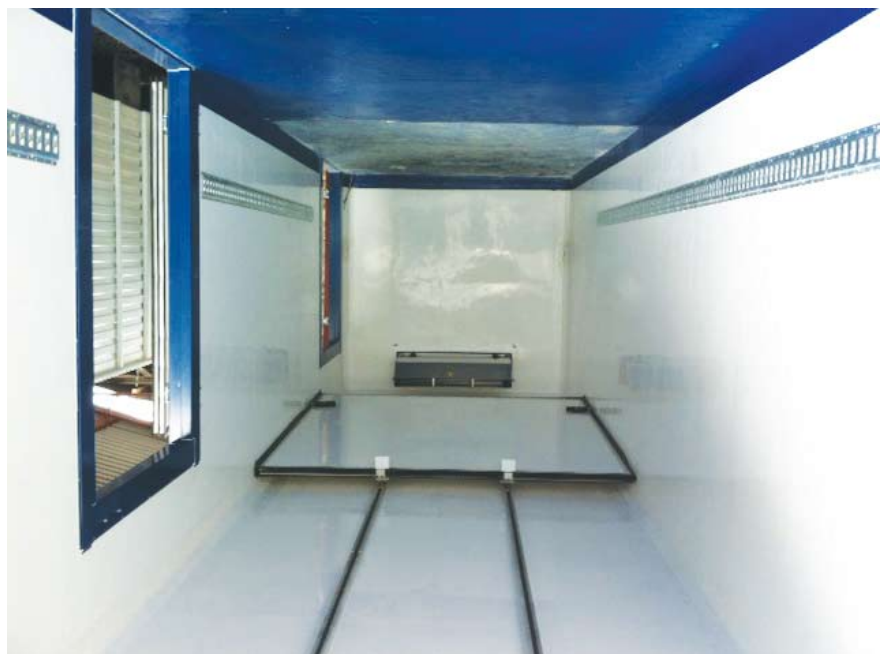
These systems are known to be durable and most energy efficient way to cool flowers. However, it is of utmost importance on whom and how it is incorporated in your cool chain." This is explained by Mr. Ross G. Field of Specialized Fibreglass.

"We built our reputation and success on design excellence, quality control, and customer service. In this competitive market we have remained to be cost efficient and price competitive too, but not at the expense of quality", says Mr. Ross Field. Therefore, using Specialized Fibreglass Ltd insulated bodies has some major advantages compared to others

Advantages

"The main advantages of our insulated bodies is the fact that we have many variations and customer options available, our insulation vary from 50-115mm, joints are laminated both

inside and outside and the bodies are fitted with imported refrigeration units moulded on the vehicle engine for power or independent diesel units which have own independent engine (Customers can choose between





the two). Customers also have the option of double or single doors fitted with imported seals and locking gears. The bodies are also fitted with air curtains to ensure air does not get inside when opening to drop. “We also fit ribbed floors and side wall to promote air flow and have temperature controlled on the whole body”, adds Mr. Field.

The bodies are built to meet the Kenyan and by extension East Africa road transport specifications which are slightly different from the European requirements. Though there is a standard body, but if a customer wants some custom – made item – new concept or perhaps a modification of an existing design it will be done. Some of the special requirements may include longer, wider or higher bodies to cater for the number of boxes a grower wants to transport. These bodies range from 1 tonne pick up to 40 tonnes trailers and stand alone units.

Supermarkets in Europe and other market places give temperature specifications to the grower in most cases temperatures between 2°C to 4°C. They insert data loggers in one of the boxes (small sensing computerized device) to ensure the client maintains those temperatures across the chain. A proper cool chain is highly important for maintaining high quality flowers and ensuring the grower gets maximum benefits. The use of a Specialised Fibreglass Ltd insulated bodies will ensure this.

Guarantee

Specialised Fibreglass Ltd customers

are assured a one year’s warrant in all parts in addition to training staff that use the products. They also offer unrivalled after sales service especially on the refrigeration units. In addition they repair the bodies incase of accidents and minor accidents.

Why is cooling at origin more effective?

The reason why the cooling during transportation from the farm to the airport is important, is at the destination cooling only, is not as effective as it is done too late. “When recooling the flowers in destination, flowers have already been exposed to very high temperatures, free moisture / high ethylene levels and for a long transit time (to Europe). In this time, botrytis has been allowed to develop and there is no way back”, says a grower who requested anonymity.”

Adding, “This enables the flowers remain cooler during transportation and have a higher quality when they arrive at their destination. The process reduces the undesired exposure, which not only reduces losses, but also enables the flowers to reach their destination in the required quality”.

About Us

Operating since may 1981, Specialized Fibreglass Ltd is a house hold name in Kenya, a recognized brand of excellence in the moulding on a wide range of GRP (fiberglass) products in Kenya, with a brand in fields of vehicle bodies, boat building and architectural components, as well as an assortment of other items including a variety of tanks, carrier boxes for bicycles and

motorbikes.

The largest and best known parts of SF’s market bodyworks (“*the best bodies in town*”), ranging from roof hatches for safari and tour vehicles, to rear canopies for pickups to specially insulated containers for refrigerated trucks and pickups.

We ensure close attention to specifications and quality of fittings and finishes to suit every client’s requirements as our priority.

The versatility of fiberglass means that almost anything can be moulded from it and technically there is nothing that Specialised Fibreglass Ltd cannot make, as a one - off unit or for mass production.



“There are obviously cost-saving advantages in off-the –peg designs, and these have also been thoroughly tested and often refined and improved over time”. “But if a customer wants some custom-made item-a new concept or perhaps a modification of an existing design, that can be done too”.

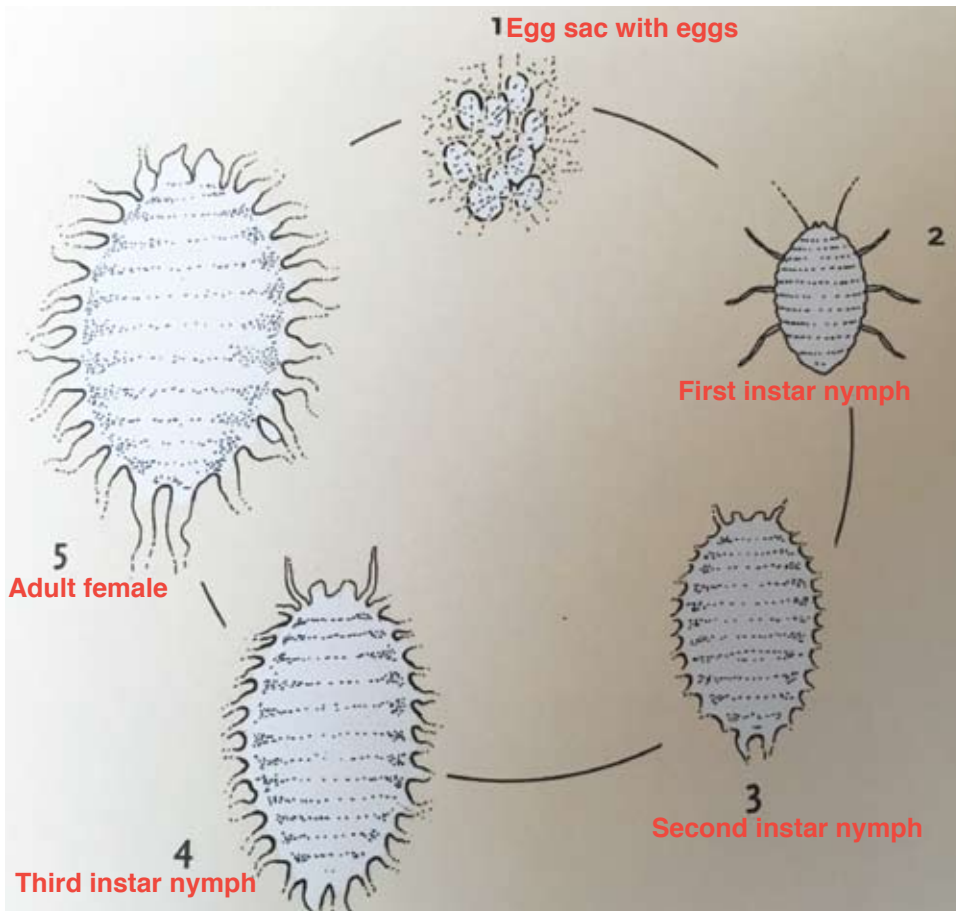
“There is no mystique to the chemistry of fiberglass. It is attention to detail and finish that makes the difference”.

“We have built our reputation and success on design excellence, quality control, and customer service. In a competitive market we have to be cost efficient and price competitive too, but not at the expense of quality”.



Mealy Bugs

The Notorious Notifiable Pests



Mealybugs damage plants with their toxic saliva, causing leaves to drop, inhibiting plant growth particularly of new shoots and creating yellow spots. Mealybugs can be difficult to treat because they hide in crevices where stems meet leaves and can reach damaging population levels rather quickly.

Mealybugs in Kenya were original pests that attacked the coffee plants in the eighties but as the flower and Rose growing industry began to thrive, the pests found a new host and were transferred to the Roses from the coffee bushes through coffee stakes that were used to hold the Rose beds together and as well through grafted roses.

Before the onset of IPM and use of biological methods to manage especially the red spider mites in Roses, Mealybugs were not a major pest in Rose growing. The reason being that most Miticides used to manage the Spider mites were also controlling the mealy bugs and other pests on the Rose crop. But as the pest management practices shifted more towards IPM and biological control especially for the spider mites which use to account for more than 40% of the total chemical cost the attention then shifted and other pests began to be of importance. One such pest is the Mealy bug.

The Mealybugs that attack Roses in Kenya are scientifically known as *Planococcus kenyae* the Coffee Mealybug. Close relatives of scales, mealybugs are small insects that grow to about 2/3 inch. Adult females can lay up to 600 eggs and look like small cotton balls. They've got an oval body outline, and functional legs allow them to be mobile in their immature stage. Some mealybugs are more ornate than others, having filaments around

the edge of their bodies or even “tails.” Immature males and females look similar, but they’re very different as adults: The adult male looks like a gnat with one pair of wings. (Only the adult males fly.) Female crawlers go through four developmental stages until they reach maturity. The male goes through five. On average, within six to 14 days, the eggs start to hatch, and immature scale crawlers emerge. This stage varies with plant species and indoor temperature. When it does occur, it’s the time when dispersal to new plant parts or new plant hosts occurs. So in other words: This is when you want to target treatment!



In addition to sooty mold, mealybugs damage plants with their toxic saliva, causing leaves to drop, inhibiting plant growth particularly of new shoots and creating yellow spots. Mealybugs can be difficult to treat because they hide in crevices where stems meet leaves and can reach damaging population levels rather quickly.

They normally are located on the underside of plant leaves and stems, and populate many outdoor plants such as annuals, bushes and shrubs. Mealybugs will heavily infest almost any plants in greenhouses, homes or businesses. They feed by forcing their needle-like piercing mouthparts into the plant and use a sucking action to remove the plant juices. Mealybugs attract ants by excreting honeydew, a sticky, sweet substance that the ants feed on. Plants infested with mealybugs usually have leaves that turn yellow and wilt, and if the infestation is not eliminated, the plant may eventually die. In Roses new shoots are prevented from growing and this greatly impacts production.

Mealybugs Damage

Once the crawler selects a feeding site, it inserts its mouthpart (called a stylet) and begins feeding on plant sap. While eating, a sticky waste substance is excreted by the insect (commonly called honeydew). This liquid adheres to leaves and provides a medium for sooty mould to colonize and grow. Sooty mould is black and eventually covers leaves and stems. This mould inhibits infected portions of the plant from photosynthesizing and causes aesthetic damage.

In addition to the sooty mould, plant damage is caused by the mealybugs sucking plant sap and the pests’ toxic saliva, both resulting in distorted plant growth and premature leaf drop as well as no emerging of new shoots. Plant leaves also develop yellow chlorotic spots.

Management and Control of Mealybugs.

It’s important to always inspect any plant before you bring it home. Not doing so is how most people get pest problems. Because of the woolly nature of mealybugs and cotton like webs they form around them mealybugs are proving very difficult to control. If mealybugs do find their way to your plants, there are a few control methods you can try.

Yellow sticky cards can be used to trap the flying adult males, preventing them from mating.

Insecticidal soaps and horticultural oils work great in controlling this pest. The tricky part is mealybugs tend to hide very well where leaves attach to the stem, so make sure you get coverage there. Horticultural soaps and oils don’t have systemic properties, which means when spraying, the product must come in contact with the pest. So know where your pest is on the plant.

A word of warning: You can burn leaves with horticultural soaps and oils. These products need to be applied when the air temperature is cool. Make sure your plants were watered well the day before you apply your control – never spray wilted plants. Following labeled rates also reduces the risk of leaf damage. More is not better. Also, make sure beneficial insects are not present when you spray. (Insecticides can kill the good guys, too.)

