November - December 2014

THE LEADING FLORICULTURAL JOURNAL IN THE REGION

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Barnaba Rotich: A Saving Passion

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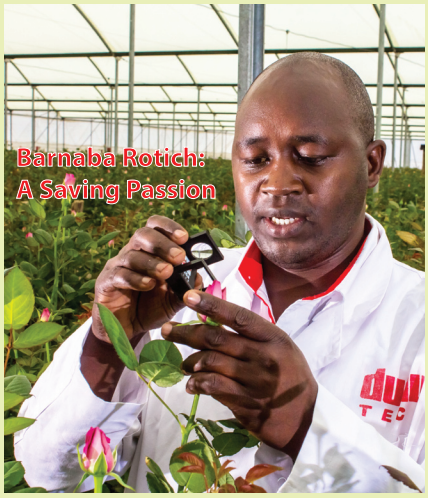

Cover Photo Courtesy of Dudutech Ltd.

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The Leading Floriculture Magazine

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All rights reserved. Reproduction in whole or in part without written permission of the publishers is strictly prohibited. Floriculture is published six times a year and circulated to personnel in the Horticulture Industry, foreign missions and Kenyan Embassies abroad, Flower Growers, Exporters and Consumers, extension officers in the Ministry of Agriculture, research offices and suppliers of agricultural inputs in Kenya.

Have A Pride in Your Stride.

Inspiration is a stimulating feeling that we seek to motivate us, to continue pressing forward through hardships and to find meaning amidst chaos. What inspires us is sometimes found in the rarest of forms. It is sometimes in plain sight. It is often stumbled upon without intention, and it is sometimes graciously handed to us in the form of wise words, spoken by experienced and influential minds. Barnaba Rotich is one person whose story is inspirational. Was he born to save a whole generation from pesticide residues as he narrated the story to our writer?

For growers who are feeling aimlessly lost in the journey to find themselves, those who are feeling stuck under the darkest clouds waiting for a ray of sunshine and those who simply need a dose of encouragement, heed these words of wisdom. The world is going green and as John Ogechah and Henry Wainwright writes, biological control is the future of our sector.

Though in a slightly different category, Leonard Mutinda tells you why you need to change your bulbs. Additionally, a former adviser to President Obama tells us, the carbon emission debate is far from over. May it be man-made or natural, we are still wallowing.

From some of the most gifted minds to the greatest influencers of our generation; negotiators burnt midnight candles and finally EPA was signed. Though slightly late and growers have still to pay some millions of shillings, it is not a doomed sector.

Frrom currently industry drivers to those illustrious agronomists who made a difference and left us too soon, here are some of the most inspirational articles. Renowned sector guru, Joseph Murungi tells au it is time to manage resistance before we lose to our careless use of chemicals. On the same breath, Richard Gitonga and Oscar Shilliebo discuss two new products which are relatively safe to beneficial.

Climbing up the global value chain is a key to easing unemployment that is currently one of the most pressing problems for sub-Saharan governments. A value chain includes every step a business takes to produce a product or service and deliver it to the customer from its conception to its end use and beyond. This includes activities such as research and breeding, production, marketing, distribution, and support to the final consumer.

In the medium-to-long-term, the opportunity for participating in global value chains, should be viewed as part of the strategy for achieving strong, sustained and inclusive growth Silpack Industries Ltd has come up with a carton which will ensure your quality all through to the market. In the same line, Green farming has released their research results.

A lot of people in this world manage to pull off becoming successful. However, it should come as no surprise that a whopping majority of individuals do absolutely nothing with their lives. What have you done in 2014?

When considering "success," you have to be careful of how you define the term. Success means different things for different people, but as a general definition, success is measured from where a person starts to where a person is currently standing. So, where will you start in 2015?

From Floriculture Magazine, we wish our readers, advertisers and supporters Happy 2015.

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Pesticide Resistance Management

By Leonard Mutinda
Compiled from Joseph M. Murungi Presentation

Pesticide resistance has for long been a farmer's worst nightmare. Its management, especially in high value export crops has been difficult partly owing to the high standards required and the limited number of market acceptable pesticides.

But it no longer needs to be the stuff that nightmares are made of. With an understanding of the factors that promote its development, any farmer can stop pests from taking over his farm and watering down his investment. Consequently, Kenya's produce won't be the subject of some stringent restrictions in the European market where it exports most of it.

The development of resistance being almost a given where pesticides are used regularly, it is nowadays recommended that farmers should start resistance management from the beginning. That way, they minimize the chances of its occurrence and save on money as well.

Before venturing into the productions of a crop, experts recommend that they should use information from manufacturers and Integrated Pest Management (IPM) specialists.

The two are invaluable sources of information on baseline susceptibilities, can define probable resistance problems beforehand to help the prospective farmer from being found flat-footed and are also helpful in coming up with proper pesticide use strategies.

Alternatively, the grower can extract such information during product launches and by having discussions with fellow growers. There are three broad strategies of managing resistance; namely, moderation, rotations and mixtures and saturation.

Moderation which is basically limiting the use of a pesticide should be the first step. When a farmer decides to engage in moderation he or she should employ it in concert with IPM practices. Experts advise that moderation should be used to the fullest extent that will provide commercially acceptable control.

On other hand if he favours the rotations and mixtures strategy, which works on the premise that an individual pest is less likely to be resistant to two or more differing classes of pesticides, it is advisable to bear in mind the cost of pesticides. However, typically mixtures of insecticides and miticides have performed poorly. The last strategy, saturation, the use of pesticides at higher rates is recommended as a last resort. Even though it provides control for a time by increasing selection pressure on the pest, it comes at a greater cost.

Therefore the need to develop resistance management programs (RMP) is critical in resistance management. The program describes the tactics or measures that should be taken to manage pesticide resistance for a specific pest. The objective is to reduce the selection of resistance genes in a pest population.

In coming up with a programme, IPM should be part of the management. Resistance prevention and management programmes when new pesticides are introduced should also be implemented

Additionally, a grower ought to consider alternative (non-chemical) pest management measures while also using more than one class of pesticide. The evaluation and refinement of the RPM should be continuous. But perhaps the most important thing to consider is the involvement of stakeholders.

Joseph Murungi is a Marketing Consultant: Crop Protection

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Modern Horticulture Lab Launched In Kenya

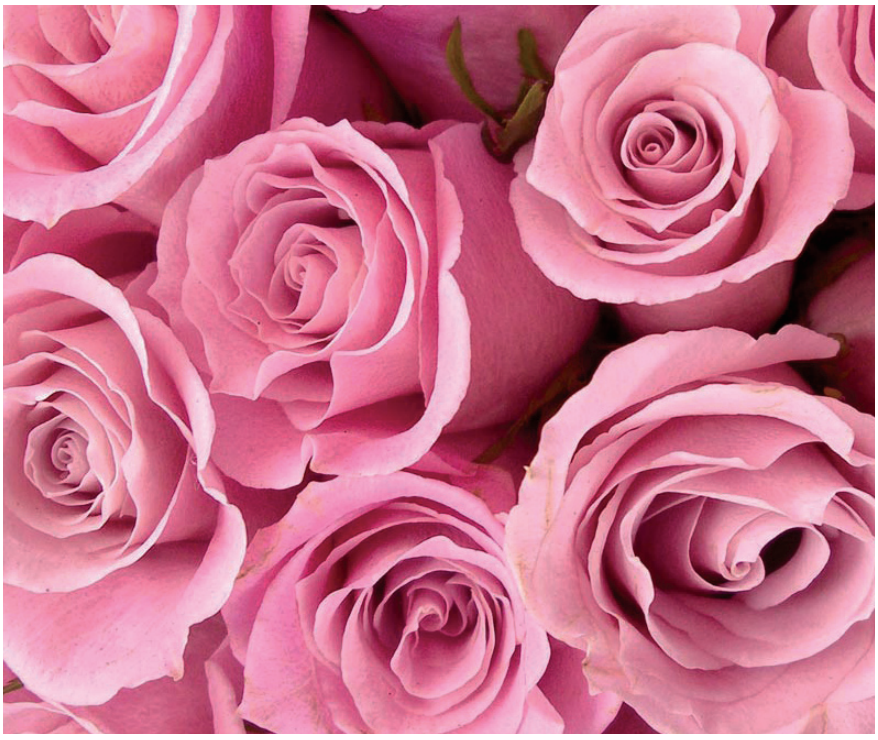
International pre-shipment inspection firm SGS has set up a modern laboratory in Kenya to check the level of residue in horticultural exports.

Speaking at the launch in Nairobi SGS Kenya MD Albert Stockell said availability of competent and accredited food tasting laboratories locally would ease access to quality sensitive markets such as EU, US, Japan and Korea.

"Kenya operates in a global market and our horticultural industry is part of extended global supply chain where adherence to global food safety standards is paramount," he said. The new laboratory system covers over 400 pesticides restricted by EU.

Agriculture PS Sicily Kariuki said farming remains the backbone of Kenya's economy contributing over 51% to GDP while providing livelihoods to about 75% of population in rural areas.

Kenya Plant Health Inspection Service acting MD Esther Kimani said her organisation will do everything to ensure fresh produce exports meet international standards.



Increased Postharvest Life Of Cut Flowers

New genetic engineering research from American Floral Endowment (AFE) funded researchers at North Carolina State University provides information about how to manage fungal diseases in eco-friendly ways, potentially increasing the postharvest life of cut flowers.

Although fungal pathogens, such as botrytis, cause economically devastating diseases in nursery, field and greenhouse production of important floriculture crops, few genes have been found that are suitable for targeted breeding or engineering specific resistance.

This research is focused on expression of a naturally occurring plant resistance gene to produce plants with reduced production costs as well as lower maintenance requirements in the home.

Together with previous work, these results suggest that manntiol dehydrogenase (MTD) overexpression might be used to engineer a broad variety of plants for resistance to mannitol-secreting fungal pathogens like botrytis for which specific resistance is lacking.

"Our work is particularly timely because, in addition to the normal difficulty and expense of controlling fungal diseases, the grower's job is being complicated by the loss of existing chemicals for fungal control," said John Williamson, Ph.D., associate professor and research leader. "This makes application of biotechnology an attractive approach, not only to produce resistant cultivars such as those reported here but also to provide information for targeted genetic screening of existing varieties."

Williamson said that for the retailer and wholesaler, as well as the consumer, botrytis resistance provides more robust, lower maintenance plants with longer lasting flowers.

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Platform Speciality Products Acquires Arysta LifeScience.

Arysta LifeScience announced that Platform Specialty Products has reached a definitive agreement with a company backed by the Permira funds to acquire Arysta LifeScience for approximately $3.51 billion, subject to regulatory approval, working capital and other adjustments.

Once the acquisition is complete, Platform Specialty Products will combine Arysta LifeScience with previously acquired companies Agriphar and Chemtura Crop Solutions (the latter of which is still awaiting final governmental approvals). The combined entity will be run as a vertically integrated agricultural chemicals company with sales of approximately US$2.1 billion, the 10th largest in the industry. “Bringing Arysta LifeScience under the Platform umbrella will create a broad agrochemicals offering that is uniquely positioned to provide farmers, globally, with a fulsome suite of products to address their product and geography specific needs,” said Daniel H. Leever, Platform’s Chief Executive Officer.

Current CEO of Arysta LifeScience, Wayne Hewett, will lead the new group. “There are immediate benefits to joining forces with Agriphar and Chemtura,” said Hewett. “We will be able to offer customers a full complement of biosolutions, crop protection, and seed treatment products.

We also will strengthen our global footprint in key geographic areas such as Western Europe and North America.” The transaction is expected to close in the first quarter of 2015.

Mr. Hildo Brilleman,
CEO, Arysta East Africa Ltd.

Emirates Launches ‘**Affordable**’ Cool Container

Emirates SkyCargo has launched an internally developed and “cost-effective” LD3 container that keeps temperature sensitive cargo cool when transported on the ground and in the air.

Called the ‘White Container’, the latest addition to Emirates SkyCargo’s Cool Chain portfolio has been designed specifically as an intermediate temperature-control solution, which it claims is ideal for generic healthcare products and food perishables.

The inside of the White Container is coated with thermal insulators to minimise the transfer of outside heat into the container. It also uses coolant trays allowing handlers to add or replenish dry ice or coolants without disturbing the packaging.

It is intended to be used for shipments requiring temperatures of 2°C to 8°C and 5°C to 25°C and “is a reliable solution for time and temperature-sensitive cargo that do not fall into the very high sensitive category”, Emirates claimed. Moaza Al Falahi, Emirates Vice President for Cargo Product Development and Local Affairs, commented: “After two years of intensive research and development by our team, we are introducing a new cool-chain offering to the air freight market. The White Container is an affordable option and does not replace Emirates SkyCargo’s high-end Cool Chain Premium solution.