Biological Control: There are a few beneficial insects that can help you with mealybug treatment, too. Green lacewings (*Chrysoperla* sp.) feed on the crawler stage of almost any mealybug, where some others are more specialized – like the mealybug destroyer (*Cryptolaemusmontrouzieri*). This beneficial insect is a type of ladybug that loves to feed on most mealybug species (although it doesn’t do well on the long tail mealybug). There is also a parasite specific to the citrus mealybug that’s commercially available. All these are available through the Internet.

Mealybugs can be controlled if you catch them early and time your treatment correctly. Crawlers are the easiest to kill, so time your spray right, and you can win the war against mealybugs.

Closer 240SC

Bye...The Notorious Notifiable Pests- Mealy Bugs.



Dow AgroSciences has recently registered and launched in Kenya a new chemistry product that is systemic and targeted at managing Mealybugs and other sap sucking pests on many crops.

Oscar Shilliebo

Closer 240SC is powered by *Isoclast*[™] active (sulfoxaflo^r), discovered by and proprietary to Dow AgroSciences, currently is the sole member of a new chemical class of insecticides, the *sulfoximines* in the chemical class 4C. *Isoclast* has been developed globally for use in major crop groups, including Roses, Carnations, Cotton, leafy and fruiting vegetables, apples, soybeans, rice (outside of the U.S.), cereals, citrus, cole crops, grapes, and other crops. *Isoclast* controls economically important and difficult-to control sap-feeding insect pests including most species of aphids, jassids, leafhoppers, mealybugs, plant bugs, plant hoppers, stink bugs, and whiteflies, and certain species of psyllids and scales.

Noteworthy Features

- Effective at low use rates
- Excellent knockdown and residual control
- Excellent translaminar and systemic activity
- Effective against insect pest populations resistant to other insecticides
- Valuable rotation partner with other chemistries i.e. *Neonicotinoids*.
- Minimal impact on beneficial insects, including bees and natural enemies, when applicators follow label directions for use.

Mode of Action and Resistance

Management

Available data indicate *Isoclast*[™] active exhibits complex and unique interactions with insect *nicotinic acetylcholine* receptors (nAChR) that are distinct from those observed with *neonicotinoids*.

Isoclast is a high efficacy nAChR agonist with low affinity for the *imidacloprid* binding site. Numerous studies have been conducted to determine whether insects resistant to other insecticides are cross resistant to *Isoclast*. Available data for *Isoclast* indicate a broad lack of cross-resistance in many sap-feeding insect strains resistant to other insecticides. In several field studies, *Isoclast* controlled

insect populations known to be resistant to *neonicotinoids* and to insecticides with other modes of action (e.g., *carbamates*, *organophosphates*, *pyrethroids*).

The broad lack of cross-resistance between *Isoclast* and *neonicotinoids* is due primarily to differences in metabolism by *monooxygenase* enzymes, which are the predominant mechanism of insecticide resistance in the field. Laboratory studies have demonstrated a *monooxygenase* that degrades neonicotinoids has no effect on *Isoclast*.

The novel chemistry of *Isoclast* and the lack of cross-resistance suggest that efficacy of *Isoclast* will be retained even in the presence of sap-feeding insect strains that are resistant to other insecticides, including *neonicotinoids*. For reasons indicated in the preceding paragraphs, *sulfoxaflor*TM was classified as a Group 4, Subgroup 4C insecticide in the Insecticide Resistance Action Committee Mode of Action Classification Scheme (Version 7.2, April 2012, <http://www.irac-online.org>). *Sulfoxaflor* is the sole member of this subgroup. *Neonicotinoids* insecticides are classified in Group 4, Subgroup 4A in the IRAC Mode of Action Classification Scheme.

Because of its unique properties and broad lack of cross-resistance, *Isoclast* will be a useful rotation partner with other insecticide chemistries, enhancing insect resistance management (IRM) strategies.

How IsoclastTM Active Kills Insect Pests

*Isoclast*TM active kills insect pests both on contact and through ingestion to provide both knockdown and residual control. *Isoclast* displays translaminar movement (moves to the opposite leaf surface) when applied to foliage and is xylem-mobile.

Biological Activity

Background

Sap-feeding insects, especially those in the sub-orders *Hemiptera* and *Homoptera*, are among the most destructive insect pests in the world, annually causing economic losses in both row crops and horticultural crops. Management of sap-feeding insects often requires diverse and intensive control

tactics, including the use of insecticides. Consequently, populations of sap-feeding insects have developed resistance to many insecticides representing a wide range of insecticide modes of action. *Isoclast*'s efficacy and unique mode of action suggest that it will be a key tool for controlling economically important pests and a useful rotation partner in IRM programs.

Efficacy of Isoclast Against Insect Pests

Isoclast provides excellent efficacy against target pests at low use rates. Proposed application rates of *Isoclast* range from approximately 100 to 200 millilitres of product per hectare depending on the target pest and the crop. Field efficacy trials with *Isoclast* have been conducted worldwide on many crops against a wide range of sap feeding insects. Results from these trials have revealed that *Isoclast* provides excellent control of many species of sap-feeding insects, including mealybugs, whiteflies and aphids.

Impact of IsoclastTM Active on Natural Enemies of Insect Pests

Field studies have been conducted to measure the impact of *Isoclast*TM active on several predatory and parasitic arthropods (natural enemies): assassin bugs, big-eyed bugs, braconid wasps, green lacewings, lady beetles, minute pirate bugs (including *Orius insidiosus*), and spiders.

When applied at field-use rates in these studies, *Isoclast* had no significant impact on population levels of any of the natural enemies measured. In addition, *Isoclast* has had no impact on beneficial mite species. Based on the results from these studies, as well as on observations from other field trials, use of *Isoclast* is not expected to cause outbreaks of secondary insect pests (often referred to as "flaring").

Crop Tolerance

Tolerance of formulations of *Isoclast* is high for the many major crop species that have been tested. At labelled use rates, *Isoclast* exhibited no phytotoxicity in seedling emergence and vegetative vigor tests in ten crop species. No crop injury has been observed in any field trials over a range of environmental conditions, and

no differences in varietal sensitivity have been observed. Since being registered in multiple countries, Dow AgroSciences has received no reports of any negative plant responses or phytotoxicity from application of *Isoclast*.

IsoclastTM Active and Non-Target Organisms

*Isoclast*TM active does not persist in the terrestrial environment and degrades rapidly to products that exhibit low toxicity to non-target organisms. Consequently, when *Isoclast* is used according to label directions, exposure of non-target organisms to *Isoclast* is expected to be minimal. Based on available data, use of *Isoclast* in the manner consistent with label directions will not cause any unreasonable adverse effects in the environment.

Isoclast and Bees

The effects of *Isoclast* on honey bees (*Apis mellifera*) and bumble bees have been studied in laboratory experiments and in tunnel tests that simulate field conditions. In laboratory studies, *Isoclast* exhibits acute toxicity to bees when consumed by or applied directly to bees. However, in tests designed to mimic use conditions, toxicity of *Isoclast* to bees was significantly reduced after the spray droplets had dried.

Acute Toxicity (Laboratory Studies). Under laboratory conditions, *Isoclast* exhibited acute toxicity to bees when the bees were exposed by oral or contact routes of administration. *Isoclast* technical and formulated products had similar toxicities to honey bees. The primary metabolite was not toxic to honey bees. The following table shows available acute toxicity data.

Summary

At the time of publication of this bulletin, the findings from all of the completed studies suggest that although *Isoclast* is acutely toxic to bees in laboratory studies, the risk of adverse effects on bees should be low under field conditions when applicators follow label directions for use. Because potential exposures to honey bees may vary among crops and field conditions at the time of application, it is important to read and follow all label directions regarding honey bees.

MPS: Shaping the future of horticulture

‘Product Proof’ and the collaboration with GLOBAL

G.A.P. spearhead the MPS trade fair presentation

At the IPM there is considerable interest in the Product Proof sustainability initiative, which MPS announced last week it would widely roll out in the horticultural sector in the fourth quarter. This will offer growers many advantages combined with the announced collaboration with GLOBALG.A.P.

Product Proof is a system that is able to demonstrate that certain active substances were not used in cultivation by means of compulsory daily registration and independent sampling. Tests are performed to, for example, ascertain whether an active substance was administered in accordance with the label and whether the substance is registered on a daily basis. Tests also examine whether the active substance appears on the so-called ‘bee unfriendly’ list and whether it belongs to the neonicotinoids group. A verification of the restrictions, which a specific customer has imposed, completes the process and affords Product Proof a tailor-made character. Growers that possess an MPS-ABC certificate are eligible for Product Proof.

Desperately needed

“Recent developments clearly demonstrate the importance of introducing a system that proves certain active substances have not been administered during cultivation,” explains MPS director Theo de Groot, who refers to the measure proposed by State Secretary Van Dam banning the substance Imidacloprid and including eight active substances by Aldi Süd in Germany.

On the eve of a new era

According to the MPS director the sector is on the eve of a new era. “Retailers will increasingly act on the basis of hard numbers instead of whether a certificate has been obtained or not. In the United

States it is the most normal thing in the world for a retailer to have detailed insight into company-specific figures related to a grower’s environmental impact.

Launching Product Proof allows us to join this development.” During IPM a number of growers already registered who want to be included in the ongoing Product Proof pilot.

A single company auditor

Besides a growing need for transparency for traders and consumers MPS notes that growers are looking for simplification. “At the moment it is possible for a producer to be visited by two different auditors two days in a row for different certificates,” De Groot reveals. “The audits could have major overlaps. This is not particularly efficient from the grower’s perspective.” To avoid unnecessarily burdening the grower when performing audits MPS 2 recently concluded a collaboration with GLOBALG.A.P., as it is one of the certificates in greatest demand from retailers. “GLOBALG.A.P. may have originated in the vegetable sector but the pressure from retailers is ever increasing in the horticultural sector too.” Thanks to the collaboration between MPS and GLOBALG.A.P. in future, growers can be (remain) eligible for both MPS-ABC and GLOBALG.A.P. certification with a single audit. Another advantage is that the grower is now free to choose the certification institution.

Postharvest of Flowers

Once the flowers are cut, they begin a continuously increasing race to their senescence and death.

Temperature

This is the most important single factor affecting flower value. Cold temperatures reduce the physiological activities. It also reduces other metabolic activity and slows down the rate of opening of the flowers. Therefore, low temperatures from the farms to the final destinations are VITAL.

Precooling is mandatory

Precooling is a process that fastly reduces the temperature, extending the beauty and useful life and, obviously, increasing the quality of the product. This is specially important for those flowers with high respiration rates (which generate much heat) such as roses and carnations. Many experiences have proven that such process is beneficial to most species.

Alonger vase life

- Together with a fresher appeal, it determines high quality.
- These concepts represent almost 2/3 upon the buying decision.

Precooled flowers

Get the most important benefits looked after in their postharvest, since the process:

- Reduces respiration rates.
- Reduces growth of decaying microorganisms.
- Reduces transpiration and moisture loss.
- Reduces ethylene release and increases tolerance to it.
- Reduces physical damage.
- Reduces waste of vase life during transportation and storage.

Importance of timing

To obtain the maximum out of the above benefits, precooling should be done as soon as possible after harvest. When performed at destinations the process can only rescue the life remnants, left after a significant waste during transportation.

Seit 1887
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HPP Exhibitions

Your Global Business to Business Partner

Established in 1984, HPP Exhibitions has 32 years of experience in organizing trade exhibitions all over the world. It has organized more than 180 exhibitions in 35 countries. HPP Exhibitions, with offices in Holland, Ecuador and Ethiopia, promotes companies active in the fields of Floriculture and Horticulture through international exhibitions globally.

"We excel in creating high profile, highly targeted business to business exhibitions, where buyers and suppliers from around the world can come together to do business," says Dick van Raamsdonk, HPP President. HPP Exhibitions business philosophy is centered on delivering business contacts and solutions that create added value for



customers. Their values reflect this philosophy.

International developments have moved at such a fast pace over the last years that slowing down, even for a moment, will instantly put company behind. Rapidly changing consumer demands, strong rising and falling economies, increasing

cargo capacity facilities and upcoming new producing countries are reasons enough to carefully monitor threats and opportunities. HPP offers a tool for keeping up to date on current developments in the Floriculture and Horticulture an opportunity to adjust your current production, logistics and marketing strategies. Their main objective is to provide an excellent service in the organization and execution of professional international trade exhibitions and work towards ecological and economic developments in a worldwide market.

In an increasingly digital age, nothing can replace the power of human contact for establishing and maintaining business relations.

World Floral Expo 2016 Highest Attendance Ever!

March 9th to 11th, expectations of an all-time high number of attendees might be met at the 17th edition of World Floral Expo. Over 1,000 high quality visitors, mainly flower importers, wholesalers and the bigger retailers will attend the trade show one or more days. Also several supermarket chains buyers will be among the visitors to the great pleasure of the exhibitors. As one of the exhibitors quoted, "the LA show will be the best ever, both in quantity as well as in quality. It was already a hit last year, but this one will surpass that edition by far".