“Instead, it offers an intermediate solution that is cost effective for commodities, such as generic healthcare products and food perishables. It’s also environmentally friendly and meets all regulatory requirements.” She said the solution, developed in-house, was simple but efficient and had no backhaul issues.

“We are the only air cargo operator to offer this specific solution, and along with our other offerings such as active temperature controlled containers, warehouses, cool dollies and white covers, we are at the forefront in offering a comprehensive portfolio of cool chain solutions for all types of time and temperature sensitive cargo,” Al Falahi claimed.

Emirates SkyCargo’s range of advanced protective techniques and solutions in transporting perishable products include its Cool Chain Premium, Cool Chain Advanced and Cool Chain Basic products, each of which is designed to meet specific requirements of customers.

The airline’s cool-chain portfolio is supported by temperature-controlled handling facilities, which have expanded with the recent opening of the cargo carrier’s freighter terminal at Dubai World Central’s (DWC) Al Maktoum International Airport, where it has an advanced storage system and a perishables area designed to handle about 140,000 tonnes of cargo per annum.

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Flower Exporters to Pay Sh600m More.

"Exports from Kenya to the EU will suffer import duties of approximately about Sh600 million a month under the regime."

In spite of signing the delayed Economic Partnership Agreement (EPA) alongside its East African Community counterparts, Kenya will still have to pay Sh600 million more in tariffs for possibly the next six months for its horticultural exports to the European Union.

This as it tries to work with the EU to realign the tax regime to include Kenya for duty-free, quota free status for all its exports to the EU market. Its exports are currently subjected to GSP regime which required them to be imposed ranging between 4.5 to 8.5%.

The Kenya Flower Council (KFC) said only carnations would benefit from a 0% tariff line in the interim time. "The immediate impact of the GSP tariff on Kenyan exports to the EU is an increase in cost to the EU importers by the margin of the applicable tariff. Exports from Kenya to the EU will suffer import duties of approximately about Sh600 million a month under the regime," said KFC CEO Jane Nginge.

She however said it was a relief since failure to have the GSP agreement in place; the imports would have attracted full Most Favoured Nation (MFN) duties at customs-clearance into the EU.

The Council urged the concerned EU parties to fast- track the process and shorten the period during which GSP duties will be applied. In the, meantime, Ms Nginge said both parties will commence the process of ratification and final signatures of the Agreement in their jurisdictions.

The East African Community and European Union Economic Partnership Agreement (EAC - EU EPA) finished negotiations and reached an agreement on. This comes after the two parties finally reached an agreement on October 13th and 14th 2014 in Brussels Belgium. It had been estimated that without the EU-EAC deal close to 500,000 workers in the horticulture sector would have been rendered jobless.

The previous pact lapsed on October 1. There was a delay in entering a new one as some of the EAC members were said to be taking too long to enter into an agreement.

Saving Energy for Africa

How LED Bulbs Will Save Flower Farms High Electricity Costs

By Leonard Mutinda

Electricity cost is one of the key expenses in any flower farm. With the fuel component playing a crucial role in determining each month's charge in Kenya, it has become increasingly important for farms to look into ways of cutting down cost to protect their profit margin.

Speaking exclusively to Floriculture Magazine, Mr. Kumar Sheth, CEO Leda Africa Ltd said, "While some are installing alternative, but often costly sources of energy, such as solar panels, the solution is perhaps as simple as changing the type of bulbs they use". Adding, "Led Africa Ltd, an Indian company believes the cure to their woes lies in using Light Emitting Diode (LED) bulbs". The company believes in the simplistic approach so much so that it has taken up the slogan 'Saving Energy for Africa'.

And this is why. Most institutions and homes across the country use the ordinary incandescent bulbs that emit a yellow light. Research has shown that they waste 95 per cent of the electricity they consume.

That essentially means for every five units that appear in the electricity bill, 19 more were wasted. These bulbs are cheap but can only light up for about 1,000 hours, which means farms using the latter have to buy 50 bulbs, replace them 50 times and throw 50 burned out bulbs in the garbage, all while still paying high electricity bills. On the other hand LED bulbs, though slightly expensive to buy, take up to three years to burn out. The amount of money saved is enormous. For instance a 10 Watt bulb can operate for 50,000 hours and only consume about Sh4,700 according to research. But it is not solely for their longevity that Led Africa is staking its reputation on the LED bulbs. One of its objectives is to reduce the carbon footprint which is major cause of global warming.

The company says that unlike the ordinary bulb, LED bulbs production releases far much lesser amount of carbon dioxide in the environment. These means the farms that use them can be eligible to earn carbon credits. The bulbs are also environmentally friendly in that by not regularly requiring replacement, they don't contribute to land fill as a result of disposal and they do not contain harmful ultraviolet rays and gases.

But the bulbs are not only advisable for use farms. Breeders and propagators too stand to save a pretty penny by using them. Broad spectrum grow lights produce a lot of light that plants can't use efficiently. LED grow lights on the other hand only deliver the colours of light used by plants for efficient and healthy growth.

What's more, the LED grow lights are warm to touch and won't scotch young or tender plants as other forms of lighting can. And most of them operate at just a few degrees above room temperature thus reducing a breeders grow room cooling costs. Even better, with their low heat emission, it means growing plants won't need to be watered so often given that they will transpire less. They can therefore be left unattended for a few days as workers concentrate their energies elsewhere.

The company manufactures flood, spot, tube, bay and panel lights to serve a farm's all round lighting needs. It has set a target to change every bulb on the continent to the efficient and environment friendly LED.

Hard on Pests Soft on Beneficials

By Leonard Mutinda

When *Floriculture* talked to Arysta East Africa Ltd earlier in the year, Its Chief Executive Officer Hildo Brilleman promised to bring a product that would end many a greenhouse farmers' nightmare. With the product, he said they would not need to lose sleep worrying about the effect of the insecticides they were using on the beneficial insects and mites used in their Integrated Pest Management (IPM) programmes.

Arysta East Africa Ltd is preparing to launch its much anticipated broad spectrum systemic insecticide which it says is effective against all major insects namely aphids, thrips, whiteflies, mealy bugs and hoppers. For the past months the company has been undertaking a pilot testing programme on Teppeki on selected flower farms in Naivasha. The tests have been impressive and the product is ready for the wider market according to the Mombasa Road based company.

Speaking to *Floriculture Magazine* at their offices, Mr. Richard Gitonga, the Regulatory and Development Manager-East Africa said, "Teppeki" which active ingredient is flonicamid, should be a flower farmer's best friend. Because of its scope focused on "sucking" insects, Teppeki has only very weak activity on other arthropods, especially against predators or parasites of pests.

It has been shown to be safe to a wide range of insects and mites used in IPM for roses such as Bombyx mori, Apis mellifera, Harmonia axyridis and Phytoseiulus persiulis". The company says the active Flonicamid was discovered by the ISK Biosciences Europe, the manufacturing company and is betting on Teppeki to provide a new option to IPM programmes, thus in a way becoming a standard setting option.

It acts by contact and ingestion. It is particularly effective against thrips (Frankliniella occidentalis), and also against other species such as aphids, mealybugs (Planococcus sp.), the greenhouse whitefly (Trialeurodes vaporariorum), yellow tea thrips (Scirtothrips dorsalis), green tea leafhopper (Empoasca onukii) or rice brown planthopper (Nilaparva talugens). "There is a significant but limited knock down effect, as the insects cease to eat within a few hours after ingestion or contact." Unless ingested, it is also harmless to humans. In fact the company classifies it as non-eye and skin irritant.

At the Oserian Development Company greenhouse where one of the pilot tests was done, the population of mealy bugs (Planococcus sp.), was reduced significantly to less than 10 bugs per plant when compared to untreated control after 21 days following two treatment applications applied at 7 days intervals.

And with pesticide resistant management being a key consideration to every greenhouse farmer, Arysta advises that Teppeki should be used in rotation with insecticides of a different mode of action.

After maximum two consecutive applications, it should be alternated with at least two applications of products with a different mode of action. It says the application of Teppeki should be based on insect infestation and pressure. In so doing, cross resistance against other conventional insecticides is unlikely to occur.

Also an added benefit of using the product is that every bottle of Teppeki is guaranteed to promote excellent Systemic and Translaminar action in plant. The product is available in a Wettable Granule (WG) formulation making handling easy and operator exposure to the product is minimized.

Its persistence when applied is between two to three weeks. That coupled with the fact that one only needs 120-140g/ ha makes Teppeki very economical for cut-flower farmers.


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Biocontrol in Floriculture to Date

The Kenyan floriculture sub-sector has seen an unprecedented growth over the last decade resulting in Kenya being the third largest flower exporter in the world and the sub-sector contributing in excess of Ksh 41 billion to the economy writes John Ogechah

This success has been attributed to many factors, key among them being the favourable climatic conditions around the equator, availability of educated and resourceful workforce, an economic climate that encourages internal and external investment, willingness to obtain knowledge and technical know-how from internal and external consultants, the ability to innovate rapidly and adopt new technology, and the market awareness and information to develop new products and add value.

New realities

One of the many challenges faced by Kenyan floriculture growers is the management of disease and insect/mite pests. The prevailing equatorial climate is the boon and bane of floriculture. The warm and sunny year round climate that favours flower production also favours pest growth and multiplication. Chemical pesticides have traditionally been employed to mitigate this threat.

However the stark reality of pesticide resistance, environmental pollution, loss of biodiversity and risks for human health has led to the recent rise of strong industrial lobby groups advocating for more environmentally friendly and socially acceptable pest management tactics. Individual customers, numerous certification schemes e.g. Fair Trade, Milieu Programma Sierteelt (MPS), GLOBALGAP (previously EUREPGAP), and the Kenya Flower Council's silver and gold standards are placing restrictions on permitted pesticides. Furthermore, the flower industry has been the focus of several damaging media exposés and academic research documenting extensive human rights and environmental abuses.

Change of tack

These new realities are gradually forcing a change of tack, pressuring a transition to more ethical business practices and credible accreditation. A recent development has been the adoption of biological control (biocontrol), the deliberate release of an organism in an environment with the intention of keeping pest populations below economically injurious levels. Kenya is leading the world in the successful implementation of biocontrol in floriculture, hitherto un-heard of and un-thought of.

How did it happen?

The Kenyan government through its crop protection authorities, research institutions and the industry identified inappropriate regulation to be a major impediment to adoption of biocontrol as biological control agents (BCAs) were initially registered under the same legislation as conventional pesticides. Landmark legislative framework for the use of natural pest control products including natural enemies, biopesticides, botanical pesticides and semiochemicals was developed in 2003. This enabled Kenyan companies to start mass production of biocontrol agents for major horticultural pests, sorting out the challenges of affordability and accessibility. The Kenyan premier biocontrol company, Dudutech, pioneered the Kenyan mass BCA production and remains a market leader in the production and distribution of BCAs used in management of various pests and diseases in Kenya and beyond.

The huge successes in the biological control of spider mites in roses and leaf miners in peas realized from this pioneering work catapulted biocontrol to the limelight as a viable alternative pest management tactic leading to rapid increase in adoption. These two success stories were mainly driven by pesticide resistance and the scarcity of conventional pesticide products available to growers. Successful biological control in flowers provided the sector with adaptive tools to weather pesticide resistance as most pests are unable (or very slow) to develop resistance to biocontrols.

Training and technical expertise

As adoption of biocontrol rapidly increased, many growers were struggling with the dramatic transition required to shift a reactive pesticide-based control approach, often used for many decades, to one that requires a more proactive and patient approach even when pests are not yet visible in a crop.

Adopting biological control on a greenhouse flower farm requires many years of trials, a dedicated and committed management and staff to stick with it for the long term, a strong network of technical experts and a strong biocontrol sector that can provide the right tools needed by growers. Training, therefore,

is an integral component as it engenders an increased capacity, confidence and willingness to change, to seek and adopt innovative technologies and best-practice management techniques.

Dudutech's robust training department has over the years offered diverse courses on various aspects of environmentally intelligent farming methodologies to varied groups ranging from growers, consultants, and small-holder farmers, custodians of GAP standards in the industry like Kenya Flower Council (KFC) and consumers.

No silver bullets

History has taught us that there are no silver bullets in the fight against pests and biological control is no exception. While there is an acceptance that biocontrols can form the basis of most floricultural pest management programmes, they cannot be relied on completely for adequate pest management all the time and for all pests. Biocontrols need to be integrated with cultural, physical and chemical controls that will minimally disrupt established populations of biocontrols especially if pest populations become too high.