The president of the Californian Flower growers & Shippers Association CalFlowers has expressed satisfaction and appreciation about the initiative of the show taking this year. According to the spokesman of WFE Dick van Raamsdonk, the probable most remarkable fact to mention is that US and NON US flower growers exhibit together in one event in California. This will prove to be a great benefit for all. For the exhibitor to share market information, knowledge and develop different forms of cooperation between themselves, and for the visitor to be able to source a much more complete package of fresh cut flowers at one place.

New fair to promote horticultural industry of Iran

September 1st to 4th a brand new trade exhibition will be organized in Tehran to promote the horticultural industry of Iran. Iran Horti Expo, as the fair has been named, is developed to bring together the Iranian and international horticulture industry and boost business between them. The fair is organized by HPP Exhibitions together with its partners in Iran.

Horticulture is one of Iran's most prominent sectors and for this reason the expo will create a unique opportunity for international horticultural supply companies to enter the Iranian market. The exhibitor profile of the fair is divided into two parts; one part will focus on the production side of flowers and plants and the second part will emphasize the production of vegetables and fruits.

Since the exhibition is a pure business oriented event, the visitor profile of the fair will be dedicated to attract Iranian importers and traders of horticultural hard goods, and growers, traders and exporters of flowers, plants & fresh produce. Iran Horti Expo will be a must for everybody that wishes to enter the new market of great potential in a country with 80 million consumers

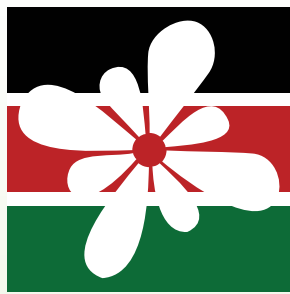
IFTF World of Flowers: The Place to be

In early November, the IFTF trade fair will take place in Vijfhuizen, The Netherlands. The exhibitors and numerous visitors will meet each other, become acquainted with product innovations and trade developments and do business. With nearly 700 registered florists in attendance, the expectations for the event were more than met.

Kenya Flower Council will join hundreds of exhibitors from all over the world at the International Flower Trade Fair (IFTF) which will take place at Vijfhuizen, Netherlands between 2nd and 4th November, 2016

Addressing potential exhibitors at a Nairobi hotel, Dick van Raamsdonk, President HPP International Group B.V. Called on Kenyans to join the Kenya Flower Council pavilion or Exhibit individually.

"This year's IFTF show will be exceptional. The atmosphere will be very exciting and energetic. Exhibitors will meet friends and establish many new partnerships." Said Mr. Raamsdonk. A number of growers who were in attendance showed interest.



IFTTEX 2016

INTERNATIONAL FLOWER TRADE EXPO

WEDNESDAY JUNE 8 - FRIDAY JUNE 10
OSHWAL CENTER • NAIROBI • KENYA



Kenya's Flower Industry Expo



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A radical Change to How We All Work, a Focus on Outcomes not Business.

By Tom Goodwin

If we are brutally honest, for 99% of people in 99% of roles and in 99% of companies, the primary motivation for people is demonstrable busyness. Let's be honest - are we all more obsessed with being busy than we are by making a difference?

- Does your workplace reward effort not results?
- Is your entire company focussing on what matters?

Maybe the best companies can be defined by what they don't do? Maybe the best people are too. When most of us enter work (with less employee protection and high student loans overhanging), our initial thoughts are about "holding onto a job". We don't seek so much to change the world, as much as keeping our bosses happy. This makes entire sense. Who are we to hold such lofty dreams, for now.

And the best way to make our bosses happy comes from doing everything that they ask us to do & from being demonstrably busy. It's primarily a defensive mindset. Nobody ever got fired for the combination of busy and compliant. Thus in particular the first few years of any career are dominated by the act of being busy.

In fact demonstrable busyness is an interesting thought. One of my favorite notions in life is the McNamara Fallacy, it explains in life how we tend to measure what can most easily be measured, we then tend to ignore what can't readily be measured, and thus people focus on accomplishing only the metrics that can most easily be quantified.

As a result outside of sales jobs, this means most companies tend to reward subconsciously behavior like getting on well with people, being in the office early, staying late when needed and never being on vacation when people noticed. Above all else; the acts

of replying to emails late at night, being in many meetings, arranging a lot of meetings and sending emails early in the morning seem to create the most measurable demonstrations of work. But work isn't value. Especially in modern companies, unless you are in a production line or in fact remarkable few manual roles, thinking and efficiency is more vital. And this is how the entire developed world is likely to shift, to creative roles and strategy as a value add.

Yet since busyness and presenteeism are so central to the formative years of our careers, people rarely ever truly grow out of it. It becomes muscle memory. I think our working culture is still dominated and rewards those who spend their whole career defensively.

We are also used to thinking based in the industrial revolution, even the concept of work is strongly tied to the sense of production. Economic theory is based on work and creating value & effort and outputs being correlated and linear. But what if the new world wasn't linear, what if great ideas allowed exponential returns. A good idea can take a split second and create billions in value. We need to consider the quality of ideas and creativity, not work and effort.

So how many meetings are really necessary? How many meetings last as long as they are booked up for on a calendar? How many events do we go to in order to show our face? Do we feel guilty reading industry or global news at work? Or writing blog posts?

Looking to the future or asking existential questions about our industry, our job or ourselves is both the most important thing we can ever do, and the most self indulgent. It's clearly the best way to accomplish anything remarkable, yet never expected.

What if we turned it around? What if the measures of a success became making a difference? What if we realigned our entire

focus around doing a few things really well? We'd work in totally different ways, in different places, with different people. What if we used software, platforms and technology to reduce our workload, wherever we could. We'd educate ourselves, we'd invest in being healthy, bright, energetic, positive people and nurture curiosity.

It's interesting to consider this in the context of a working world that's slowly and steadily employing people who've grown up in the age of technology and startups and founding apps, people who are less patient, more confident and expect to change companies or found their own, 30-50 times in their life.

So to get ahead, Give it a try.

If you can (and not get fired for doing this)

Sit down for 10 mins per week and think of 2 really important things that you want to work towards. Some longer term and incredibly big, some short term and massively useful.

Write down 10 or 20 things that in all honesty won't make a big difference to yourselves or your business and don't do them or do them extremely quickly and not brilliantly well. Because you are not an idiot, and have the best interests of the company in mind, explain to people calmly and politely why that is not a focus.

Then, change your mental mode to the company, what is your company measuring that doesn't matter? What are people doing that makes revenue but not profit? What results are you celebrating that you care about only because they are the most easy to measure? What really matters to the future of your company?

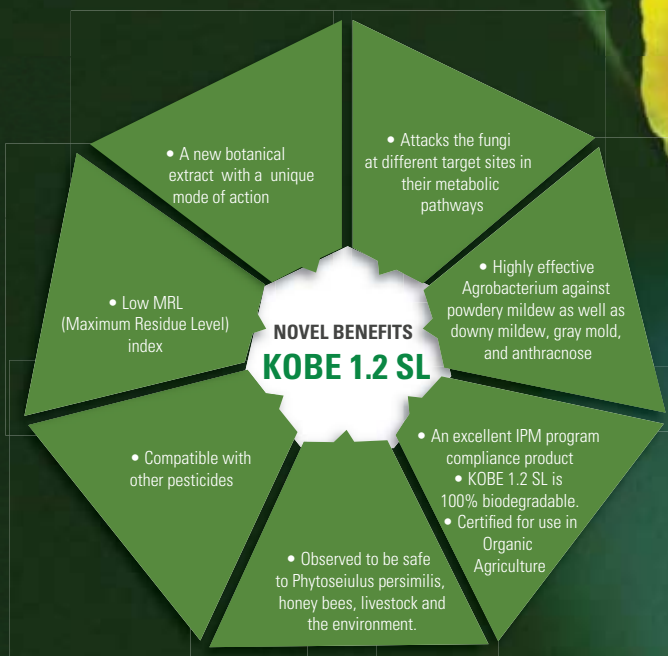
Maybe business as usual needs to be preparing your company for a new future, not just iterative steps to keep things on track.

I would love to hear feedback.



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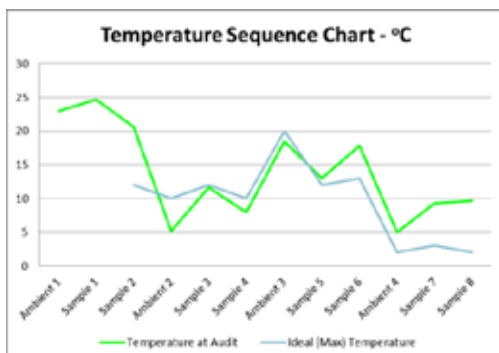
Technical Support Anytime, Anywhere

All Chrystal customers are entitled to **free of charge** technical support services.

Chrystal Africa's Technical Consultants are available year-round to support all Chrystal customers in their post-harvest processing. The team has extensive combined experience in post-harvest processing, flower growing, soil and water analysis, water management and an excellent understanding of what it takes to be a grower in the region.

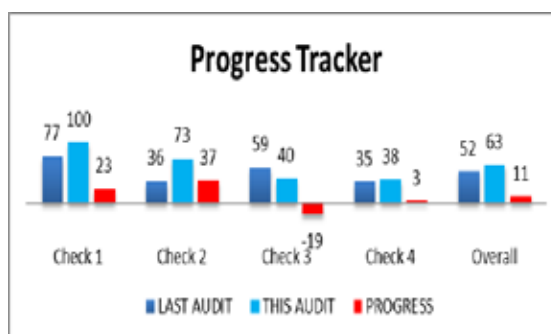
Travelling around East Africa to growers and bouquet makers, the team provides:

- **Private, personalised audits with progress tracking,**
- **On farm and off-farm training,**
- **Experienced support,**
- **Support for trials and R&D,**
- **Backup for trials and testing in Nairobi and Holland,**
- **Post-harvest water use management,**
- **Links to Buyers and Processors in Europe, the Americas, Australia and the Far East.**



Chrystal Africa's confidential audits cover post-harvest solution quality, hygiene, temperature and humidity, packaging and handling.

Audit reports score each section, and provide a progress tracker so growers can track how well they are performing.



Chrystal Africa's technical team is integrated with that of Chrystal International to bring you the most up to date technical innovations and information from Australia and Japan through Europe to the Americas.

Trials and tests can be undertaken in Chrystal Africa and Chrystal International in Holland; further follow ups can be requested in each of these locations.

For any technical queries, support and information, the Chrystal Africa technical team is available to visit your farm, check your processes, recommend improvements, provide international backup networks and lend a hand when and where you need it the most.

For More information on our Services -

Contact us at:

info@chrystal.co.ke



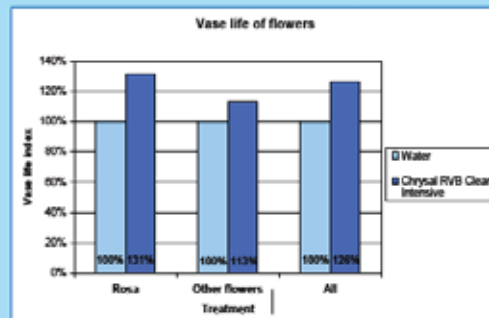
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Chrysal presents its range of **Post-Harvest Products** targeting
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RVB Clear 1ml/l - this is
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combined with surfactants
and acidifiers to ensure
efficacy and results - **This
Premium Rose post-
harvest treatment** is
recognized as a global
Market Leader



Test Results
The following graph shows the effect of Chrysal RVB Clear Intensive
on the vase life of Roses and other flowers compared to water alone.

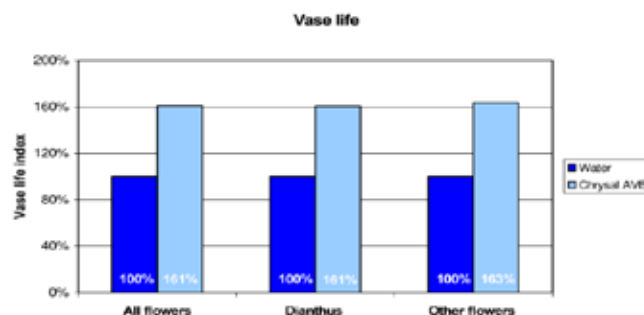


The following table shows test results on various Kenyan Rose
cultivars. Chrysal RVB Clear Intensive is compared to the current
treatment used by the grower, mostly 'homebrews'.

Variety	Average vase life days in: Current treat- ments	Chrysal RVB Clear	Improved vase life (%)
Revue	7	10	42%
Circus	8	11	38%
Pascha	8	16	100%
Red one	9	16	77%
Akito	10	15	50%
Red calypso	13	15	15%



AVB 1ml/l – a treatment for
Ethylene Sensitive Crops:
Applicable to Carnations, lilies,
Delphiniums, Agapanthus,
Alstromeria's, Spray Roses and
Standard roses for longer storage.



Chrysal Inicial: 0.2ml/l – this is a
field based **Post Harvest solution** with
long lasting and slow release Chlorine
for hygiene reasons combined with
Aluminum Sulphate for acidity and
flocculation properties.

Valentine:

“Rose Auction prices were Terribly Low”

Usually after Valentine's Day, the auction prices of roses drop a bit, however, this year it seemed to be worse than ever.

“The prices are terribly low. So, low that we decided to reduce the quantities and stop exporting some lengths to the auction,” said a grower.

Low prices after Valentine's Day

After the Valentine's Day, the auction prices dropped around 30 to 35 percent compared to the average price of their 40 and 50 cm roses. Fortunately, the prices of their other lengths (60, 70, and 80 cm stems) were still 'good'. “They also dropped in price, like 20 percent, but we could still make profit. Therefore, we only decreased the amount of boxes we export,” he says. Growers interviewed by this periodical said low prices might have been due to the fact that Valentine's Day fell on a Sunday this year (February 14). “Probably not all flowers are sold for Valentine's Day. Therefore, trading companies hold the flowers in stock and finish them first before they buy new ones. Of course this is just guessing, but it is commonly known that weekend Valentine's Days are not the best,” they added.

Low prices before Valentine's Day

However, not only after Valentine's Day, but also just before Valentine's growers had to deal with low prices. “Approximately eight days before Valentine's Day, the weather was rainy and cloudy, which decreased the production at many farms. At some farms, production dropped by 30 to 35 percent. Consequently, fewer flowers arrived at the auction, which meant better prices for other growers. However, a week before Valentine's Day, the weather improved and the production increased sharply. So, the last two days before Valentine's Day, the auction was over supplied with Kenyan flowers which made the price fall around 20 to 25 percent. Interestingly, the coloured flowers did better this year, all through Valentine's.”

Coming weeks higher prices

Growers expect better prices for the coming weeks. When we look at our direct orders, we can see an increase in demand for flowers. Often this trend can be translated into what will happen at the auction. So, as the buyers are preparing for Russian Women's Day and Mother's Day in the UK, the prices will probably rise.



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- More sellable Stems, increased revenue to growers
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- Increased number of stems per sq. meter
- Improved post harvest shelf life - less loss incurred



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More Visitors, More Decision Makers and More Business Transactions

World's Leading Fair for Horticulture Consolidates Its Position as the Most Important Platform in the International Green Sector Even Further

An outstanding mood at the 34th International Plant Fair IPM ESSEN 2016. The world's leading fair for horticulture was once more able to prove that it is the most important platform for the international green sector. From January 26 to 29, 2016, 1,588 exhibitors from 49 nations presented their innovations and new products along the value added chain in horticulture to first-rate trade visitors from all continents at Messe Essen. The comprehensive range on offer included new plant creations, pioneering technology, strong-selling floristry trends and marketing concepts oriented to target groups. The Innovation Showcase which set a record with 76 plant novelties was representative of the enormous innovative force of the sector.

"IPM ESSEN has once more proven that it is indisputably the most important fair for international horticulture. The innovations are introduced here and the orders for the coming season are placed here. This year, it was again possible to raise the number and quality of the visitors and the sales transactions. We are more than satisfied," was the summary made by Oliver P. Kuhrt, CEO of Messe Essen. This year, IPM ESSEN counted 57,200 visitors (in 2015: 56,500). More than 78 percent of the visitors have decision-making or procurement powers - a plus of three percentage points in comparison with the preceding year. 36 percent of the trade public already placed orders at IPM ESSEN 2016 (in 2015: 34 percent). The visitors rated the available range as very positive. Around 93 percent passed on recommendations to visit the fair. The exhibitors also made very positive assessments: 92 percent stated that their expectations for IPM ESSEN 2016 had been met. They reported on a large number of new foreign contacts and successful deals.

Internationality on an Unfailing High Level

64 percent of the exhibitors and 40 percent of the visitors came from abroad. Around twelve percent of the guests at the fair travelled from Asia - predominantly from the Middle East (in 2015: nine percent). With regard to the countries



of origin of the visitors, France exhibited a seven-percent increase in comparison with the previous year (in 2015: three percent) and Switzerland a six-percent increase (three percent).

For the first time, 20 nations presented themselves at IPM ESSEN with official joint booths. Guatemala gave its premiere. China, France, Great Britain, India and Taiwan enlarged their booths. Other pavilions were organised by the following countries: Belgium, Costa Rica, Denmark, the Netherlands, Israel, Italy, Portugal, Poland, Spain, Sri Lanka, South Korea, Turkey, Hungary and the USA. Furthermore, a 100-strong delegation from Turkey travelled to IPM ESSEN for the first time in order to obtain information about the newest horticultural products.

Record: 76 New Plant Breeds

The Innovation Showcase which was jointly staged by Messe Essen and the Central Horticultural Association (ZVG) counted 76 submissions from 33 exhibitors - a new record.

Show Your Colours Award

In the case of the Show Your Colours Award which was organised by BIZZ Communications and Messe Essen, the visitors and the expert jury decided in favour of four winners: Van Vliet

New Plants with the *Skimmia japonica* DWARF Serie, Notkamp Boomwekerij with the *Buxus sempervirens* BUXUS JEANS OF GARDEN, Helmers Baumschulen with the *Hydrangea macrophylla* Hybrid and Special Plant Zundert with the *Gaultheria procumbens* GAULTIER PEARL ('SPECGP11').

International Grower of the Year Awards

For the first time, the international umbrella association (International Association of Horticultural Producers - AIPH) presented the "Grower of the Year Awards" at Messe Essen. Plant breeders from all over the world received marks of distinction for their outstanding performances: Costa Farms from the USA received the Golden Rose in the Finished Products category. The German-Dutch company Florensis won in the Young Plants category. Arcadia Chrysanten from the Netherlands decided the competition in its favour in the Cut Flowers category.

INDEGA IPM Innovation Award

STEP Systems received the INDEGA IPM Innovation Award. The expert jury made a unanimous decision in favour of the Combi 5000 analysis device. The experts see the innovative approach for gardeners in the fact that they can measure the most important soil parameters such as conductivity, salt content,

pH value, temperature and moisture in a very simple and nevertheless reliable way in the business with one device by exchanging the measuring probes.

Green City: Meeting Place of the Horticultural Associations

The Green City again became the place for the intensive exchange of ideas between experts, organisations and associations. "In my welcoming address at the opening ceremony, I designated IPM ESSEN as a be-there event for the sector. The past days have shown that IPM ESSEN has more than done justice to its reputation as an important place for encounters and networking. It is precisely the many small and often spontaneous appointments and discussions on our ZVG booth which provide me with information and inspiration," said Jürgen Mertz, President of the Central Horticultural Association (ZVG).

In the Horticultural Info Centre in Hall 1A, ZVG as well as the Rhineland and Westphalia-Lippe State Horticultural Associations provided comprehensive information about their ranges on offer and introduced the new image campaign entitled "Naturally Beautiful Moments" and the campaign for canvassing the up-and-coming generation called "Gardeners. Fit for the Future." At IPM ESSEN, the green associations took up not only the problems associated with the demographic change but also the decline in the number of applicants for training places in the green sector. On the Training Day, they addressed the subject of starting in an occupation.

The Future Starts Now - Focus on Young Customers

The new FDF World in the Green City in Hall 1A was a meeting place for florists from all around the world. With an innovative booth concept, the Trade Association of German Florists (FDF) introduced floristry to interested trade visitors. "In the new FDF World, an open-minded, modern Trade Association of German Florists which made its visitors enthusiastic about successful flower marketing with a lot of new ideas and strong inspirations has presented itself to the national and international trade public. In our showrooms, we have displayed the newest floristry trends in interior worlds. Great attention was attracted by the innovative Floral Future Lab

in which we have addressed the subject of the perspectives and expectations of young customers in relation to the specialist trade. For the sector, this is resulting in valuable suggestions and inspirations. On the show stage, top international designers introduced themselves with their flowery presentations. This wide spectrum portraying the association has aroused the enthusiasm of our guests," was the assessment made by the FDF President Helmuth Prinz.

The programme on the show stage attracted outstanding numbers of visitors on all the days. Germany's champion florist Marcel Schulz whom FDF was nominated to take part in the European Cup of Florists in Genoa, Italy, in April 2016 set off a sparkling display of bouquets



in front of an enthusiastic public. Together with Mehmet Yilmaz who took the fifth place in the World Cup of Florists and the top-class florist Elisabeth Schoenemann, he showed a programme of highly topical bouquets for the forthcoming Valentine's Day, Easter and Mother's Day. The creative "Florists Group for Floral Design" from North Rhine-Westphalia inspired the trade visitors with its close-to-nature floral design ideas under the motto of "Arranged, Potted and Planted" for the spring. In the highlight show entitled "IPM Worldwide", international trainers of florists presented insights into the philosophy of their teaching. In the Projects and Cooperation exhibition area, FDF invited the visitors to a completely newly presented showroom called "just chrys". Here, the multitalent chrysanthemum presented itself in a wide range diversity. For the first time at IPM ESSEN, FDF showed the current flower trends in 2016 in the trend atmospheres called "connect the story", "more is more", "reconsider space" and "the world beyond".

"Transformation" was the motto of this year's creative competition for the IPM Fair Cup 2016. With her best overall performance, Sabrina Holz



from "Prinz Blumen" in Mönchengladbach decided this attractive competition in Hall 6.1. Radko Chapov from the Justus von Liebig College in Hanover created the best bouquet with the maximum 100 points. Bärbel Grzenia from "Blumen für Dich" in Borken won the competition for the best decorative potted plant. Jasmin Jäger from the "Floral Design Store" in Bad Neuenahr-Ahrweiler secured the first place in the Tub Planting Arrangement category.

Supporting Programme Received Top Marks

Outside the fair halls, too, IPM ESSEN offered its visitors an informative supporting programme which went down very well. On the Wednesday, THE GREEN CITY Foundation staged an information forum especially for town planners, tree nursery gardeners, garden and landscape architects as well as municipal decision takers. Under the motto of "Green Future - Cities Need New Product Choices", it was discussed how tomorrow's cities can be provided with green spaces and what contribution plants can make to a good inner-city climate.

What chances does the horticultural sector offer in Great Britain? On the Thursday of the fair, experts provided information about this at the International Horticultural Forum which was organised by the Representation of interests of the German horticulture industry (INDEGA), the Ulmer Publishing House and Messe Essen. At the same time, the event offered the ideal platform in order to establish contacts with partners from Great Britain.

Perfect Conditions for Growing an International Exhibition



The fifth edition of the International Flower Trade Expo (IFTEX) Nairobi will take place on June 8-10 2016, at the Visa Oshwal Centre, Westlands, Nairobi. Below is a chat with Dick van Raamsdonk, President HPP, and the organizer of the event;

What would you attribute your success to considering you indicated the inaugural show exceeded expectations?

The fact that Kenya is one of the countries in the world where the production area of flowers structurally increases is a strong indicator that the sector -overall- is in a good shape. Moreover, growth in a worldwide economical turmoil shows that the sector has to row against the stream and still moves forward. This cannot mean anything different than strength for even more growth when coming into calm waters. Therefore IFTEX is an excellent instrument for the Kenyan floriculture Industry to support and accelerate this growth.

What has been your most 'unexpected' occurrence at the show?

I was 100% confident that this trade fair could not fail and would be a "full house". The only big unknown factor was how to convince the Kenyan growers that this would work if they just would believe in it. Never before in my career of organising flower trade expos anywhere else in the world, I had so many excellent building parts in my hand to create the almost 'perfect' flower trade exhibition, I am even tempted to call it.

Being a flower trade expo specialist, I got very excited the moment I added it all up and suddenly visualized the ideal place for an African flower trade expo could, would and should be Kenya and Kenya only. I

then decided to hold as many meetings with the growers as needed until they would be convinced to give it a try and take a booth. It was somehow still unexpected though when I finally I managed to get enough on board. The rest as they say is history. Growers from the region have also joined the show

Do you expect a bigger IFTEX 2016? Why, if yes?

Yes, IFTEX will definitely grow in its fifth edition this year. Not only because of many more Kenyan growers who want to exhibit this time, but also exhibitors wanting to display in bigger stands.

Furthermore, IFTEX is bound to become a regional event, hosting growers from other African flower producing countries that are too small on its own to hold such event. And I mentioned in my first year, I expected IFTEX to become the Africa's flower grower trade fair within a few years, becoming the sourcing market for the world for any African fresh cut flowers. Today it is among the top global

flower trade show.

What can you single out as the most outstanding feature of IFTEX Nairobi in terms of exhibitions and visitors?

The only event where you can meet all flower growers in their back yard at the same time and place, with its buyers.