The bigger picture

For the floriculture industry to surpass/ sustain the success so far realized, one of the overarching goals must be adaptability and sustainability. This would ensure that the industry can anticipate and adjust to the dynamic external environments through innovation and institutional and physical infrastructure. Since biocontrol agents are living organisms, the interactions they have with the environment, the host plant and the target pest is very complicated.

This added to the complication of numerous flower varieties grown under numerous growing conditions make the permutations of biocontrol recommendations and technical advice become massive and very complex. Kenyan flower growers have proven to be great innovators, but they need a strong biocontrol research network to provide growers with unbiased technical advice.

Biological control has been shown to contribute to increased consumer demand for sustainably grown crops and has the potential of increasing Kenyan growers' share of the market. Today's sophisticated consumers are educated to recognize and request for flowers grown with minimal effects to the planet and its people. But the customers' requirement for aesthetically perfect flowers continues to be a major hurdle to adoption of biological control. A marketing strategy that educates the supply chain, especially the retailers and consumers that a few blemishes on their flowers is a small price to pay for responsible growing needs to be developed.

The author is the Chief Trainer at Dudutech IPM Solutions

Mr. Barnaba Rotich

In matters biological, he is unquestionably an authority, and he commands the respect of his peers, colleagues and competitors alike. His understanding of the business has been gained from rising painstakingly through the ranks to his present position, Commercial and Technical Sales Manager Dudutech Ltd. Along the way; he has worked his way through trials, technical and production roles. Barnaba Rotich, himself a respected technocrat with an entrepreneurial leaning could not have been more resourceful than serving the industry he loves most, Biological controls, and the company he joined immediately after college Dudutech Ltd. This is what makes the effort worthwhile, says Rotich, in a 30 minutes interview with *Floriculture Magazine.*

Barnaba Rotich: Unquestionably an Authority.

Briefly discuss Barnaba Rotich (Background-Personal and a professional)

My love for farming started way back when I was a little kid. I was raised in a farm and as I was growing up I enjoyed playing with farm machineries and had fun during agricultural classes throughout primary and secondary school. So I was delighted when I got admitted to JKUAT to pursue a Bsc. Degree in Horticulture.

In December 2001 I did my last exam on a Friday and started work with Dudutech the following Monday and within one year I got promoted from Field Trials Officer to a Production Manager in charge of one line of insects and thereafter to the position of Production Coordinator in charge of all insect production lines. By March 2005, I was seconded to Dudutech's sister company in South Africa to set up one of the biggest IPM projects in the Southern Africa at the time. I came back to Kenya after one year stint and took a new role as Technical Manager again in insect production and got promoted to Commercial &Technical Sales Manager a position I have been for 5 years.

You have been dealing with flower growers for most of your professional life, if you would have to give your remarks about use of biologicals in the sector, what would they be?

Pest management in the flower industry is very dynamic and bio-control has steadily grown over the years from simply a marketing gimmick to the most sustainable way of managing crop pests and diseases that actually works.

Briefly discuss challenges you have in your professional work?

Dudutech being the first bio-control company to develop IPM strategies in Kenya, probably Africa; this meant we had to learn everything about bio-control on our own. Companies in Europe and America always guarded their technology jealously and had no experience in our kind of climate anyway. As we managed what were essentially key pests on our crops, there always arose an emergency of new threats due to reduced use of "generalist" pesticides.

What would you point out as your strongest attribute that has made you succeed?

Consistency and respect for team members and peers. In addition is my ability to allow team mates to work unconditionally. Am also pragmatic in handling challenges. These have played a key role in my success.

In your experience briefly discuss production, distribution and application of biological to growers in Kenya.

Bio-control in Kenya is a long story whose start was only Diglyphus isaea to manage leafminer and Phytoseiulus persimilis for management of the Two Spotted Mite. To date range has grown to a portfolio of over 20 different products among them; insects, mites, beneficial fungus, nematodes and bacteria. What was started by a single company; Dudutech Ltd has grown to have three key companies in Kenya and other smaller but upcoming companies. Some multinationals who have all along produced conventional agrochemicals are also seriously investing in biological lines. To date, bio-control has grown into other crops including cereals. Across the border, our neighbouring countries have also come to embrace the technology.

Bio-controls agents are very specific on the pest or disease they target. This therefore means that growers and pest control practitioners need to understand the ecology and biology of individual pest and their interaction with respective bio-control agent in order to put in place the best possible management strategy. The beauty of biological control agents is that, they have no MRLs and no resistance build up by pest. In fact this is the future of the sector.

In your experience, discuss the challenges biologicals are facing in the country (Users, Government and distributors?

Registration of bio-controls still remains a hard nut to crack in Kenya compared to Europe. In Europe for instance one does not need to register products that are not formulated such as insects, predatory mites and Nematodes. What is needed is prove of species identification and documented original habitat. However, formulated products in Europe go through a rigorous procedure compared to Kenya. Therefore patience is needed before one gets full registration. In addition, these products have no quick knock down effects hence users need to adopt prophylactic strategies in order to keep pest populations below economic threshold levels.

Handling living organism is not easy and therefore both suppliers and growers must make sure that bio-control products especially those based on predatory mites, beneficial insects and nematodes are not kept for too long between the time of product supply and use. One may need a cool chain to transport them so as to maintain the quality of products and get full benefits. It is easier handling the formulated products as they are much more stable and can withstand a wider temperature range but growers must make sure they check the shelf life before use. In general, bio-control products should not be stored for long as the fresher it is the more virulent it is.

In reference to the current debate on the international markets on MRLs, discuss why growers are safe using biological.

Biologicals are the best thing to have happened to farmers. These products have no MRLs or PHIs. One can spray and harvest within hours as they are safe to crop handlers, environment and consumers. If used well, the products will also give you a superior quality produce with longer stems and longer shelf life especially for vegetables.

How would you describe your time at Dudutech? Are you passionate about what you do?

I have had my best time at Dudutech. Having been among the pioneers of bio-control industry in Kenya and involved in all stages of development and growth of the company from onset, is the best thing to have happened to me. I joined the company six months after start and this gave me an opportunity to work in all departments.

I am passionate with what I do. Each day pause own challenges which are very exciting for my career growth. I enjoy working with growers and the partnership we have in designing and implementing environmentally intelligent farming systems to grow crops in a sustainable manner

What is your vision for Dudutech Ltd? What are your top priorities?

Dudutech's mission is to provide safe, effective and sustainable solution to pest and disease management in agriculture globally and promoting environmentally intelligent farming that is better for our people, our environment and our markets. Our priorities are to make sure that everyone is safe, from bees, farm workers and all the way to consumers, now and in the future.

In a nutshell describe Dudutech Ltd products and services to farmers.

The quality of products is paramount in our activities. Dudutech Ltd is an innovative company that focuses on providing high quality, cutting edge technologies to the global farming community. We focus on providing more than just high performing product to farmers; ours is a different mentality or approach. We seek to create long-term 'win-win' partnerships that create value for all. We are incredibly accurate. Our business culture is about understanding our customers and carefully planning for their specific needs and then sticking to our plans. This approach ensures a unique personal touch for our customers.

Briefly discuss the Dudutech Ltd team

It is probably the greatest and most inspirational any manager would wish to have. The team is comprised of only Kenyans and is highly experienced with deep knowledge of the organisation. The management team has been working together for many years (more than 10 years) and they understand each other very well. But it doesn't end there. More broadly, they have a 'let's-get-down-to-business' mentality and are open to new ideas which is an asset to the organisation. To crown them, integrity is very important. If they promise something, they stick to it. The team will always go out of their way to keep our customers satisfied.

Where do you think the most significant growth will occur in the company in the next few years? What new competition are you expecting then?

In Kenya, we foresee massive growth and development of biological products for disease control especially powdery mildew, botrytis and downy mildew products. The Kenyan market is set for faster growth than more established markets and regions such as Europe. As a result, more and more players in biological products are seeking to enter the market. This will create a dynamic environment where expertise and proximity will be critical. We might see a scenario where these products overtake conventional products due to their safety to the user and the environment. The 'cutting edge' here is the sustainability

What is your personal work ethic and how does this affect the company culture?

I believe in accountability, responsibility and allowing people to bring out ideas. Out in the field, I have come to understand different business cultures. It is only in the flower sector where you encounter diverse cultures, some culture's famous virtue, punctuality, collides with others that think good things take time and making someone wait is a sign of authority. I have come to understand all these and treat all these people fairly and with respect. I'm passionate about business. I like to challenge the status quo and take calculated risks, but also to roll-up my sleeves to get down to the nitty-gritty. This sits well with Dudutech Ltd culture and values.

What decisions have you made in your career that looking back you feel were mistakes and what have you learned from them?

I wouldn't cite any specific decisions. Instead I believe that each day brings something new to learn. Every single time I meet a client, I learn something new. I've learned that to be open-minded is essential to doing good business.

Discuss the most pivotal moments in your career that you either learned from and/or that got you where you are?

In all honesty, I've only had two pivotal moments in my career life. The first was when I did an interview and got a job two months before sitting for my university exams. The second is working for the first biological control company in Kenya and seeing it grow and an opportunity to set up the first ICM in South Africa in a 21ha chrysanthemum farm.

Describe your ordinary day?
Do you have enough personal time?

My typical day involves contact (either in person or by phone) with my team to ensure we're dealing with business priorities. In the space of a few hours I can cover a diverse range of topics that relate to our work environment; from regulatory to technical development, sales and marketing. When I'm in the office, mostly on Mondays I have an open door policy. The rest of the week I spend meeting customers. Though I have less and less personal time, I spend most of the weekends with my family who are always very understanding and supportive.

Give your final comments

After many years working with Dudutech Ltd, I can get to the heart of farmers issues and offer sound advice on specific problems. Through business partnerships, my team and I bring very specific business values and these can be summed at as competence (we have some of the best products available with good after sale services), preparedness (to find ways to deliver solutions to even the most difficult of customer needs) and delivery on time (perhaps this comes from our business values, but we also recognise today this is an important quality that farmers need to know that they can trust in their business partner of choice). To crown it Dudutech is going places.

Thanks For your time

Are Kenyan Registration Regulations Friendly to Biological Control?

Pesticide residues have become a major issue recently on a whole range of crops. There has been an increase in surveillance of residues on export vegetables by the EU, whilst European supermarkets have been pressurising cut flower growers to reduce their residue levels. One approach to reduce the level of pesticide residues is to adopt the use of non-pesticide crop protection methods which includes the use of biological control agents. However are the Kenyan regulators a barrier to their rapid adoption?

There are broadly two types of biological control agent (BCA), those classed as macro BCAs (e.g. predators, parasitoids and insect killing nematodes) and the micro BCAs (Biopesticides) (e.g. fungi, bacteria, and viruses).

The Kenyan regulator, PCPB requires that both of these groups require extensive safety and efficacy testing which is comparable with the requirements needed to register a conventional pesticide. However in virtually everywhere else in the world the registration of BCAs is easier and faster than Kenya, therefore why are the Kenyan regulators being so cautious.

In the USA, the EPA (Environmental Protection Agency) has actively encouraged the development and use of biopesticides. They say that since biopesticides tend to pose fewer risks than conventional pesticides, EPA generally requires much less data to register a biopesticide than to register a conventional pesticide. In fact, new biopesticides are often registered in less than a year, compared with an average of more than 3 years for conventional pesticides. Whilst in the European Union and also the USA, macro-organisms like Phytoseiulus and N. californicus are not subject to registration as plant protection products.

Therefore what justification do the Kenyan authorities have in asking for registration which includes efficacy trials for macro-biologicals like Phytoseiulus when others like EPA and the EU do not. The EPA recognises that biopesticides have considerable advantages over conventional pesticides and therefore they actively encourage their adoption and use.

They have identified advantages which include:

- Biopesticides are usually inherently less toxic than conventional pesticides.
- Biopesticides generally affect only the target pest and closely related organisms, in contrast to broad spectrum, conventional pesticides that may affect organisms as different as birds, insects, and mammals.
- Biopesticides often are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides.
- When used as a component of Integrated Pest Management (IPM) programs, biopesticides can greatly decrease the use of conventional pesticides, while crop yields remain high.

However there is a need for safety considerations and these include assessing the risks to human health, and assessing risks to non-target organisms and the environment. Additionally if the organism is a non-native biocontrol agent, then the risks need to be evaluated and their importation approved. In Kenya this is the important function of KEPHIS. Therefore we encourage PCPB and all regulators to make it happen and make it easier and faster.

What is the Future of Biological Control ?