When you first spoke on IFTEX Nairobi, you said it had potential to grow into the largest flower fair in the world. What are the other big events in the world, and why do you foresee Kenya beating them in days ahead.

The other big cut flowers trade events are in Ecuador, Colombia, Germany and Holland. Kenya has joined this list and become a serious competitor for the number one position. Compare it if you like with the world cup.

What kind of feedback did HPP get from those the fair targeted last year? Is it the same group that is expected in 2016? Can you point one good example of something that has happened because of the fair?

Feedback has been positive; above expectations and the most important outcome is confidence in the future of the fair. There will be many new international exhibitors as well signing up. Furthermore most, if not all exhibitors have been repeat exhibitors, in many occasions, bigger sized stands. The most important thing that has happened in the fair and which actually did happen is the change from doubt in belief that flower buyers did fly in and did attend the expo.

What is new in 2016?

The 'only' thing that will be new is: everything more & bigger!!! In addition, KFC celebrates their 20 years and will have more activities during the fair.

As an investor in Kenya, what is your view on business climate, what are the most challenging encounters, and how would you suggest that things be done differently or improved?

As an investor you need a stable economical and political environment. Only then an investor is willing to keep on investing, especially foreign investors and then can a country expect more jobs and consequently a better lifestyle for its citizens.

Fresh Produce Africa (FPA) Rescheduled For 2017



In a meeting between the different country offices of HPP Worldwide involved in the organization of FPA, the Fresh Produce Africa trade expo for the international vegetable and fruit industries it was decided, to reschedule the dates for its first edition. Originally planned to take place in April 2016, it was concluded that although the interest on the exhibiting side was much higher than initially expected, more preparation time would be needed to attract and secure a good number of international buyers to attend.

For this reason FPA will now take place one year later from Wednesday April 26 to Friday April 28 in 2017, at the same venue as was planned for 2016, namely The Oshwal Center in Parklands, Nairobi.

FSI Members Focusing on Volumes From Responsible Sources and Improved Practices



Germany. Working together in the supply chain, the FSI members' ambition is to have 90% of the flowers and pot plants

traded by way forward.

Volumes from responsible sources

To create more transparency and comparability, Floriculture Standards have been benchmarked against the international environmental GlobalGAP and social GSCP references. FSI welcomes the efforts of Standards to carry out the benchmarking and based on the positive results the '2015 FSI basket of responsible sources' was presented to the members. With the Standards that are in the Basket, FSI members will measure the volumes originating from responsible sources. The FSI members and sector outcomes, presented in percentages for both flowers and plants, will be presented during the Kenyan IFTEX Flower Show in June 2016.

Floriculture Sustainability Initiative (FSI) members are moving forward with their commitment for a sustainable floriculture sector. This came out of the FSI General Assembly that took place on 28 January 2016 at the IPM Trade Fair in Essen,

Germany. Working together in the supply chain, the FSI members' ambition is to have 90% of the flowers and pot plants traded by FSI members from responsible sources by 2020. For the third year in a row, the growing group of industry leaders from Production, Trade, Retail, Civil Society and Standards; all members of FSI, came together for the Annual Meeting to discuss the latest developments and align on the

Government Laboratory Testing Residues Re-Accredited.

The Kenyan government laboratory that deals with testing for presence of chemical pesticide residues of agricultural produce was re-accredited. This means the lab's competency in obtaining reliable and credible data for plant export requirements is guaranteed.

Kenya, through Kephis, will be able to test the produce before it is exported hence building confidence in exporting countries, particularly the EU where majority of flowers, fruits and vegetables go.

"Re-accreditation assures of the laboratory's competency, therefore the pesticide residue monitoring programme which is key to export to the EU meets the requirements of obtaining reliable and valid data," said Kephis managing director, Esther Kimani, in a statement.

Kimani said farmers who would like to test their plant samples can also take their



samples to the laboratory. The lab was re-accredited after scoring satisfactorily from the South African National Accreditation System. The quality management systems of the laboratory were tested to ensure compliance to international standards for analyses, said Kimani.

Horticulture stakeholders can rest assured that the level of compliance to market access requirements is continuously being monitored therefore Kenya's flowers, fruits and vegetables, worth about Sh100 billion annually, can continue having market access to the EU thus earning the country the valuable forex.

Improved practices

Parallel to the measuring and building on the success of the first 10 FSI members projects, a new round of projects starts in 2016. The focus is to improve practices on four key topics: Workers Conditions, Agrochemical use, Climate and Smallholders. FSI members are invited to present project proposals and create pre-competitive partnerships. This supply chain cooperation of FSI members will have scalable impact on main issues and brings shared learnings to the sector. The Sustainable Trade Initiative (IDH) will provide co-funding for selected FSI member projects.

Election of Trade and CSOs Board representatives

The General Assembly also elected the new Board representatives for Trade and Civil Society. FSI Ordinary members unanimously approved the re-election of Richard Fox (Union Fleurs) as Trade representative and voted in favor of Lara Ladipo (Partner Africa) as representative of the Civil Society Organizations.



USA Increases Direct Sourcing Of Flowers From Kenya

On the days approaching Valentine's Day, data from IAG Cargo showed a blossoming trade for Kenyan flower growers, with United States retailers and wholesalers increasingly sourcing flowers direct from farms.

Initial figures from IAG Cargo show that flower volumes destined for the US have increased by more than 50% on last year's season, with popular destinations including Vancouver and New York. This increase in shipments reflects a wider trend: increased

e-commerce capabilities have enabled buyers, particularly in the US, to source flowers directly from farmers, predominantly those in Kenya.

David Shepherd, head of commercial at IAG Cargo, commented: "We always anticipate that key calendar dates, such as Valentine's Day and All Saints Day, will see an upswing in flowers from their origin markets to destinations across our network".

"What's been interesting over the past years is the increasing move by buyers to source flowers directly from farmers, in addition to the traditional auctions. This means they're able to get what they need much quicker, owing to better connections and the boom of e-commerce. It's great to connect local growers and help bring their products to

market." The Valentine's Day period for air cargo carriers generally starts in the last two weeks of January and ends in the first week of February. Unsurprisingly, the traditional rose has been the most popular flower shipped on IAG Cargo flights, with 95% of roses shipped red in colour.

Also in the retail level, consumers interested in supporting sustainable farming can order an arrangement from The Bouqs Co., a flower delivery service that works directly with farmers in the United States and South America. "We tend to have the best pricing because of our online nature and our direct sourcing model," claims John Tabis, founder and CEO of The Bouqs Co. "One of the reasons we have year-round flat pricing is because we cut out all those layers and work directly with the farms."

Valentine's Day 2016 Marked Record for Colombian Growers

This year's Valentine's Day marked another record year for the Colombian flower industry. Over 500 million flowers arrived in North America just to celebrate February 14th. This ratifies Colombia as the second largest cut flower supplier in the world and the largest supplier of cut roses in the U.S.

Fifty-one years ago, the first batches of Colombian flower stems were shipped to Miami, FL marking the beginning of a long trajectory for the Colombian flower industry. Since then, the demand has not slowed down and has kept major international airports busy all year round with the single most important cargo - flowers.

Colombia's flower exports have grown steadily at 4% for the past five years. Christmas, Mother's Day and Valentine's Day are some of the peak holidays for

the industry that exports close to 80% of its production to the United States and Canada. Product diversity, high quality and short transit times due to Colombia's proximity to North America make the Colombian industry competitively strong.

In 2015, Colombia exported around US\$1 Billion to the US, where 12% of sales were driven by Valentine's Day. The 2016 outlook is even brighter because Colombia is 39% more affordable for US and Canadian buyers due to their stronger currency. In addition, as a result of Colombia's Free Trade Agreement with both countries, it guarantees zero import-duty, making it even more attractive and accessible to import flowers.

Colombia's flowers are mostly roses, followed by Carnations and Chrysanthemums; however, its diverse portfolio includes more than 50 species.

According to the USDA over 26,000 traditional florist retailers and wholesalers source 60% of their products from Colombia. In addition, supermarket chains with an established flower distribution channel have an overall market share of 50% and source most of their flowers from Colombia.

"95% of Colombia's production is exported to international markets such as the US, Russia, Japan and UK while 5% of the production is used for domestic consumption. The flower industry in Colombia has a strong social component contributing to more than 130,000 direct employments from which 25% are female workers. In addition, flower farms are also committed to a sustainable environment executing socially responsible activities for all workers; as well as to guarantee environmentally friendly fresh cut flowers," said Maria Claudia

BREEDERS BRIEFS

Dümmen Orange Starting Off 2016 On the Road

Dümmen Orange is on the road again. The breeder had introduced the flower-trials-on-wheels concept in January 2015. A truck was completely restyled into a trial on wheels and visited its trade partners at the various FloraHolland auctions in The Netherlands. Exactly one year later, the cut chrysanthemums are back at their familiar spot in the truck.



Royal De Ruiter East Africa, Closing the Year on a High Note

An atmosphere of enthusiasm greets us when we arrive at the Royal De Ruiter East Africa farm in Naivasha Kenya. Our visit comes when Royal De Ruiter is just fresh from the unveiling of their new corporate identity.

At a ceremony held during this year's IFTF show in the Netherlands, the company represented by its directors Henk de Groot and Oscar Peters was presented with



Royal designation by Mayor Drs. MM van 't Veld. The ceremony also marked Royal De Ruiter's 100 years since establishment.



Beautiful New Numbers by Kordes Roses

Towards the close of last year, rose growers from across the East African region were naturally clamoring for new interesting varieties to include in their production lines. Kordes Roses' new codes have drawn a lot of interest from growers.

We visited their Naivasha farm recently and there are some codes that are quite promising. These numbers have been the most popular in trial selections inline with indications that growers are looking for larger head sizes without compromising on production.

Olij's Successful 2015 Market Introductions

2015 was a good year for Olij Breeding as they introduced some spectacular new varieties to the market. First to be unveiled was the variety España which has been accepted very well. In the recent days, they introduced the red variety Revolution and the orange variety Arancio. Both these novelties are quite promising and the market reactions have been very positive. Pink variety Bisou and the cream variety Long Island are also gaining ground steadily as they make their market debuts.



New Name



Preesman and its direct subsidiaries has been renamed United Selections effective 1st January 2016. This carries forward the theme started with the naming of Latin Selections, throughout their entire business structure.

Legal and business arrangements will suffer minimal disruption as business will continue under the same operating entities with the same team dedicated to the continued success, they have found thus far together. Thanks and appreciation to their sole investor for the continuous support and guidance.

Jan Spek Roses expands partnership with Olij Breeding

Jan Spek Roses expanded partnership with Olij Breeding. From January 1st 2016, Olij Breeding became the agent of Jan Spek Rozen in Colombia.

For years, these companies have been cooperating in East Africa, South America and Poland. Also many promising "Spel" varieties are planted at Olij Nederland for the European Market. "The experience Olij has with our varieties will be very useful when entering the Colombian market with these varieties," says Erik Spek.



Red Naomi! is among the definite leaders in the red rose segment.



"The only difference between Africa's Red Naomi! and the Dutch Red Naomi! is the fact that the African version spends a couple of days in a box on her way to Europe," asserts Haiko Backer, the MD at Schreurs East Africa. Haiko is the man who spearheaded the venture to have an African grown Red Naomi! rose and has overseen the process. The rose has undergone numerous trials and the

results are nothing short of impressive. "Red Naomi! is a good grower with a similarly good stem length and bud size.

Red Naomi! has a large head with a high petal count, a nice and unique subtle fragrance and a perfect vase life lasting up to a fortnight. Additionally she has good transport and trading characteristics. With all these qualities, Red Naomi! is the definite leader in the red rose segment."

Royal FloraHolland introduces its own variation of the hit parade

Top 40 for flowers and plants

During the IPM ESSEN, Royal FloraHolland introduced its own variation of the hit parade, the Royal FloraHolland40. It's a monthly chart listing of the most successful market introductions of flowers and plants of the past 3 years. Just like with the music charts, the Royal FloraHolland40 reveals the market potential of the new entries.

Each year 1,500 VBN codes and 1,600 breeders' rights are granted in Europe. This illustrates how active the sector is in expanding the assortment of flowers and plants. In addition, customers appreciate a wide range of new products on offer. Royal FloraHolland considers it one of its core tasks to bring these two groups together.

Evaluating flowers and plants objectively
The potential of newly introduced products is evident in the index figure for price-setting, number of items and revenue. The numbers are processed to make the different flowers and plants comparable. This allows new products to be appreciated



on the basis of objective numbers and not just subjectively. It also makes the potential of a new tulip variety comparable to that of a new lily or fig tree. The Royal FloraHolland40 can help breeders, growers, wholesalers and florists to estimate the risks of novelties better and provides input for talks with customers and consumers.

After researching the topic among growers and breeders, a beta version will be launched this year, with a promotional tool being offered to new market introductions.