By Henry Wainwright, The Real IPM Company (K) Ltd

The crop protection industry is dominated by the large multinational agro-chemical companies such as Syngenta, Monsanto and Bayer Cropscience. The biocontrol business is minute in comparison, with only 3% of global sales of crop protection products. The future of the biocontrol industry is based on a range of interacting factors and difficult to predict the future, however many are suggesting that its future is likely to grow. There are numerous drivers for the use of biological control.

Pesticide resistance.

Whether a pest or a disease, most organisms have the ability to become resistant to a large range of pesticides. This is often seen in the field where one season a particular pesticide works well and later the efficacy is not there. Resistance has been reported in many common groups of insecticides and fungicides.

There occurrence of resistance to a biological control is virtually unknown. For instance in Kenya the wide spread adoption of the use of predatory mites was mainly due the fact that many of the conventional pesticides were not working due to resistance.

Governments and the regulators.

Broadly around the global, the authorities are trying to reduce the reliance on conventional pesticides. For instance France launched their Ecophyto action plan which has the objective to reduce pesticides, in compliance with the EU's Sustainable Use Directive.

The aim is to reduce the dependency of farms on plant protection products (up to 50% reduction in ten years), while at the same time maintaining agricultural production at a high level in both quality and quantity terms. Another and more dramactic example of how governments can affect the use of pesticides is that the EU has placed severe restrictions on the use of neonicotinoid insecticides in 2013 in the EU.

As a consequence Syngenta has submitted a legal challenge to the European Commission's decision to suspend the use of thiamethoxam (Actara, Cruiser) on bee attractive crops. According to Syngenta, the Commission took the decision on the basis of a flawed process, an inaccurate and incomplete assessment by the European Food Safety Authority and without the full support of EU Member States. Whatever the outcome, the neonicotinoid group of pesticides

which include imidacloprid (Confidor), thiaclorpid (Calypso), acetamiprid (Golan) and thiamethoxam (Actara) are likely to be under pressure for years to come and this will not only be reflected in the EU but also Kenya as well. For instance the UK supermarket has given notice to its suppliers world-wide that they do not want neonicotinids used on their crops after the end of 2014. Therefore can biological control fill the vacuum left by the regulators withdrawing pesticides?

Retailer pressure.

The European retailers are under pressure to reduce the use of pesticides in the products they sell, whether this is French beans or roses. This is for instance an important criteria in products labelled Fair Trade. As a consequence they exert market forces on the growers in Kenya to comply by measuring pesticide use (MPS scheme) and determining the pesticide residues on products. Therefore growers are forced to seek alternative methods of pest and disease control and this will include the greater use of biological control agents.

Availability and cost.

Technology, such as biological control will only be adopted if it is available, at a price that can be afforded and is shown to be effective. Kenya has been fortunate to have biological control agents that are produced in Kenya that are certainly available, fresh, and low cost. In addition to locally produced BCAs, the large Kenya flower market has attracted BCA suppliers from Europe, South Africa, India and China hoping to supply this large market.

Therefore the Kenyan grower clearly will have a

good choice of product available in the future. Cost is an important factor because if the price is too high, growers will not be able to use enough of the BCA and therefore they will not always work quickly enough. Where cost is high then some growers can justify the extra cost through extra yield and quality.

Flower quality.

Stressed plants do not yield as much as un-stressed plants. Therefore growers spend much of their time optimising plant growth and relieving plant stress. Pests cause plants stress, pesticides reduce the pest but at the same time can stress the plant. Wetters and adjuvants can cause stress by removing the waxy layer of leaves and in turn plants can be stressed. A feature of using biological control agents is that they do not stress the plant and in turn the stress free plants responds but producing more yield, increasing bud and stem length. However the grower has to capitalise and earn more money from this benefit.

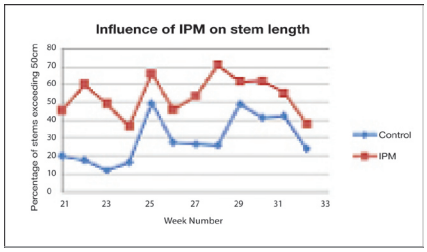


Figure 1. The influence of using IPM with a wide range of biological control agents when compared to a crop using a conventional pesticide programme on the number of stems greater than 50 cm in length. (Variety: Tropical Amazon).

The Changing "mindset" of Kenya growers. Farmers are not famous for their adoption of new ideas and as a group they can be considered conservative. My parents did it this way and it worked so why change! However a feature of the Kenya floriculture sector is that it has been a rapid adopter of change. New ideas and technologies are welcome and growers are always willing to try something new and this is all about mindset. Within any group there are the early adopters and the laggards, but in general adoption is not a major barrier. This is not the case with groups of growers in other sectors and parts of the world. There are many reasons for this but the consequence is that this leads to technologies that are shown to be successful quickly being adopted. As a result biological control in some form or another has been adopted by the floriculture sector. This flexible mindset of the Kenyan grower is likely to be a key factor in the future success of the Kenyan industry and biological control.

The future of biological control.

The pointers suggest that the biological control might be a greater force in the crop protection industry in future. Pesticide makers such as Switzerland's Syngenta as well as Bayer AG and BASF SE of Germany are seeking environmentally friendly technology as the European Union phases out hundreds of agrochemical products and supermarkets require fewer chemical residues on foods. Syngenta has said it could lose $75 million in sales from a two-year EU ban on its Thiamethoxam chemical amid concerns to bee health. The EU ban will take effect Dec. 1.

Therefore you would expect the multinationals to be getting more involved in biological control. This is exactly what has happened in the last year with Bayer buying Agraquest,a global supplier of innovative biological pest management solutions based on natural microorganisms. BASF purchased Becker Underwood, a major biological seed treatments producer, whilst Syngenta purchased Pasteuria Bioscience which produces a range of soil bacteria for nematode control. However this is a relatively late move and one reason is that BCAs are expensive to produce and so less profitable. In a recent study Endure demonstrated that conventional pesticides are still much more profitable than Biopesticides (Table 1).

Table 1: Compared margin structure estimates for the production and sales of a Biopesticides (BIOP) and a chemical pesticide (source: Endure)

%*	Chemical pesticide	BIOP
Sales value at plateau level	100	100
Cost of production	13	56
Gross margin	87	44
Cost of sales	21	15
Cost of research	8	12
Cost of administration	4	3
Earnings before investments, taxes and amortisation (EBITA)	54	14
Profit after taxes, provisions and amortisation	18	2

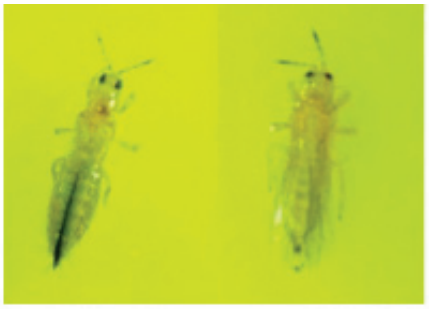
* Costs and margins are expressed as a percentage of the sales value of the commercial product.

Though there are many positives for the future of biological control there are some challenges to using the technology. Particularly with the use of predatory mites their successful use requires greater management and better scouting. With the precision scouting systems offered by Scarab-Consulting, again using some of the latest technology this challenge is being solved. BCAs are slow to act therefore planning and anticipation are critical. There is no knock down with biological control and fire fighting with BCAs is not an option! To make biopesticides work they need a prophylactic programme which involves regularly application and results can take as long as 6 months to full be appreciated. Fortunately most floriculture crops are longer term perennial crops which are highly suited to prophylactic programmes. The introduction of biological control brings with it new challenges, such as pests that were of minor importance ten years ago e.g. mealy bug. However these are often temporary challenges and solutions are soon found such as either compatible chemicals or another biological control.

There are many factors that cause a grower to follow a particular growing practice. With increasing price costs and unpredictable prices for roses, returns and profit are a major factor. The adoption of new technology must always be examined from a financial basis and need for efficient, accurate financial monitoring at the greenhouse and variety level is critical. Many flowers growers have been adopting BCAs and seem to think they are cost effective method of crop protection. In future the speed of change is unlikely to slow, the biological control industry has to keep up the pace of innovation to address the next new crop protection challenge!

MR. Henry Wainwright is a senior BCAs consultant and Managing Director of Real IPM K Ltd specialising in Consultancy and development of Bio-controls in Kenya

Western flower thrip adult



WFT Adult female (left) and male (right) on sticky trap

Onion thrips adult, thrips tabaci

Western flower thrip larva

Western flower thrip prepupa

Western flower thrip pupa

Thrips Management In Roses.

Thrips, order Thysanoptera, are tiny, slender insects with fringed wings. They feed by puncturing the epidermal (outer) layer of host tissue and sucking out the cell contents, which results in stippling, discolored flecking, or silvering of the leaf surface. Thrips feeding is usually accompanied by black varnishlike flecks of frass (excrement).

Pest species are plant feeders that discolor and scar leaf, flower, and fruit surfaces, and distort plant parts or vector plant pathogens. Many species of thrips feed on fungal spores and pollen and are often innocuous. However, pollen feeding on plants such as orchids and African violets can leave unsightly pollen deposits and may reduce flower longevity. Certain thrips are beneficial predators that feed on other insects and mites.

Thrips can readily move long distances floating with the wind or transported on infested plants, and exotic species are periodically introduced. In Flowers there are mainly two types of Thrip species that attack Roses, Carnations and other flowers. The western flower thrips (Franklieniela occidentalis) and Thrips tabaci also known as Onion thrip. These Thrip species mainly feed on both leaves and flower petals with the majority of their damage to roses occurring throughout the growing period of the flowers. Their feeding may result in distorted buds that open only partially or abort prematurely.

Feeding on petals may result in petals streaked with silvery-white or brown as well as petals with browning edges. White and light-colored rose blossoms appear to be particularly attractive to thrips. Young leaves may be distorted and flecked with yellow as a result of thrips feeding.

Identification

Most adult thrips are elongate, slender, minute (less than 1/20 inch long), and have long fringes on the margins of both pairs of their long, narrow wings. Immatures (called larvae or nymphs) are oblong or slender and elongate and lack wings. Most thrips range in color from translucent white or yellowish to dark brown or black. A few species are brightly colored, such as the distinctive reddish-orange larvae of the predatory thrips, Franklinothrips orizabensis and F. vespiformis.

Feeding results in various tissue responses, including scar formation and distorted growth. Behavior, body appearance, and host plants help to distinguish among thrip species. For example, three dark spots on each forewing distinguish the adult predaceous six spotted thrips from pest thrips. Adults of western flower thrips and onion thrips are noticeably larger than avocado and citrus thrips adults, so mature body size helps to distinguish them when they occur together on the same host plant.

Nonprofessionals may be able to identify thrips. However, thrips can be positively identified to species only by an expert. Fortunately, most thrips are susceptible to some of the same controls, such as exclusion and certain insecticides.

It is more important to distinguish among thrips species in situations where integrated

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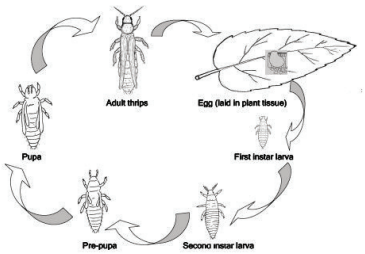
pest management methods are used. For example, each species of natural enemy preys on and helps to control only certain species of thrips or other pests.

Certain thrips occur on many different plants but damage only a few of the plant species on which they are found. Identifying the species of thrips may reveal that it is harmless in certain situations and no control action is needed. For example, avocado thrips and greenhouse thrips superficially scar avocado fruit skin.

Citrus thrips and western flower thrips are also found in avocado but do not damage avocados. Citrus thrips occur on many species of plants but damage only blueberries and citrus.

LIFE CYCLE



Thrips hatch from an egg and develop through two actively feeding larval stages and two nonfeeding stages, the prepupa and pupa, before becoming an adult. Late-instar larvae change greatly in appearance and behavior and are called prepupae and pupae, even though thrips do not have a true pupal stage.

Females of most plant-feeding species lay their elongate, cylindrical to kidney-shaped eggs on or into leaves, buds, or other locations where larvae feed. The pale prepupae and pupae of most species drop to the soil or leaf litter or lodge within plant crevices or galls. Greenhouse thrips pupate openly on lower leaf surfaces; while pupae (and eggs) of some gall-making species, such as Cuban laurel thrips and myoporum thrips, occur on leaf surfaces but are enclosed within distorted plant tissue. Thrips have several generations (up to about eight) a year. When the weather is warm, the life cycle from egg to adult may be completed in as short a time as 2 weeks.

Damage

Thrips feeding on plants can damage fruit, leaves, and shoots and very noticeably affect plants' cosmetic appearance. However, thrips rarely kill or threaten the survival of trees and shrubs. Herbaceous ornamentals, and certain vegetable crops, are more susceptible to serious injury from thrips feeding and thrips-vectored viruses, especially when plants are young.

Thrips feeding can stunt plant growth and cause damaged leaves to become papery and distorted, develop tiny pale spots (stippling), and drop prematurely. Infested terminals may discolor and become rolled. Petals may exhibit "color break," which is pale or dark discoloring of petal tissue that was killed by thrips feeding before buds opened. On some plants thrips can cause severe stunting to the early season flush of terminal growth. Cuban laurel thrips create tightly rolled, podlike leaf terminals on Ficus and form galled foliage from midsummer through fall. Myoporum thrips can create tightly bunched and twisted terminal growth that resembles a gall, within which large numbers of thrips can survive and reproduce.

Western flower thrips is primarily a pest of herbaceous plants; but high populations can damage flowers on woody plants, such as roses. Rose petals may develop dark streaks and spots from feeding injury that occurred before the buds opened, or the flower buds may deform and fail to open. Western flower thrips also vectors Impatiens necrotic spot virus and Tomato spotted wilt virus, which can severely damage or kill certain vegetable crops and herbaceous ornamentals.

Thrips cause brown to silvery, scabby scarring on the avocado and citrus fruit surface but do not harm the internal quality or flavor of the fruit. Where thrips lay eggs on grapes, fruit may develop dark scars surrounded by lighter "halos." Thrips feeding on apples, nectarines, and raspberries can deform or scar developing fruit. Citrus thrips feeding severely distorts blueberry shoot tips and foliage, reducing fruit yield.

In many thrips species, by the time their damage is observed, such as after buds open, the thrips may no longer be present. Some abiotic disorders, pathogens, and certain other invertebrates can cause damage resembling that of thrips. For example, various true bugs and mites also stipple foliage; and some true bugs produce dark fecal specks. Before taking control action, look carefully for the insects themselves to be certain that pest thrips are present and the cause of the damage.

Management

Thrips are difficult to control. If management is necessary, use an integrated program that combines the use of good cultural practices, natural enemies, and the most selective or least-toxic insecticides that are effective in that situation.

Monitoring

If thrips are a suspected cause of plant damage, thrips adults and larvae can be monitored by branch beating or gently shaking foliage or flowers onto a light-colored sheet of paper, beating tray, or small cloth. For thrips that feed in buds or unexpanded shoot tips, clip off several plant parts suspected of harboring thrips, place them in a jar with 70% alcohol (ethanol), and shake vigorously to dislodge the thrips. Strain the solution through filter paper so thrips can more readily be seen. Adult thrips can also be monitored by hanging bright yellow sticky traps in or near host plants.

Be aware that the presence of thrips does not mean that damage will result from their feeding. Large numbers of thrips in traps, or adults in flowers feeding on pollen, do not necessarily indicate that control action is needed. Plants suspected of being infected by thrips-vectored viruses can be reliably diagnosed only by sending properly

collected samples from symptomatic plants to a laboratory that tests for plant pathogens.

Biological Control

Predatory thrips , green lacewings, minute pirate bugs, mites, and certain parasitic wasps help to control plant-feeding thrips. To conserve and encourage naturally occurring populations of these beneficials, avoid creating dust and consider periodically rinsing dust off of small plants, avoid persistent pesticides, and grow a diversity of plant species.

Where thrips are a problem, learn whether that pest has specific natural enemies important in its control. For example, a minute pirate bug, Macrotracheliella nigra, and green lacewing larvae are important predators of Cuban laurel thrips. Euseius species mites are important predators of citrus thrips. With greenhouse thrips in Southern California up to 50% of its eggs are killed by a tiny wasp, Megaphragma mymaripenne. Thripobius semiluteus parasitizes greenhouse thrips larvae. Thrips parasitized by this wasp's larvae become swollen around the head and turn black, in contrast to the pale color of unparasitized greenhouse thrips larvae. Unlike healthy black mature thrips, the black parasitized larvae are smaller and do not move.

There is little research-based information on the effectiveness of releasing thrips natural enemies in gardens and landscapes. Releasing purchased natural enemies, in most situations, is unlikely to provide satisfactory thrips control.

Cultural Control

Thrips species that feed on many different plant species often move into gardens and landscapes when plants in weedy areas or grasslands begin to dry in spring or summer. Avoid planting susceptible plants next to these areas, and control nearby weeds that are alternate hosts of pest thrips. Grow plants that are well-adapted to conditions at that site. For example, plants adapted to grow in full sun can be stressed when planted in shady conditions and may be more susceptible to thrips damage. Provide appropriate cultural care to keep plants vigorous and increase their tolerance to thrips damage. Keep plants well irrigated, and avoid excessive applications of nitrogen fertilizer, which may promote higher populations of thrips. Old, spent flowers can harbor thrips, so their removal and disposal is sometimes recommended. However, the general benefit of this practice in landscapes is unknown; and old blossoms also commonly shelter beneficial predators of thrips.

Investigate the availability of resistant cultivars. For example, western flower thrips more often damages fragrant, light-colored, or white roses. Rose cultivars, with sepals that remain tightly wrapped around the bud until just before blooms open, have fewer thrips problems. Where Cuban laurel thrips is a problem on Indian laurel fig you can plant Ficus microcarpa, "Green Gem," which is mostly resistant to this pest.

Insect proof nets

Especially for plants grown under plastic cover (greenhouses/glass houses) some types of nets with a fine mesh can exclude thrips and other insects from plants.

Chemical Control

Thrips can be difficult to control effectively with insecticides, partly because of their mobility, feeding behavior, and protected egg and pupal stages. Improper timing of application, failure to treat the proper plant parts, and inadequate spray coverage when using contact materials are common mistakes that can prevent potentially effective insecticides from actually providing control.

Before using a pesticide, learn more about the biology of your pest species and the characteristics of available products by reading the label and consulting the Active Ingredients Database in the online version of this Pest Note at www.ipm.ucanr.edu. Often you will learn chemical control cannot be effective until the next season, when new plant growth develops. Certain products are available only by hiring a professional applicator. If insecticides are used, combining their use with appropriate cultural practices and other methods usually improves the pest control.

Insecticides Most Compatible with IPM

Contact insecticides that do not leave persistent residues can be effective for greenhouse thrips and other species that feed openly on plants. These products have low toxicity to people, pets, and pollinators and relatively little adverse impact on biological pest control; because they do not leave toxic residues that would kill natural enemies migrating in after their application.

On plants with a history of unacceptable damage, begin treatment early when thrips or their damage is first observed. Unless directed otherwise by the product label, periodically repeat the application as long as pest thrips and susceptible plant parts are both present.

New Superior DELEGATE 250WG Designed for thrips Hits the Market.

Flower growers preparing their spray programmes now have many options to choose from including a new superior formulation against thrips thanks to Dow AgroSciences.

The agrochemical firm recently unveiled DELEGATE 250 WG in the local market. It was pomp and colour as growers welcomed the new chemistry, Spinetoram; a mixture of two synthetic spinosyns made by chemically modifying spinosyns J&L.

The new innovative active ingredient is a safe and powerful insecticide, which is fast acting with a unique mode of action. Spinetoram is also known to have a better weather resiliency. It delivers fast and excellent control of the key chewing insect pests with short withholding periods. It is known to have a high level of environmental, user safety and an excellent IPM fit maintaining populations of most beneficial insects.

The product has been launched at a time when thrips, previously not a major pest are wreaking havoc in most farms. And for any flower grower, in Kenya it was God-send.

The product was warmly welcomed by most of the growers especially due to the post harvest interval.

Those who attended the DELEGATE 250 WG launch at a Naivasha hotel welcomed the introduction of the new product. In his opening address, the Dow AgroSciencies Business Development Manager-East Africa, Oscar Shilliebo said, "today we are all gathered here to give thrips a final send off". Amidst laughter from the attendants he continued, "before the end of the session, we must all say goodbye to thrips in flowers".

DELEGATE 250 WG uses an innovative mode of action, it has a translaminar activity.

The attendees were treated to an almost audio recorded oratory from Johan Janse Van Rensburg, the Marketing Specialist: Insecticides and Fungicides southern and Eastern Africa. He said DELEGATE 250 WG will enable flower growers enhance their quality. He explained: "DELEGATE 250 WG uses an innovative mode of action, it has a translaminar activity. It moves from the surface of the leaf to inside throughout the internal leaf tissue. DELEGATE 250 WG is safe to the user, fauna and flora, environment and the final consumer due to its improved residual activity. Due to its rain fastness and improved photo stability with no breakdown in sunlight, the product has a better weather resiliency. It delivers exceptional, fast acting activity of minutes to hours with a fast knock down on contact toxicity.

DELEGATE 250 WG; effective through ingestion and contact is a powerful insecticide, which causes paralysis within minutes. It is effective on adult insects, ovicidal if sprayed on eggs and also juvenile stages. It is a unique product that is highly active at the target site in the pest's nervous system.

DELEGATE 250 WG has low impact on beneficial arthropods making it compatible with IPM programs. Its short environmental persistence and greater ingestion versus contact activity minimises impact on natural enemies. It has minimal impact on pollinators once the spray deposit has dried up. It is practically non-toxic to honey bees when spray has dried up. DELEGATE 250 WG is safe with minimal risk if any to predatory lacewings, ladybird beetles, predatory mites, and parasitic wasps.

Mr Rensburg added, "DELEGATE 250 WG is highly effective when ingested and has a translaminar activity. It has a quick knockdown effect, with no phytotoxicity, no varietal sensitivity observed and can be mixed with most adjuvants. I am presenting to you a product which has won Presidential Green Chemistry award for designing greener chemicals, and AGROW award as best new crop protection product. It is also classified by EPA as a reduced risk pesticide".

Speaking exclusively to Floriculture Magazine during the launch, Ms Winnie Muya, the Communication Officer, Kenya Flower Council (KFC) said if properly utilised, the pesticide had the potential of further cementing Kenya's position as the leading flower exporter to the European markets. "If the presentation given is translated into facts, then Kenya is bound to gain more", she said, commenting on DELEGATE 250 WG expected contribution to flower productivity.

Most of those interviewed or consulted by Floriculture Magazine, representing a cross-section of flower growers believed the launch of DELEGATE 250 WG would be of major commercial advantage to them.

Mr Charles Njuki of Finlays expressed similar sentiments, describing DELEGATE 250 WG as cost effective.

The product was warmly welcomed by most of the growers especially due to the post harvest interval. "This will definitely fill an emerging big gap especially with the EU export regulations," said Mr P.D Kadlag of Waridi Ltd.

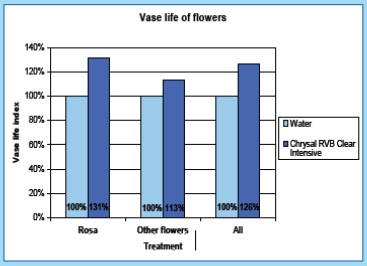
The attendees were treated to an almost audio recorded oratory from Johan Janse Van Rensburg, the Marketing Specialist: Insecticides and Fungicides southern and Eastern Africa.

***Chrysal** presents its range of **Post-Harvest Products** targeting Cultivars with specific treatments aimed and delivering Beautiful Flowers at all times.*

RVB Clear 1ml/l - this is a multi-ranging biocide, 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

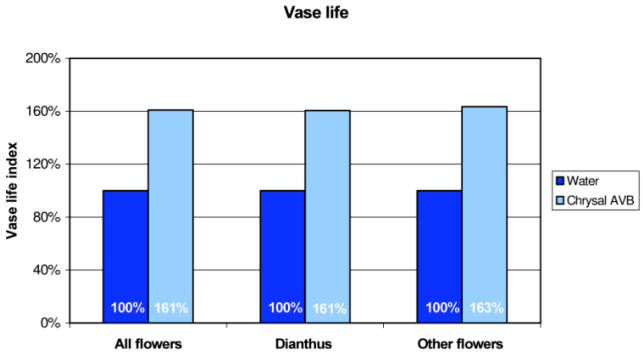
The following graph shows the effect of Chrysal RVB Clear Intensive on the vase life of Roses and other flowers compared to water alone.



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 treatments	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, 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.

Contact us at: info@chrysal.co.ke, Steve.mbogo@chrysal.co.ke, Edward.am@chrysal.co.ke

Why use Post Harvest treatments?