Red Torch from Bilashaka flowers grown in Naivasha just started with the first production. From Monday the 11th of January first stems were available at the FH-auction in Rijnsburg

Timaflo introduces new red rose *Mon Amour* at Royal FloraHolland

On Wednesday, January 27th Mon Amour was at Royal FloraHolland in Aalsmeer for the first time. Timaflo Ltd planted one hectare in Timau, Kenya and supplied 40-70 cm lengths. Fresco Flowers in Aalsmeer are in charge of checking, unpacking and selling Mon Amour.

Mon Amour has a remarkably velvety red color, little spines and excellent shelf life. With a bud size of 5 to 6 cm and classic opening of the flower, the rose is suitable for a big market.

The variety was developed by Select Breeding in Klazienaveen. Select Breeding mainly develops medium- and large-flowered roses for the cultivation of cut roses. Select Breeding also has its own line of luxury patio roses for the tub plant market.





Lufthansa Cargo Awarded International Environmental Standard Certification

The sustainable environmental strategy of Lufthansa Cargo is a success. This has now been recognised. The company has received the worldwide acknowledged ISO14001 certification. Certification began in 2008 in Frankfurt and was then gradually rolled out.

Lufthansa Cargo has already been ISO certified at all German stations since 2010, and has now achieved worldwide certification.

Syngenta approves \$43bn acquisition bid from ChemChina

Swiss pesticide company Syngenta has agreed to a takeover bid from Chinese chemical firm ChemChina. The European company will become part of the Asian giant in a \$43bn (£29.8bn, €39.4bn), subject to regulatory approvals.

The all-cash offer amounts to \$465 per share, plus a special dividend of CHF5. These are to be paid immediately before the closing of the deal, Syngenta said, after it accepted ChemChina's offer. ChemChina chairman, Ren Jianxin said that both the companies will work to maintain Syngenta's "leading competitive edge in the global agricultural technology field". Meanwhile, Syngenta's Michel Demaré spoke in favour of the deal and said that it would "minimise operational disruption", help the company focus on growing globally with specific interest on China and other emerging markets, and drive "long-term investments in innovation".

While Syngenta's existing management would remain in place, Switzerland will continue to the company's headquarters. However, Demaré will become vice-chairman of the combined group, from chairman of the Swiss firm. In terms of a bid price, the deal marks the biggest overseas purchase by a Chinese company and the second biggest in the chemicals industry over the past year.

The deal shows China's increasing desire to acquire assets outside the country. According to Dealogic, Chinese companies have spent more than \$22bn in January 2016 to make overseas acquisitions. Syngenta, which employs 28,000 people across 90 countries, reported an 11% decline in 2015 sales at \$13.4bn. John Ramsay, finance director at Syngenta said, "Over the last two years we have been dealing not only with low crop prices, but with emerging market instability and massive movement in currencies."



Rwandan Lucrative Flower Sector



Rwanda is looking for both foreign and local investors to massively invest in floriculture, a sector that remains hugely unexplored in the country.

Rwandan minister of state for agriculture, Tony Nsanganira, told reporters that floriculture in the country has not been explored and there are immense opportunities waiting for potential investors. "We have seen considerable number of investors in other sectors, but the flower industry remains untapped. There are vast opportunities in the sector and the government is looking forward to make it a more lucrative venture," he said, noting that current earnings from floriculture are still low compared to vegetables and fruits. Floriculture is one of the most lucrative export sectors Rwanda is looking forward to promote.

The country targets 104 million U.S. dollars annually from floriculture by 2018, compared to the current 10 million U.S. dollars.

Budget cuts and exports to help shilling and interest rates

Expected budget cuts, increased exports and falling crude oil prices are projected to cushion the shilling and interest rates this year, economists have said.

Both the Central Bank and market analysts see a more stable macroeconomic environment than last year, with growth projected at between 5.6 and six per cent on infrastructure, financial services, ICT and agriculture sectors.

They expect last year's pressure from the twin-shocks of widening current account and fiscal deficits, which largely contributed a 12.92 per cent depreciation of the shilling against the US dollar and a spike in short-term interest rates, to ease.

The Central Bank has forecast the current account deficit – the gap in the value of import and export earnings – to remain below nine per cent of the the county's national wealth. That will be a slight rise

from an estimated eight per cent last year on account of ongoing infrastructural projects, but lower than 10.4 per cent in 2014.

The gap in imports and exports will largely be driven by reduced spend on oil imports on lower global crude costs, rebound in tourism and an up-tick in export earnings especially in tea and horticulture sub-sectors.

"We expect exports to recover from second half of the year, there's a recovery in tourism with hoteliers now encouraged by better bookings towards end of last year," CfC Stanbic Bank economist for East Africa Jibrán Qureishi said when the company projected a 5.7 per cent growth this year from an estimated 5.3 per cent last year. "We also think there's a lot of service exports that are still captured as short-term flows and this has affected foreign investors' perception of the country's BoP (balance of payments)."



CBK governor Patrick Njoroge backed cut flower exports ahead of the February 14's Valentines' Day, favourable tea prices and planned sale of two aircraft by Kenya Airways to Omni Air International of the US, to boost inflows.

Tourist receipts, he said, are also expected to build on momentum from last December when arrivals in Mombasa rose for the first time in 48 months.

"The (foreign exchange) market has been stable because the inflows and outflows are quite balanced. Looking ahead, this will continue," Njoroge said. "But we need to do more in growing exports. We cannot afford to sit on our laurels because we have gotten a temporary reprieve."

While the narrowing current account deficit is expected to help rein in on volatility of the shilling, fiscal consolidation policies – reduction in budget deficit – by the Treasury CS Henry Rotich is expected to keep interest rates in check.

"We are in a pre-election year and while spending on development will increase future productive capacity, the government ought to ensure that recurrent expenditure doesn't get out of control," Qureishi said. "Investors are quite sceptical on this and the Treasury need to give them commitment and reassurance."

Drones to Assess Crop Loss Under New Insurance Policy in India

A new agriculture insurance scheme for farmers -to be known as New Crop Insurance Scheme (NCIS), will see drones being deployed to access crop damage figures. The feed sent by drones will be collated with satellite imaging and remote sensing technology to assist insurance companies in adequate disbursements calculated on the basis of actual damage to crops in a particular area.

Smart phones and online transmission of data will also be used in cutting down time taken to finalise the yield data. The new scheme also aims to keep the premium rate low as compared to the existing insurance scheme where the average premium rate for farmers has been kept at 5.5%.





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Floriculture encourages the pursuit of joint activities in areas of mutual interest with national and international societies, companies and organizations. Agreements have been reached between Floriculture, leading growers and suppliers and trade associations. This unique partnership includes a complimentary copy for each member of the registered associations. Floriculture is proud to announce the cooperation with the above corporates.



FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
AAA- Flowers	Vegetables/Flowers	Nakuru	Banerjee	0704788852	banerjee@aaagrowers.co.ke
AAA Growers		Nairobi	Musa Sando	0787866022	sando@aaagrowers.co.ke
AAA-Chestnut		Narumoru	Kiai/Sando	0722944030	sando@aaagrowers.co.ke
AAA-Growers		Nakuru	Moses Sando	0787866022	sando@aaagrowers.co.ke
AAA-Hippo		Thika	Steve	0721778736	julius@aaagrowers.co.ke
AAA-Roses		Rumuruti	Julius Ruto	0720330039	turiagronomy@aaagrowers.co.ke
Acacia Farm-Sunripe		Naivasha	Antony	0711827785	naivasha@sunripe.co.ke
Africala		Limuru	Rob	0721-837968	sales@africalla.com
African Blooms		Nakuru	Samir Chandorkar	0735384552	samir.chandorkar@xflora.net
Afriscan Kenya Ltd		Naivasha	Reuben Kanyi	0723920237	
Agri flora Ltd	Flowers	Nakuru	Clement Kipngetich		cngetich@sianroses.co.ke
Akina Farm	Roses	Nakuru	Arfhan	0722728441	arfhan@fontana.co.ke
Alani Gardens	Roses	Nakuru	Judith Zuurbier	0722 364 943	alani@alani-gardens.com
Altitude Flowers	Flowers	Nakuru	Dominic Koeh	0723684277	
Aquila Development Co	Roses	Naivasha	Prakash Shinde	0710791746	pm@aquilaflowers.com
Ayana Farm	Roses	Nakuru	Gideon Maina	0721178974	gideon@fontana.co.ke
Bamboo Farm-Sunripe		Nakuru	Reuben	0723920237	
Balaji	Roses	Olkalou	BalasahebIngawae	0735593016	balasaheb.ingawale4@gmail.com
Baraka Farm	Roses	Nakuru	Lucy	0720554106	lucy@barakaroses.com
Batian Flowers	Roses	Nanyuki	Dirk Looj	0720102237	dirk@batianflowers.com
Beautyline	Flowers	Naivasha	Peter Gathiaka	0722676925	peter@beautyli.com
Bigot Flowers	Flowers	Naivasha	Kakasaheb Jagtap	0722205271	jagtap.kt@bigotflowers.co.ke
Bila Shaka Flowers	Roses	Naivasha	Joost Zuurbier	0722204489	bilashaka.flowers@zuurbier.com
Bondent	Eryngiums	Nanyuki	Richard Fernandes	062-31023/6	bondent.production@karik.biz
Black Petals		Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
Blissflora Ltd	Roses	Nakuru	Apachu Sachin	0789101060	appachu7@yahoo.com
Blue Sky		Naivasha	Mike	0720005294	info@blueskykenya.com
Blooming Dale Roses Kenya Ltd	Flowers	Nanyuki	Sunil	0718991182	info@bloomingdalaroses.com
Buds and Blooms		Nakuru	Shivaji	0720895911	shivaniket@yahoo.com
Carnation Plants	Roses	Athiriver	Ami R.	0733626941	amir@exoticfields.com
Carzan Kipipiri	Flowers	Naivasha	Nicholas	0721844367	kipipiri.production@carzankenya.com
Carzan Kipipiri	Flowers	Naivasha	Justus Metto	0722755396	gm@carzankenya.com
Carzan Rongai		Nakuru	Paul M.	0711838689	rongai.production@carzankenya.com
Charm Flowers	Flowers	Athiriver	Ashok Patel	020 352583	ashki@wananchi.com
Colour Crops	Hypericum	Nanyuki	Vincent	0721652231	colourcrops@tmu.com
Colour crops	Flowers	Nakuru		0722578684	bahati@colourcrops.com
Colour crops Naivasha	Flowers	Naivasha	Geoffrey Mwaura	0722200972	nva@colourcrops.com
Countrywide Connections		Nanyuki	Peterson Thuita	0724786004	bondet.production@kariki.biz
Delemere Pivot		Naivasha	Daniel Ondiek	0720395963	daniel.ondiek@vegpro-group.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	Naivasha	James Opiyo	0723516172	Opiyojames160@gmail.com
Duro Farms (Rain Forest land)	Roses	Naivasha	Julius Kigamba	0723665509	jkigamba@fleurafrica.com
Elbur flora	Roses	Nakuru	Daniel Moge		
Enkasiti Thika	Flowers	Thika	Tambe	0734256798	enkasiti@gmail.com
Equator Roses	Flowers	Eldoret	Charles Mulemba	0721311279	cmulemba@sianroses.co.ke
Equinox	Flowers	Nanyuki	Tom Lawrence	0722312577 T	tom@equinoxflowers.com
Everflora Ltd.		Thika	-	0735873798	everflora@dmbgroup.com
Fairy Flowers	Flowers	Limuru	Sylvester	0753444237	sylvesterkahoro@yahoo.com
Fides Kenya Ltd	Cuttings	Embu	Francis Mwangi	068-30776	
Flamingo Holdings Ltd-Flamingo	Flowers	Naivasha	Peter Mwangi	0722204505	peter.mwangi@finlays.net
Flamingo Holdings Ltd- Ibis	Flowers	Nanyuki	Purity Thigira	0722279176	purity.thigira@finlays.net
Flamingo Holdings Ltd-Kingfisher	Flowers	Naivasha	Charles Njuki	0724391288	charles.njuki@finlays.net
Flamingo Holdings Ltd- Kingfisher	Flowers	Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@finlays.net
Flamingo Holdings Ltd- Ibis Farm	Vegetables	Nanyuki	Augustine Mwebia	0721447430	augustine.mwebia@finlays.net
Flamingo Holdings Ltd-Siraji Farm	Carnations, Roses	Nanyuki	John Magara/Peris	0729050116	peris.ndegwa@finlays.net
Finlays -Kericho	Flowers	Kericho	Elijah Getiro	0722873539	elijah.getiro@finlays.co.ke



FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Finlays -Tarakwet	Flowers	Kericho	Japheth Langat	0722863527	japhet.langat@finlays.co.ke
Finlays Chemirel	Flowers	Kericho	Aggrey Simiyu	0722601639	aggrey.simiyu@finlays.co.ke
Finlays- Lemotit	Flowers	Kericho	Richard Siele	0721486313	richard.siele@finlays.co.ke
Flamingo flora	Roses	Njoro	Sam Nyoro	0721993857	s.ivor@flamingoflora.co.ke
Flora ola	Roses, Hypericum	Solai-Nakuru	Wafula	08382972	floraolaltd@gmail.com
Flora Delight		Kiambu/ Limuru	Marco	0710802065	marcovansandijk@yahoo.com
Florensis Ltd	Cuttings	Naivasha	Anne Marie		annemarie@florensis.co.ke
Florenza	Roses	Nakuru	Yogesh	0715817369	
Fontana Ltd-Salgaa		Nakuru	Kimani	0733605219	production@fontana.co.ke
Fontana Ltd		Nakuru	Girrish Appana	0726089555	production@fontana.co.ke
Fox Ton Agri		Naivasha	Jim Fox	0722204816	jim@foxtonagri.com
Fpeak		Thika	Mutiso/Titus	0711214396	anthonymutiso@gmail.com
Frigoken K Ltd	Vegetables	Nairobi	Nicholas Kahiga	0722797547	nicholas.kahiga@frigoken.com
Gatoka Roses	Roses	Thika	Chris	0723408471	gatoka@swiftkenya.com
Gladioli Ltd		Naivasha	Pieriguichi / Claudia	0722206939	torres.palau@yahoo.com
Golden Tulip	Roses	Nakuru	Ravi	0723159076	ravi@bth.co.ke
Golden Tulip (Laurel Inter.)	Roses	Nakuru	Ashok	0738359459	ashok@btl.co.ke
Gorge Farm		Naivasha	Patrick Mulumu	0722498267	pmulumu@vegpro-group.com
Groove	Flowers	Naivasha	John Ngoni	0724448601	grovekenya@gmail.com
Hamwe	Hypericum	Naivasha	Peter Kamwaro	0721758644	hamwe.fm@kariki.biz
Hamwe- Molo	Fowers	Nakuru	Joseph Juma	0725643942	production.fm@kudenga.co.ke
Harvest / Manjo Plants	Roses	Naivasha	Phanuel Ochunga	0722506026	phanuel.ochunga@gmail.com
Harvest Ltd	Roses	Athiriver	Mr. Farai Madziva	0722-849329	farai@harvestflowers.com
Highland plantations	Cuttings & Herbs	Olkalou	Amos Mwaura	0726726392	production@highlandplants.co.ke
Imani Flowers	Flowers	Nakuru	Moses	0722977214	
Indu Farm		Naivasha	Wesley Koech	0715546908	
Indu -Olerai Farm		Nakuru	Everline Debonga	0723383160	everlyne.adhiambo@indu-farm.com
Interplant Roses	Roses	Naivasha	Gavin Mouritzen	0733220333	info@interplantea.co.ke
Isinya	Flowers	Isinya	Pradeep	0736586059	pm@isinyaroses.com
Jatflora		Naivasha	James Oketch	0724418541	jatflora@gmail.com
Jesse AGA		Mweiga	Thuranira	0754444630	davidt@eaga.co.ke
Karen Roses	Flowers	Nairobi	Peter Mutinda	0723353414	pmutinda@karenroses.com
Kariki Ltd.		Thika	Samwel Kamau	0723721748	production@kariki.co.ke
Karuturi	Flowers	Naivasha	Rob		rob.paul@twigaroses.co.ke
Twiga Flowers	Flowers	Naivasha	pius Kimani	0721747623	pius.kimani@gmail.com
Kenflora Limited		Kiambu/ Limuru	Abdul Aleem	0722311468	info@kenflora.com
Kentalya		Naivasha	Linnat	0733549773	lynette@kentalya.com
Kenya Cuttings	Flowers	Ruiru	James Ouma	0725217284	john.odhiambo@syngenta.com
Kenya Cuttings	Flowers	Thika	Kavosi Philip	0721225540	philip.munyoki@syngenta.com
Kenya Pollen Flowers	Flowers	Thika	Joseph Ayieko	0733552500	joseph.ayieko@syngenta.com
KHE		Nanyuki	Elijah Mutiso	0722254757	mutiso@khekenya.com
Kisima Farm	Roses	Timau	Martin Dyer	0722593911	martin@kisima.co.ke
Kongoni River Farm-Gorge Farm	Roses	Naivasha	Anand Patil	0728608785	anand.patil@vegpro-group.com
Korongo Farm		Naivasha	Macharia	0721387216	
Kreative	Roses	Naivasha	Bas Smit	0722 200643	info@kordesroses.com
Lamorna Ltd	Roses	Naivasha	Mureithi	0722238474	admin@lamornaflores.com
Lathyflora		Limuru	Mbauni John	0721798710	mbaunij@yahoo.com
Lauren International	Flowers	Thika	Chris Ogutu/Carlos	0722783598	laurenflowers@accesskenya.co.ke
Lex International	Roses	Naivasha	Steve Outram	0733 609863	steve@lex-ea.com
Liki River	Flowers	Nanyuki	Madhav Lengare	0722202342	madhav@vegpro-group.com
Liki River	Flowers	Nanyuki	Nitin	0700000342	nitin.golam@vegpro-group.com
Livewire	Hypericum	Naivasha	Esau Onyango	0728606878	management@livewire.co.ke
Lobelia Ltd/ Sunland	Roses	Timau	Peter Viljoen	0721632877	info@lobelia.co.ke
Lolomarik	Roses	Nanyuki	Topper Murry	0715 727991	topper@lolomarik.com
Loldia Farm		Naivasha	Gary/Rotich	0720651363	
Longonot Horticulture		Naivasha	Chandu	0724639898	chandrakant.bache@vegpro-group.com
Longonot Horticulture		Naivasha	Patrick Mulumu	0722498267	patrick.mulumu@vegpro-group.com
Maasai Flowers	Flowers	Isinya	Andrew Tubei	0722728364	atubei@sianroses.co.ke



FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Magana	Roses	Nairobi	Lukas	0788695625	farmmanager@maganaflovers.com
Mahee	Roses	Nakuru	Senthil Bharathi	0789777145	maheefm@eaga.co.ke
Mahee Wilham	Vegetables	Nakuru	Missire	0754444629	maheevelfm@eaga.co.ke
Maji Mazuri Roses	Flowers	Eldoret	Wilfred Munyao	0725848912	wmunyao@majimazuri.co.ke
Maridadi Flowers	Flowers	Naivasha	Jack Kneppers	0733333289	jack@maridadiflowers.com
Maua Agritech	Flowers	Isinya	Madan Chavan	0738669799	production@mauaagritech.com
Mauflora	Roses	Nakuru	Mahesh	0787765684	mahesh@mauflora.co.ke
Milmet/Tindress Farms	Flowers	Nakuru	Pravin		pravinyadav.29@gmail.com
Molo River Roses	Flowers	Nakuru	A. Wambua	0724256592	awambua@moloriverroses.co.ke
Mwanzi Farm	Roses	Rumuruti	Peter Wekesa	0723027208	
Mt Elgon Flowers	Roses	Eldoret	Bob Anderson	0735329395,	bob@mtelgon.com
Mweiga Blooms	Flowers	Nanyuki	Stewart/ Mburu	0721674355	mweigablooms@wananchi.com
New holland - Laurel Investment	Roses	Nakuru	Ashok	0738359459	
Nini Farms	Roses	Naivasha	Menjo / Philip	0720611623	production@niniltd.com
Nirp East Africa	Roses	Naivasha	Danielle Spinks	0702685581	danielles@nirpinternational.com
OI Njorowa	Roses	Naivasha	Charles Kinyanjui	0723986467	mbegufarm@iconnect.co.ke
Olij Kenya Ltd	Roses	Naivasha	Sally Nicholas	0737888028	v.bhosale@olijkenya.com
Oserian	Flowers	Naivasha	Musyoka Stephen	0722888377	stephen.musyoka@oserian.com
Panda Flowers	Roses	Naivasha	Chakra	0786143515	chakra@pandaflovers.co.ke
Panocol International	Roses	Eldoret	Mr. Paul Wekesa	0722748298	paul.wekesa@panocal.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@wananchi.com
United Selections	Roses	Nakuru	Benard Ndungu	0721630887	
Pj Dave	Flowers	Isinya	Simiyu	0723500049	pjdavetimau@pjdaveepz.com
Pj Flora	Flowers	Isinya	Palani Muthiah	0752607651	muthiah.palani1971@gmail.com
Pj Thande Farm		Kiambu/Limuru	Elizabeth Thande	0722380358	elizabeth@wetfarm.co.ke
Plantation Plants	Cuttings	Naivasha	William Momanyi	050 20 20282	pplants@kenyaweb.com
Porini Ltd	Flowers	Nakuru	Pitambar Ghahre	0726774955	porini@isinyaroses.com
PP Flora	Roses	Nakuru	Robert /Prakash	0718045200	ppflora2010@gmail.com
Primarosa	Flowers	Athi RiVer	Dilip Barge	0731000404	dilip@primarosaflovers.com
Primarosa	Roses	Nakuru	Kadam	0721274413	kadam@zuri.co.ke
Racemes Ltd		Naivasha	Bonny	0721938109	bonny@kenyaweb.com
Ravine Roses Flowers	Flowers	Nakuru	Peter Kamuren	0722205657	pkamuren@karenroses.com
Redland Roses		Thika	Aldric Spindler	0733603572	aldric@redlandsroses.co.ke
Redwing Flowers	Flowers	Nakuru	Simon Sayer	0722227278	sayer@redwingltd.co.ke
Rift Valley Flowers Ltd	Flowers	Naivasha	Peterson Muchuri	0721216026	fm@riftvalleyroses.co.ke
Rimiflora Ltd		NaivaSha	Richard / Stephen	0722357678	richard@rimiflora.com
Riverdale Blooms Ltd		Thika	Antony Mutugi	0202095901	rdale@swiftkenya.com
Roseto	Roses	Nakuru			gm.roseto@megaspingroup.com
Rozzika Gardens –Kamuta Farm		Naivasha	Mbuthia	0721849045	jwachiram@yahoo.com
Savannah international	Geranium	Naivasha	Ignatius lukulu	0728424902	i.lukulu@savanna-international.com
Selecta Kenya		Thika	Alnoch Ludwig	0738572456	l.allnoch@selectakenya.com
Soljanmi	Fowers	Njoro	Kirani Nangare	0787787544	kiran.nangare@xflora.net
Schreus	Roses	Naivasha	Pradeep		
Shades Horticulture	Flowers	Isinya	Mishra	0722972018	info@shadeshorticulture.com
Shalimar Flowers	Flowers	Naivasha	Anabarasani	0733604890	anbarasan@eaga.co.ke
Sierra flowers Ltd	Flowers	Nakuru	Sherif	0787243952	farm.sierra@megaspingroup.com
Simbi Roses		Thika	Karue	067 44292	simbi@sansora.co.ke
Sirgeok Flowers	Flowers	Eldoret	Andrew Keitany	0715 946429	sirgeok@africaonline.co.ke
Solai Milmet/Tindress	Flowers	Nakuru	Ravindra	0788761964	tindressmilmet@gmail.com
Star Flowers Flowers	Flowers	Naivasha	Dinkar	0789487429	dinkar@vegpro-group.com
Subati Flowers	Flowers	Nakuru	Naren Patel	0712 584124	naren@subatiflowers.com
Subati Flowers	Flowers	Naivasha	Naren Patel	0712 584124	naren@subatiflowers.com
Suera Flowers Ltd	Flowers	Nakuru	George Buuri	0724622638	gbuuri@suerafarm.sgc.co.ke
Sun buds	Hypericum	Naivasha	Reuben Kanyi	0723920237	kanyireuben@gmail.com
	Gypsophilla, Army				
Sunland Timau Flair	Roses	Timau	Peter Viljoen	0723383736	info@lobelia.co.ke
Stockman rozen	Roses	Naivasha	Julius muchiri	0708220408	julius@srk.co.ke
Tambuzi	Roses	Nanyuki	Paul Salim	0722 716158	paul.salim@tambuzi.co.ke



FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Terra nigra	Breeder--1ha	Naivasha	Peter van der meer		petervandermeer@terrannigra.com
Timaflor Ltd	Flowers	Nanyuki	Simon van de Berg	0724443262	info@timaflor.com
Transebel		Thika	David Muchiri	0724646810	davidmuchiri@transebel.co.ke
Tropiflora		Kiambu/Limuru	Niraj		tropiflora@africaonline.co.ke
Tulaga	Roses	Naivasha	Steve Alai	0722659280	tulagaflower@africaonline.co.ke
Tk Farm		Nakuru	Gichuki	0721499043	davidgichuki20@yahoo.com
Uhuru Flowers	Flowers	Nanyuki	Ivan Freeman	0713889574	ivan@uhuruflowers.co.ke]
V.D.Berg Roses	Flowers	Naivasha	Johan Remeeus	0721868312	
Valentine Ltd		Kiambu/Limuru	Maera Simon	0721583501	simon.maera@valentinegrowers.com
Van Kleef Ltd	Roses	Nakuru	Judith Zuurbier	0722 364 943	judith@vankleef.nl
Vegpro K Ltd Vegetables		Nanyuki	John Kirunja	0729555499	john.kirunja@vegpro-group.com
Vegpro K Ltd	Vegetables	Nairobi	Judy Matheka	0721245173	jmatheka@vegpro-group.com
Vegpro K Ltd	Vegetables	Nanyuki	John Nduru	0722202341	jnduru@vegpro-group.com
WAC International	Breeder	Naivasha	Richard Mc Gonnell	0722810968	richard@wac-international.com
Waridi Ltd		Athiriver	P. D.Kadlag	0724-407889	kadlag@waridifarm.com
Wildfire	Flowers	Naivasha	Boniface Kiama	0722780811	roses@wildfire-flowers.com
Wilmer	Summer Flowers	Thika	Wilfred M.Kamami	0733714191	kamami@wilmer.co.ke
Winchester Farm	Flowers	Nairobi	Raphael Mulinge	0725848909	rmulinge@sianroses.co.ke
Windsor		Thika	Vikash	073705070	vikash@windsor-flowers.com
Xpression Flora		Nakuru	Mangesh Rosam	0720519397	mangesh.rasam@xflora.net
Zena	Roses	Thika	Arun Mishra	020 2328970	sales@zenaroses.co.ke
Zena Asai Farm	Roses	Eldoret	Laban Koima	0722554119	koima@zenaroses.co.ke
Zena Roses - Sosiani	Roses	Eldoret	Sylvester Saruni	0722635325	saruni@zenaroses.co.ke

FLOWER FARMS IN UGANDA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Roses	Rosebud	Ravi Kumar	Wakiso	0752 711 781	ravi.kumar@rosebudlimited.com
Roses	Maiye Estates	Premal	Kikwenda wakiso		premal@maiye.co.ug
Roses	Jambo flowers	Patrick Mutoro	Nakawuka Sisia Wakiso	(254) 726549791	pmutoro80@yahoo.co.uk
Roses	Pearl Flowers	Raghibir Sandhu	Ntemagalo Wakiso	0772 72 55 67	pearl@utononline.co.ug
Roses	Aurum flowers	Kunal Lodhia Shiva	Bulega, Katabi Wakiso	0752 733 578	kunal@ucil.biz
Roses	Eruma roses	Kazibwe Lawrence	Mukono	0776 049987	kazibwe@erumaroses.com
Roses	Uga rose	Grace Mugisha	Katabi Wakiso	0772 452 425	ugarose@infocom.co.ug
Roses	Kajjansi	K.K rai	Kitende Wakiso	0752 722 128	kkrai@kajjansi-roses.com
Roses	Uganda Hortech	M.D hedge	Lugazi Mukono	0703 666 301	mdhedge@mehtagroup.com
Chrysanthemums	Fiduga	Jacques Schrier	Kiringente , Mpingi	0772 765 555	j.scherier@fiduga.com
Chrysanthemums	Royal Van Zanten	Jabbar Abdul	Namaiba Mukono	0759 330 350	j.Abdul@royalvanzanten.com
Impatiens, poinsetia	Wagagai	Olav Boenders	Iwaka Bufulu Wakiso	0712 727377	olav@wagagai.com
Chrysanthemums	xclusive cuttings	Peter Benders	Gayaza- Zirowe rd	0757 777 700	pbenders@xclusiveuganda.com

FLOWER FARMS IN TANZANIA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Roses	Kili flora	Jerome Bruins	Arusha	255 27-25536 33	jbruins@habari.co.tz
Roses	Mt. Meru	Tretter	Arusha	255 27 2553385	office@mtmount-meru-flowers.com
Roses	Tengeru Flowers	Tretter	Arusha	255 27 255 3834	teflo@africaonline.co.tz
Roses	Hortanzia	Mr Micheal Owen	Arusha	255 784 200 827	hortanziaigm@cybernet.co.tz
Hypericums	Kilimanjaro flair	Greg Emmanuel	Arusha	255 784 392 716	greg@kilimanjaroflair.com
Crysenhemums	Multi flower Ltd	Tjerk Scheltema	Arusha	255 27 250 1990	tjerk@arushacutting.com
Crysenhemums	Fides	Greg Emmanuel	Arusha	255 27 255 3148	fides@habari.co.tz
Crysenhemums	Dekker Bruins	Lucas Gerit	Arusha	255 27 255 3138	info@tfl.co.tz
Crysenhemums	Arusha cuttings	Tjerk Scheltema	Arusha	255 27 250 1990	tjerk@arushacutting.com



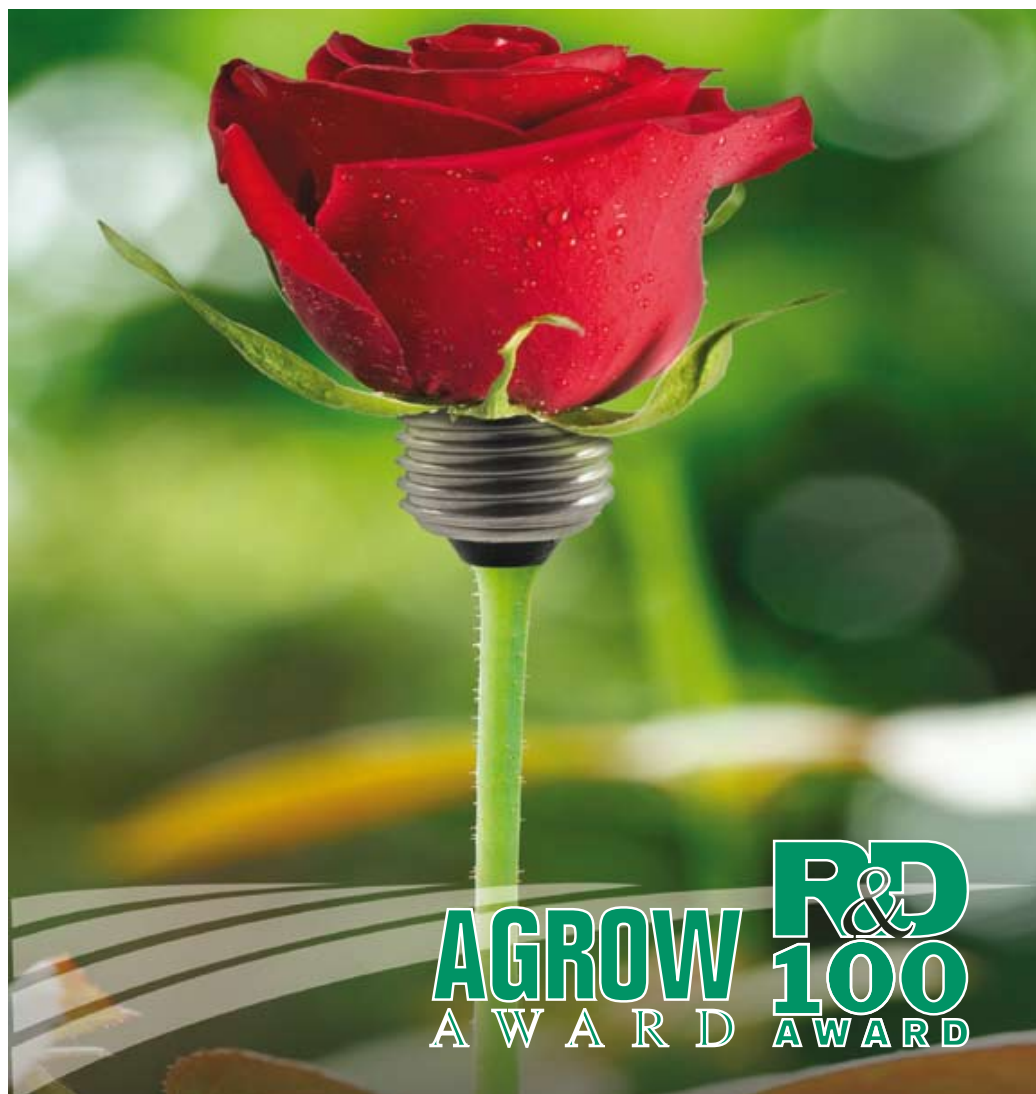
FLOWER FARMS IN ETHIOPIA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Roses	Linsen flowers	Peter Linsen	Holeta		Elinsenroset@ethionet.et
Roses	Hanjia	Holeta	0922 750602	Peter.Pardoen@karuturi.com	
Roses	Alliance flowers	Navale	Holeta		navale@nehainternational.com
Roses	Ethio dream Rishi	Holeta	Ethiopia	011 23 72335	holeta@jittuhorticulture.com
Roses	Holeta Roses Navale	Holeta	Ethiopia		navale@nehainternational.com
Roses	Supra Flowers	Kaka Shinde	Holeta	0911 353187	kakashind@rediffmail.com
Roses	Agriflora	M. Asokan	Holeta	0922 397760	flowers@ethionet.et
Roses	Ethio- Agricerft	Alazar	Holeta	0910 922 312	alazar@yahoo.com
Roses	Addisfloracom P.L.C	Kitema Mihret	Holeta	0912 264190	tasfaw@addisflora.com
Roses	Enyi- Ethio	Teshale	Sebata	0911 464629	enyi@ethionet.et
Roses	Lafto Roses	Andrew Wanjala	Sebata	0922 116 184	irrigation@laftorose.com
Roses	Eden Roses	Vibhav Agarwal	Sebata	0930 011228	vaibhavaggarwal1@hotmail.com
Roses	Ethio-passion	-	Sebata	0911 511 711	roshanmuthappa811@gmail.com
Roses	Golden Rose	Mr. Sunil	Sebata		
Roses	E.T Highlands		Sebata	0 911 50 21 47	bnf2etf@ethionet.et
Roses	Sharon Flowers		Sebata		saronfarm@ethionet.et
Roses	Selam Flowers	Etsegenet Shitaye	Sebata	0913 198440	etstgshita@yahoo.com
Roses	Joy Tech	mulugeta Meles	Debra Zyeit	0911 302804	mulugeta@joytechplc.com
Roses	Dugda floroliculture	sayalfe Adane	Debra Zyeit	0911 50 48 93	general@dugdaflora.com.et
Roses	Minaye flowers	Eyob Kabebe	Debra Zyeit	011-3728667/8/9	minayefarm@ethionet.et
Roses	Bukito Flowers	Anteneh Tesfaye	Debra Zyeit	0911 615571	
Roses	oilij	Bas Van der lee	Debra Zyeit	0911 507 307	b.vanderlee@oilijethiopia.com
Roses	Yassin Flowers	Tesfaye Gidissa	Debra zyeit	0911 89 78 56	kemevision@yahoo.com
Roses	Z. K Flowers	Abebe Mamo	Debra zyeit	0911 52 65 29	abemic/2006@yahoo.com
Roses	Friendship flowers	Edwin	Debra zyeit	(251)91 130 49 67	friendship.flowers@yahoo.com
oses	Evergreen farm	Hiwot	Debra zyeit	0912 18 5065	Hiwot.Ayaneh@yahoo.com
Roses	Rainbow colours	Tadessa Kelbessa	Debra zyeit	0911 389 729	rainfarm@yahoo.com
Roses	Sher	Ramesh Patil	Ziway	0912 131940	rnpatilpune@yahoo.com
Roses	Braam farm	Ben Braam	Ziway	0920 7462 70	braam.roses@hotmail.com
Roses	Sher- Koka farm	Alemitu Biru	Ziway	0912 09 78 24	
Roses	Ziway Roses	Ermiyas Solomon	Ziway	0921 094373	ermiasziwayroses@yahoo.com
Roses	Herbug	Hubb	Ziway		hubb@herbugroses.nil
Roses	AQ	Wim	Ziway		wimjr@aqroses.com
Hypericum	Margin par	Hayo Hamster	Holeta	251 911 505 845	marginpar@ethionet.et
Gypsophila	Tal Flowers	Mr. Uri	Sebata		uridago@walla.co.il
Hydragiums	Ewf Flowers	Humphrey	Sebata	0920 35 1931	production-manager@Ewf-flowers.com
pelargoniums	Red fox	Michel Zevenbergen	Ziway	0911 49 00 23	m.zevenberge@ethiopia.redfox.de
Hypericum	Abssinia flowers	Sendafa			ggh_link@ethionet.et
Geraniums	Ethiopia cuttings	Scott Morahan	Koka		scott.moharan@syngenta.com
Budding plants	Florensis Ethiopia	Netsanet Tadasse	Koka		flrensis@ethionet.et
Crysanthemums	Maranque	Mark Drissen	Merjetu	(251) 22 1190750,	md@maranqueplants.com
Freesia & Statice	Freesia Ethiopia	Ronald Vijvrborg	Sebata	(251) 115 156259,	freesia@ethionet.et
Hypericum	Yelcona	Andreas	Sebata	0921 146 930	Andreasndieolens@hotmail.com

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