Flower development & vase-life, in connection with climatic conditions & other factors; vary for each flower type & cultivar. Poor handling of Cut Flowers will lead to a short vase life for the consumer. When flowers are harvested from the host plant; a negative food, hormone, & water deficiency/imbalance occurs. The extent of this deficiency depends on the type of flower & the sensitiveness of the flower. Part of the process therefore involves the correct use of Post-harvest treatments; so as to slow down the aging process.

The **three main post-harvest problems** of cut flowers can be summarized as follows:

1. **Disturbed water balance** with 'Blockage of the vascular bundles by air bubbles; micro-organisms & organic matter in contaminated vase water'
   Symptoms of a disturbed water balance are:
   - Limp flower petals. This well-known phenomenon is the premature wilting of the flowers that are sensitive to vascular blockages, such as Bouvardia, Chrysanthemum, Gerbera & Rosa.
   - Bent-neck. Caused by a premature harvest. As soon as it gets thirsty, the young tissue right under the flower bends over & closes off the vascular bundles

2. **Disturbed plant growth regulator (PGRs) balance**. After harvest & in reaction to being cut from the host plant, many flowers will produce either an overabundance or an insufficient amount of the plant growth regulators formerly provided by the mother plant. **Symptoms of PGR shortage are:**
   - Flower petals shrivel up & the buds & leaves drop, which obviously shortens the vase life expectation. This is caused by Ethylene, the ageing hormone
   - Leaf yellowing & limited flower development.
   - Stem elongation. Tulipa grow about 10 cm after cutting, during transport & vase life.
   - Geotropism (growth in response to gravity). During horizontal transport, the heads of cut flowers have a tendency to bend towards the light or lean away from gravity.

3. **Disturbed nutrient balance**
   Energy is the driving force behind water intake, the production of plant hormones & a natural development of the flower. Without energy, the flower would not be able to develop & the flower would wilt more quickly than would normally be the case. **Symptoms of a lack of nutrients are:**
   - Limited bud & flower development. Flowers get "stuck" in the early stage of development
   - Faded colours. The flower petals do not reach their normal colour intensity in comparison to the flowers on the plant.
   - Limited or no scent development.
   - Limited flower development of the spike. When there is a shortage of energy, the development of the flowers is limited, higher on the spike.

Chrysal has developed a range of **Post- Harvest Treatment products** for growers which help to maintain the food & water balance & maximize the life of the flowers. The following pre-treatment products are available from Chrysal Internationally:

AVB	Post-Harvest conditioner for ethylene sensitive flowers
BVB	Post-Harvest conditioner for Bulb flowers
CVBN	Stabilized Chlorine treatment
Inicial	Greenhouse water conditioning treatment
SVB	Anti-Leaf yellowing treatment
RVB Intensive	Post-Harvest hydrating treatment for Roses
RVB Clear Intensive	Aluminium free Universal hydrating treatment
RVB Clear (soft water) Intensive	Aluminium free Universal hydrating treatment for R.O. water

For more information on these & other products available in Chrysal's portfolio - Contact us at: info@chrysal.co.ke or Steve.mbogo@chrysal.co.ke

Improve yields, Reduce Costs and Conserve the Environment with Amiran Plastic Mulch

Continually improving its range of agricultural innovations to suit the ever changing global environmental conditions and European floriculture markets regulations, Amiran introduced the Amiran Plastic Mulch, an effective, safe generation product from Ginegar Limited, the world's 2nd largest producer of plastic.

Brought into the country at a time when the agricultural sector was challenged with water shortages due to the 2007-8 drought that hit most parts of the country, Amiran Plastic Mulch has helped farmers to save on cost and conserve water resources with its numerous benefits.

Amiran Plastic Mulch can be used by both floriculture and horticulture growers to;

- Attain higher and better yields
- Reducing evaporation thus reduced irrigation
- Providing excellent environment for roots development (darkness +oxygen) in the upper surface
- Control soil temperature, heat, cool
- Acts as savoir during rainfall by preventing water logging on the beds and by controlling soil erosion
- Keeps the soil moisture
- Reducing weeds that compete with your crop for water
- Reduced labour

Peter Gachire, Production Manager Baraka Roses in Nakuru,

Amiran Plastic Mulch in a greenhouse

Amiran Plastic Mulch on open field

explains that with the Amiran Plastic Mulch the farm has improved the quality of roses produced while at the same time reducing cost of production for the plastic mulch prevents fungal diseases by 30-40%, resulting into reduced use of chemicals by upto 9%. "I am proud to say that with the reduced cost of production we have seen a major improvement in our profit margin. In addition, Baraka roses is playing a part in environmental conservation with reduced water usage.", says Peter.

Adding to this Lillian Warinda, Sales Manager Agro Project Division Amiran Kenya states that "What is impressive with this product, is the unique characteristics of Ginegar's cover film that ensures greater durability, controlled resistance to hostile weather conditions, controlled light penetration, better dust resistance and reduced pest activity all working to help the farmer improve the quality of the yields produced.

Kariki Farm Group in Naivasha (Hamwe) is also enjoying the benefits of the Amiran Plastic Mulch, Peter Kamwaro, the farm's production manager states that prior to using the product the farm incurred a lot production challenges due to the clay soils which flooded during rainy seasons. Peter continues to explain that the Plastic Mulch acts as savoir during rainfall by preventing water logging on the beds,

keeps the shape of the bed intact, reduced pests an control weeds which has resulted to the farm saving on labor by 60%.

Amiran

Amisil®

A Rose Grower's 3 way Product to Improve:

• Wetting • Spray Coverage • Pesticide Activity (Good Mite Control)

INNOVATIVE BENEFITS OF AMISIL®

Better Targetting

• Realisation of difficult to reach plant parts allowing control of hidden pests (spider mites, mealy bugs, aphids & white flies)

Proven Performance from field use in Rose Production

• Better quality of produce & more yields

Lowers Surface Tension & Increases Droplets Spread

• Uniform Spread & thorough distribution of the Spray Solution

Increased Cuticular Penetration

• More active ingredient, higher & longer efficacy

Promotes Rapid Uptake of Agrochemicals

• Increases & accelerates absorption of pesticide through the plant cuticle (Apollo 50SC)

Use Plant Protection Product Safely, always read the label and product information before use.

Amiran

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Flowers IPM Moscow 2014 Continued On its Successful Course

On August 27 - 29, 2014, 302 exhibitors from 23 countries showed their products and services relating to all aspects of the green sector at the trade fair for plants, horticultural technology, floristry and garden features. In total, 24,984 visitors came into the All Russian Exhibition Centre in Moscow, a plus of 14.8 percent, including 73 percent trade visitors.

Oliver P. Kuhrt, CEO of Messe Essen:Says "FLOWERS IPM Moscow is a leading meeting place for the green sector in Russia and Eastern Europe. As an established trade fair, it paves the way for a large number of foreign organisations and companies, also including a lot of German ones, to enter the Russian market every year." FLOWERS IPM Moscow was organised by Messe Essen in cooperation with VDNH (Exhibition of achievements of national economy).

In subject-related and market-related lectures and seminars during the fair, the visitors were able to obtain information about the newest developments in the sector. Florists used the show stage in order to demonstrate their work in front of the public.

Cooperative participations from Denmark and Germany were represented this year. On the German booth, 14 companies presented themselves on over 300 square metres. The quality products "Made in Germany" and the extragavantly designed booth construction aroused great interest amongst the visitors.

The exhibition received great attention from the official side too. It was opened by Taisia Volftrub, President of the Association of Russian Landscape Architects and Professor at the international Architecture Academy, the Russian artist Slava Zaitsev as well as the CEOs of both fair companies, Oliver P. Kuhrt, Messe Essen GmbH, and Evgeny S. Romaskevych, VDNH. A German delegation organised by the Federal Ministry of Food and Agriculture (BMEL) and the Central Horticultural Association (ZVG) visited the fair.
Moreover, representatives of embassies from Germany, Denmark and Sri Lanka came to Moscow in order to obtain information about the latest developments.

Most exhibitors were satisfied with the course of the 21st FLOWERS IPM Moscow and, have, confirmed that they will participate next year. The current economic and political situation did not play any role with regard to the staging of the fair.

The next FLOWERS IPM Moscow will take place on August 27 - 29, 2015.

Exhibitors' Opinions
HerkuPlast Kubern GmbH, Germany, Bernhard Aichele, Sales Manager: "For us, FLOWERS IPM is a must in Russia since the main focal point lies in the tree nursery field. We are satisfied with the fair and will continue to exhibit."

Coconut Development Authority, Sri Lanka, Aruna Gunawardane, Chairman: "FLOWERS IPM Moscow has offered us the best possibility in order to introduce our products. The fair was a great success for the start of our business in Russia. Thus, we have come closer to the objective of marketing our products throughout Russia."

Managing Director: Printack, France, Mr. Daniel Grandjean, "The fair is very good and we are very satisfied. You meet a large number of specialists here and the fair site is very pleasant. We have been an exhibitor here since 2009. Our business is growing from year to year is very good."

Seit 1887

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SoliQ Air Establishes Itself In Kenya

SoliQ Air, a specialist high performance flower packaging product has established its global roots into the Kenya Flower sector in just a little under two years. Today, unlike at the time of introduction when Silpack's Director Parit Shah, had a challenging time convincing flower farms to try the SoliQ Air cartons, they are marketing themselves, thanks to their delivery of savings.

Mr. Shah says investment in the SoliQ Air cartons, whose core values are quality, innovation, savings and consistency is paying dividends for the sector.

This, he notes, is attested by its ever increasing orders as well as growing client base."When we introduced this product I had a challenge marketing it. The concept would be dismissed as creative marketing. This perception has fundamentally changed. More and more farms are making enquiries and subsequently place orders with us," points out Mr. Shah.

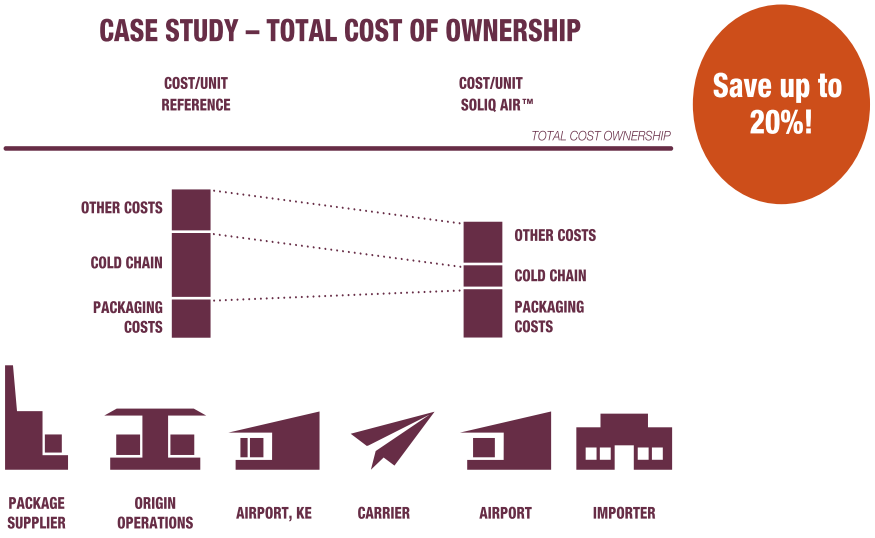
Silpack Industries Limited today supplies the high quality cartons to 15 of the top flower farms in the country. An impressive growth in a marketplace spoilt for choice of carton suppliers. The key to the rapid success is underpinned by the commitment Silpack has given to the core values of the brand.

The Director believes for the most part, the growth in the client base has resulted from the end customers of the flower farms', especially in Russia, Far East and Europe being particular that they wanted their flowers packaged in SoliQ Air branded cartons.

Mr. Shah notes that in the flower business where the end-buyer is keen on getting flowers efficiently and without waste, SoliQ Air cartons are being preferred in like for like comparisons. The key lies in the high performance fibre that goes into the paper, making them stronger and more durable when compared to their peers.

"Globally, SoliQ has been synonymous with reducing wastage, which has always been the underlying factor. It is a brand that has come of age after primarily starting in the fresh produce industry. SoliQ Air, created for the flowers going to auction, where it impressively delivered on its core values, is now increasingly being used by players in direct sales," Mr. Shah observes.

But perhaps the biggest benefit that clients have realised from using the SoliQ Air boxes is savings in terms of



money. According to Mr. Shah, exporters have confirmed a saving in freight costs. Additionally, he says that feedback also indicated that their clients have noted significant reductions in wastage claims.

Strategic partnerships

Over the years the Silpack has cultivated partnerships with organisations which are foremost authorities in the field of cold chain. Globally one key partnership is with Paccess Packaging, a US-based subsidiary of Billerud Korsnas, providing global brand owners with world-class knowledge and experience within packaging design, development, and sourcing. The results of these partnerships have allowed growers and to reduce supply chain waste and time-to-market costs.

Moving forward, Silpack intends to make SoliQ Air boxes even better by focusing on innovative ways of dealing with other challenges of ethylene and moisture control in the cold chain. In this, they are working with a number of growers to ensure the final product will be delivering on the core values of quality, innovation, savings and consistency. Mr. Shah also says that a new box design, that he terms as revolutionary, is also in the pipeline.

“Flower and fresh produce packaging has changed more in the last two years than it did in the prior fifteen years. Silpack is currently investing in innovation to ensure that we do not have to wait another fifteen years to introduce further savings and benefits for our growers to make them more competitive in the global marketplace. We eagerly wait to introduce at least three new products in the near future!” Parit says with a smile.

After the success in the flower industry, Silpack is eager to replicate the same in other horticultural subsectors.

“We are confident that the vegetable and fruit exporters will benefit from the same winning qualities from SoliQ boxes,” Mr. Shah points out.

Making Kenya Food Secure is a Responsibility for Each of us

President Uhuru Kenyatta honours Elgon Kenya director Bimal Kantaria with a trophy at the 2014 Nairobi International Trade Fair, Jamhuri Park, Nairobi, in recognition of his support for the National Farmers Awards.

About two million Kenyans are food insecure. In Nairobi, up to 20 per cent of the population is ultra hungry, researchers tell us. Farmers responsible for feeding the country are still struggling with access to seeds, government subsidized agro inputs, diseases and pests and emerging threats like climate change.

Ironically Kenya is endowed with large swathes of green fertile land, favourable climate and a highly entrepreneurial population with institutions like the Food and Agricultural Organisation classifying the country's land as so verdant, so lush and so capable of generating food that it could, alone, be the agricultural supply station for most of Africa. The World Bank on the other hand through numerous studies shows Kenyan farmers among the most important in developing countries capable of creating a trillion-dollar food market by 2030 if they expanded their access to more capital, better technology, irrigated land and grow high-value nutritious foods.

But half a century after independence, Kenya still remains dependent on food imports unable to feed its people on domestic production alone. And escalating food costs have pushed levels of import expenditure to breaking point and total food imports have been increasing on average at 3.4 percent every year.

Despite Kenya's abundant land and resources, food insecurity is a common problem and importing food not only drains our limited budget but can have a negative effect for low-income households who struggle to buy basic food items. It has become fundamental to not now leave the responsibility of securing our agricultural sector to government alone.

The competing needs from other sectors means the government can only do too much. Every patriotic Kenyan knows individual role counts in freeing the country from the yoke of hunger and making Kenya a better place.

At Elgon Kenya we have taken it among ourselves to transform agriculture in the country. Through modern farming practices, a huge network of field officers who interact with farmers and through the National Farmers Awards now in its second year which seeks to celebrate and recognize outstanding farmers while returning dignity to the soils, we are proud to have revolutionized Kenyan agriculture.

We take this opportunity to accept with humility and honour the recognition that was given to us by the President of Kenya for our role in transforming agriculture during the International Trade Fair. We thank the president and commit ourselves to always strive to make Kenya a better place for all of us.

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- *Plant sanitizer*
- *Fungicide Enhancer (Tank mixing) for downey products)*
- *Excellent Fungicide against powdery and botrytis.*
- *100% Compatible with IPM programme.*

NB: Disfection is the essential part of the plant protection strategy and have to be done first of all and consequently

Registration No. PCPB(CR) 1259

ATTRIBUTES

1. Active against all forms of pathogens i.e Bacteria, viruses & fungi both in enveloped (resting spores) and unenveloped.
2. Very high crop tolerance (no phytotoxicity)
3. Excellent for control of powdery & botrytis at high levels of application without any quality damage of the harvest.

Enviroment friendly. Approved by EUROGAP for use as disinfectant in horticulture production.

VEGETABLE PRODUCTION

1. *At first disinfection then production Disinfection of the harvest against quarantine pathogens.*
2. *Disinfection of grading tables, harvesting crates, cutting tools etc.*
3. *For disnfecting hands during production of all edibles.*
4. *Disinfection of the store houses, water baths and transport crates.*

NB: Benzoic acid is for instance allowed as preservative in food stuffs with 9g/kg as e.g. in sausage and mayonnaise

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Tanzania's New Airport Benefits Horti Exports

Tanzania's aviation industry is attracting more players as the government upgrades airports and improves infrastructure in the sector.

Since the beginning of the second half of this year, a number of major international airlines are lining to fly to Tanzania's major airports while the current operating airlines announced capacity increase or additional new routes.

The new developments come after the inauguration of the new Songwe International Airport in Southern Highland region of Mbeya in 2012 and advanced plans to upgrade the Mwanza Airport in the mineral rich - Lake Zone Region to international status.

The new Songwe International Airport is an important gateway for agricultural and horticultural exports from the southern highlands zone regions of Mbeya, Iringa, Njombe, Rukwa and Ruvuma. It is expected to benefit fresh flower exporters from Iringa and its environs who were forced to trucking their exports to Dar es Salaam to the flower markets in Europe. It is also expected to bring massive economic benefits to Mbeya and the neighbouring regions and countries by opening up the local market up to potential investors from within and outside the country.

Songwe Airport is set also to serve the southern highland region which is home to the Mchuchuma iron ore and Liganga coal reserves that have the potential to create an estimated 40,000 jobs, spur iron and steel industries in the country and boost coal exports.

The expected new entrants in the market include Air Seychelles, flydubai and Etihad Airways that have announced plans to fly to Tanzania before the end of the year. Two major global airlines currently flying to Tanzania, Emirates Airlines and South African Airways, have announced plans to increase its operations in the country. Emirates said it would introduce a second service before the end of the year and South African Airways intends to fly direct to Mbeya from Johannesburg.

With these new developments, industry analysts predict a booming business for the aviation sector in the next couple of months which is expected to stimulate economic activities and spur growth because of its impact on business investments and the tourism sector.

The increased direct flights means more options for travellers, while the revamped internal destinations offer more convenience and access to the country's tourist attractions. It will be good news for ground handlers as they see a booming business with the opening of Songwe Airport, upgrading of Mwanza Airport and the coming up of new airlines in the market.

To the ground handlers this will translate into increased opportunities for business expansion due to growing demand for passenger and cargo handling services. With everything being equal, the new developments in the aviation industry will boost competition among airlines, improve service for fliers and boost local economies in the new destinations in terms of expansion of business and investment opportunities.

The new frequency is also expected to boost trade between Tanzania and various markets around Emirates SkyCargo's global network.

The SkyCargo will reduce the Kenya dependence for cupflowers exporters. About 75 per cent of the cargo exported via air from Tanzania are perishables, consisting of fresh, frozen and chilled fruits, vegetables, meat and seafood. However, aviation analysts caution that the local airline will have to pull up their socks to provide quality services as they compete with regional and international airlines in the growing lucrative market.

Local airline need to wake up and compete in order to survive. The time for protective measures from the government is long past. Government authorities will certainly be interested in the advantages of the opening of the skies for regional and international airlines which are capable of bringing in large volumes of tourism and business traffic more than what local carrier can do. "Foreign airlines are playing an important role in helping to open up the economy. It actually brings much economic sense to encourage competition than protecting ailing carriers," one analyst said.

The government is struggling to revive the country's flag carrier, Air Tanzania with fleet and route development to enable it recapture its share in the local market currently dominated by Precision Air and Fast Jet.

Kenya's Fontana Nominated for Dutch Flower Awards 2014

This year, Dutch Flower Group (DFG) has once again nominated nine growers for the Dutch Flower Awards 2014. The awards are made in the cut flowers, plants and foreign suppliers categories. The criteria for selecting nominees include reliability, as well as themes such as innovation and sustainability.

It is the thirteenth time in a row that the globally operating family of trading companies has used the Dutch Flower Awards to put its chain partners, the growers, in the spotlights. The celebratory announcement of the winners will take place at the FloraHolland Trade Fair in Aalsmeer on Thursday 6 November at 3 p.m. at the DFG stand (17.3).

Nominees for 2014

In the cut flowers category, nominations went to Karel van Klaveren & Zn B.V., Marjoland B.V. and Together 2 Grow. In the plants category, Kwekerij Jongerling, J&P ten Have Potplanten Cultures and Handelskwekerij Ubink B.V. were nominated for the Dutch Flower Awards 2014.

Growers Fontana Limited (Kenya), Galilee Peonies (Israel) and Jardines de los Andes (Colombia) are the foreign suppliers who were nominated. New: Preferred Partner Recognition For the first time, this year DFG will pay special attention to chain partners who deserve special recognition for the intensive and future oriented cooperation between the supplier and the Dutch Flower Group companies. With this intention the Preferred Partner Recognition was created.

The following growers have been nominated:

Mopabloem, Karel Bolbloemen B.V., Ronico B.V. and Wesselman Flowers. After the ceremony of handing over the Dutch Flower Awards to the winners, Marco van Zijverden, CEO of Dutch Flower Group, will also present this new award.

Mutual marketing activities are key

Marco van Zijverden explains: "An increasing number of growers want to expand the innovative and transparent cooperation with the Dutch Flower Group companies. More and more focus lies in starting up mutual marketing activities for flowers and plants on a structural way, together. These activities are key to a future development of our horticultural sector."

Dutch Flower Group is a global family of 30 specialist trading companies. Together they lead the import, export, trade and market development of cut flowers, bouquets, plants and decorative greens.

Ecuadorian flower exports have fallen

According to Expoflores, there is a fall in the Ecuadorian export of flowers to the United States. This situation took place after the government of Ecuador gave up the tariff preferences granted by the U.S., which increased the price of the product.

At the end of June 2013, Ecuador gave up unilaterally the tariff preferences known as the Andean Trade Promotion and Drug Eradication Act (ATPDEA). This benefit allowed a group of Ecuadorian products to enter the U.S. on a zero tariff basis.

According to Alejandro Martínez, CEO of Expoflores, there is a decrease in the export of flowers to the American market since then. "There is concern within the productive and administrative sectors as fewer earnings are being reported", Martínez says.

Thanks to the ATPDEA, Ecuadorian flowers did not pay taxes when entering the United States. Without the tariff preferences, flower exports now have to pay a 6.4 % tax on average.

The minister of Foreign Trade, Francisco Rivadeneira, says that the Ecuadorian government is already aware of this problem and that it will take action.
The ambassadress of Ecuador in United States, Nathalie Cely, does not believe that the renunciation to the ATPDEA has had an effect on the fall of flower exports. She considers that there is a decrease in the demand, which is why she announced that the embassy will begin a campaign to prevent the negative effects on flowers and other Ecuadorian products.

The main markets for Ecuadorian flowers are United States, the European Union and Russia. Over 100,000 people work directly and indirectly at the flower industry in Ecuador.

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a Merry Christmas and

a Prosperous 2015.

Greenfarming Presents Project Results

During the Naivasha Horticultural Fair, Green Farming presented the results of their projects on efficient and environmental friendly water and fertilizer management, and on the use of solar energy for electrical and thermal energy generation.

Guest speakers, the CEO of the Kenyan Flower Council and a representative of Chase Bank, reflected upon current sector developments and the implications of the demonstrated technologies for the sector.

The Green Farming projects are co-operations between Dutch and Kenyan private sector and research partners, and are supported by the Dutch Ministry for International Trade and Development Cooperation. Technology suppliers are Bosman - Van Zaal, Hoogendoorn Growth Management, Van der Knaap, JB Hydroponics and Genap. Extensive data sets have been recorded at the project sites that provide the Kenyan sector and Dutch partners with important technical and financial insights.

A comparative research between a hydroponic and soil cultivation system for roses was executed by the Jomo Kenyatta University for Agriculture and Technology (JKUAT), Wageningen UR and DLV Plant, together with partner Van den Berg Roses in Naivasha. The data from January 2013 up to June 2014 show the following advantages of the hydroponic system: Fifty six percent less water use in the hydoponic system, due to re-use of the drain water in the soil system, 44% lower fertilizer costs due to re-use of the fertilizer in the drain water, 41% more production in terms of number of stems, 65% more production in terms of weight, 20% more stems of the length sizes of 60, 70 and 80 centimeters and 43% higher turnover.

The results thus show that with the hydroponic system impressive amounts of water can be saved, savings can be made in fertilizer use and that at the same time production results are much better than for roses grown in the soil. Based on these results the payback period for the additional investment costs to grow roses in hydroponics (calculated excluding costs for financing) is within the second year for a 6-ha production area.

The second project on the use of solar energy for electrical and thermal energy generation was presented by Mr Martin Helmich of Hoogendoorn Growth Management. This project has been put into practice at Olij Roses in Naivasha earlier this year and aims at demonstrating a cost-effective use of solar energy that enables a farm to operate independent of local energy suppliers and produce in an environmental friendly way.

Solar panels are installed to produce electrical energy and solar heat collectors generate thermal energy. Part of the electrical energy that the solar panels produce is directly used by pumps and motors in the greenhouse.

The excess electrical energy is stored in a battery-pack provided by Holland Batteries from which energy can be tapped during the night. Thermal energy is stored in a heat storage tank from which part of the farm can be heated during the night.

The project partners expect a reduction in energy costs up to 40% and - through the heating of the greenhouse- a greenhouse climate improvement and increased production and quality.

Estimated payback time on the technologies for a 3-ha production area is:

- <4 years for the total system; combining heat and power
- 2.5 years for the solar colector system; heating only
- 4 years for the PV panel system; power only
- 6 years for the PV panel system with the batteries

DLV Plant-GreenQ opens office in Kenya

DLV Plant-GreenQ launched its new establishment in Kenya at the Naivasha Horticultural fair, the largest horticultural fair in Africa.

DLV Plant-GreenQ Kenya is focusing on horticultural projects (supporting the development phase, financing and implementation of crop and crop related topics), trainings, (both growers and train the trainer concepts) and consultancy (crop advice, crop development and management advice) for the entire horticultural sector.

By delivering local presence DLV Plant-GreenQ is providing a high service standard and though this, the personal contact with the relations in Kenya is maintained. With the start of DLV Plant-GreenQ Kenya, Plant-GreenQ fulfills its ambition to expand international operations through establishing local subsidiaries to serve local markets. DLV Plant-GreenQ already has existing subsidiaries in the Netherlands, Belgium, Russia, Ethiopia, Britain and Latin America (Costa Rica), Denmark, China, Poland, Turkey, Denmark and Spain. DLV Plant-GreenQ Kenya is led by Jack Wanyonyi. Jack is originally from Kenya and is advisor and project manager in horticulture. Francis Hoogerwerf, Nico de Groot and Erik Kerklaan are supporting Jack from the Netherlands.

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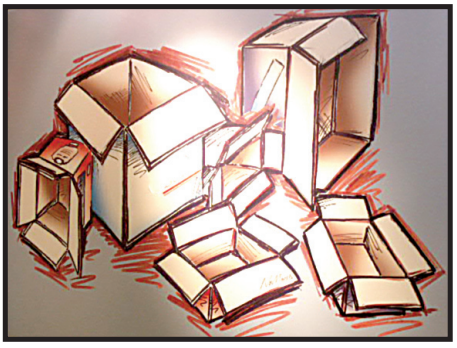

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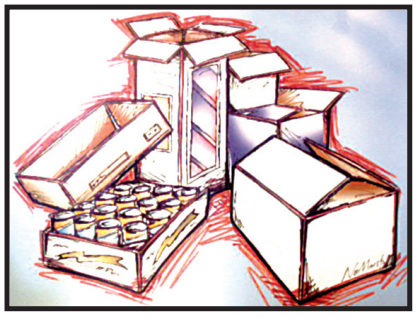

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Thinking beyond the box

Climate Science is Not Settled

We are very far from the knowledge needed to make good climate policy, writes leading scientist Steven E. Koonin

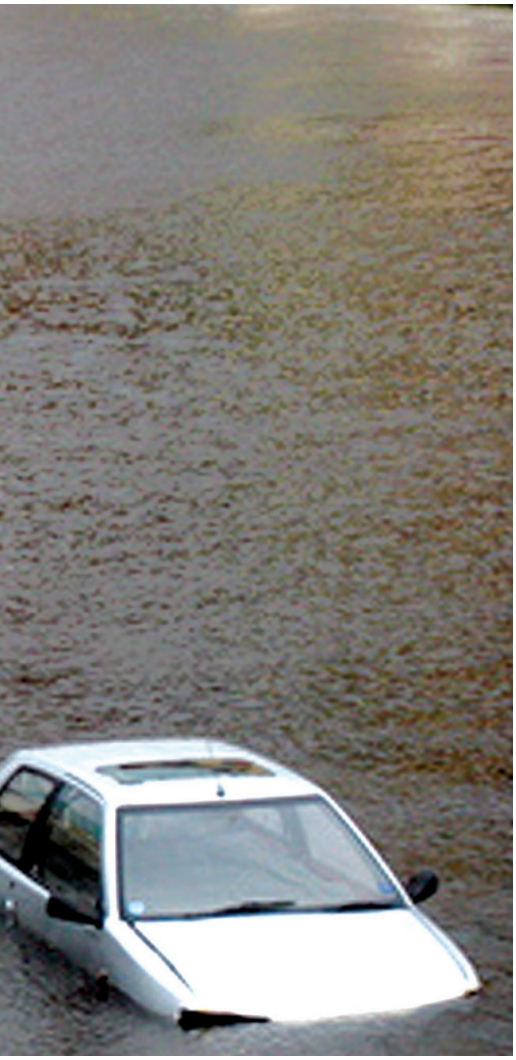
The idea that "Climate science is settled" runs through today's popular and policy discussions. Unfortunately, that claim is misguided. It has not only distorted our public and policy debates on issues related to energy, greenhouse-gas emissions and the environment, but has inhibited the scientific and policy discussions that we need to have about our climate future.

My training as a computational physicist—together with a 40-year career of scientific research, advising and management in academia, government and the private sector—has afforded me an extended, up-close perspective on climate science. Detailed technical discussions during the past year with leading climate scientists have given me an even better sense of what we know, and don't know, about climate. I have come to appreciate the daunting scientific challenge of answering the questions that policy makers and the public are asking.

The crucial scientific question for policy isn't whether the climate is changing. That is a settled matter: The climate has always changed and always will. Geological and historical records show the occurrence of major climate shifts, sometimes over only a few decades. We know, for instance, that during the 20th century the Earth's global average surface temperature rose 1.4 degrees Fahrenheit.

Neither is the crucial question whether humans are influencing the climate. That is no hoax: There is little doubt in the scientific community that continually growing amounts of greenhouse gases in the atmosphere, due largely to carbon-dioxide emissions from the conventional use of fossil fuels, are influencing the climate.

There is also little doubt that the carbon dioxide will persist in the atmosphere for several centuries. The impact today of human



activity appears to be comparable to the intrinsic, natural variability of the climate system itself.

But rather the crucial, unsettled scientific question for policy is, "How will the climate change over the next century under both natural and human influences?" Answers to that question at the global and regional levels, as well as to equally complex questions of how ecosystems and human activities will be affected, should inform our choices about energy and infrastructure.

But—here's the catch—those questions are the hardest ones to answer. They challenge, in a fundamental way, what science can tell us about future climates.

Even though human influences could have serious consequences for the climate, they are physically small in relation to the climate system as a whole. For example, human additions to carbon dioxide in the atmosphere by the middle of the 21st century are expected to directly shift the atmosphere's natural greenhouse effect by only 1% to 2%. Since the climate system is highly variable on its own, that smallness sets a very high bar for confidently projecting the consequences of human influences.

A second challenge to "knowing" future climate is today's poor understanding of the oceans. The oceans, which change over decades and centuries, hold most of the climate's heat and strongly influence the atmosphere. Unfortunately, precise, comprehensive observations of the oceans are available only for the past few decades; the reliable record is still far too short to adequately understand how the oceans will change and how that will affect climate.

A third fundamental challenge arises from feedbacks that can dramatically amplify or mute the climate's response to human and natural influences. One important feedback, which is thought to approximately double the direct heating effect of carbon dioxide, involves water vapor, clouds and temperature.

But feedbacks are uncertain. They depend on the details of processes such as evaporation and the flow of radiation through clouds. They cannot be determined confidently from the basic laws of physics and chemistry, so they must be verified by precise, detailed observations that are, in many cases, not yet available.

Beyond these observational challenges are those posed by the complex computer models used to project future climate. These massive programmes attempt to describe the dynamics and interactions of the various components of the Earth system—the atmosphere, the oceans, the land, the ice and the biosphere of living things. While some parts of the models rely on well-tested physical laws, other parts involve technically informed estimation. Computer modeling of complex systems is as much an art as a science.

For instance, global climate models describe the Earth on a grid that is currently limited by computer capabilities to a resolution of no finer than 60 miles. (The distance from New York City to Washington, D.C., is thus covered by only four grid cells.) But processes such as cloud formation, turbulence and rain all happen on much smaller scales. These critical processes then appear in the model only through adjustable assumptions that specify, for example, how the average cloud cover depends on a grid box's average temperature and humidity. In a given model, dozens of such assumptions must be adjusted ("tuned," in the jargon of modelers) to reproduce both current observations and imperfectly known historical records.

We often hear that there is a "scientific consensus" about climate change. But as far as the computer models go, there isn't a useful consensus at the level of detail relevant to assessing human influences. Since 1990, the United Nations Intergovernmental Panel on Climate Change, or IPCC, has periodically surveyed the state of climate science. Each successive report from that endeavor, with contributions from thousands of scientists around the world, has come to be seen as the definitive assessment of climate science at the time of its issue.

For the latest IPCC report (September 2013), its Working Group I, which focuses on physical science, uses an ensemble of some 55 different models. Although most of these models are tuned to reproduce the gross features of the Earth's climate, the marked differences in their details and projections reflect all of the limitations that I have described.

For example:

- The models differ in their descriptions of the past century's global average surface temperature by more than three times the entire warming recorded during that time. Such mismatches are also present in many other basic climate factors, including rainfall, which is fundamental to the atmosphere's energy balance. As a result, the models give widely varying descriptions of the climate's inner workings. Since they disagree so markedly, no more than one of them can be right.
- Although the Earth's average surface temperature rose sharply by 0.9 degree Fahrenheit during the last quarter of the 20th

century, it has increased much more slowly for the past 16 years, even as the human contribution to atmospheric carbon dioxide has risen by some 25%. This surprising fact demonstrates directly that natural influences and variability are powerful enough to counteract the present warming influence exerted by human activity.

Yet the models famously fail to capture this slowing in the temperature rise. Several dozen different explanations for this failure have been offered, with ocean variability most likely playing a major role. But the whole episode continues to highlight the limits of our modeling.

- The models roughly describe the shrinking extent of Arctic sea ice observed over the past two decades, but they fail to describe the comparable growth of Antarctic sea ice, which is now at a record high.
- The models predict that the lower atmosphere in the tropics will absorb much of the heat of the warming atmosphere. But that "hot spot" has not been confidently observed, casting doubt on our understanding of the crucial feedback of water vapor on temperature.
- Even though the human influence on climate was much smaller in the past, the models do not account for the fact that the rate of global sea-level rise 70 years ago was as large as what we observe today—about one foot per century.
- A crucial measure of our knowledge of feedbacks is climate sensitivity—that is, the warming induced by a hypothetical doubling of carbon-dioxide concentration. Today's best estimate of the sensitivity (between 2.7 degrees Fahrenheit and 8.1 degrees Fahrenheit) is no different, and no more certain, than it was 30 years ago. And this is despite a heroic research effort costing billions of dollars.

These and many other open questions are in fact described in the IPCC research reports, although a detailed and knowledgeable reading is sometimes required to discern them. They are not "minor" issues to be "cleaned up" by further research. Rather, they are deficiencies that erode confidence in the computer projections. Work to resolve these shortcomings in climate models should be among the top priorities for climate research.

Yet a public official reading only the IPCC's "Summary for Policy Makers" would gain little sense of the extent or implications of these deficiencies. These are fundamental challenges to our understanding of human impacts on the climate, and they should not be dismissed with the mantra that "climate science is settled."

While the past two decades have seen progress in climate science, the field is not yet mature enough to usefully answer the difficult and important questions being asked of it. This decidedly unsettled state highlights what should be obvious: Understanding climate, at the level of detail relevant to human influences, is a very, very difficult problem.

We can and should take steps to make climate projections more useful over time. An international commitment to a sustained global climate observation system would generate an ever-lengthening record of more precise observations. And increasingly powerful computers can allow a better understanding of the uncertainties in our models, finer model grids and more sophisticated descriptions of the processes that occur within them. The science is urgent, since we could be caught flat-footed if our understanding does not improve more rapidly than the climate itself changes.

A transparent rigor would also be a welcome development, especially given the momentous political and policy decisions at stake. That could be supported by regular, independent, "red team" reviews to stress-test and challenge the projections by focusing on their deficiencies and uncertainties; that would certainly be the best practice of the scientific method. But because the natural climate changes over decades, it will take many years to get the data needed to confidently isolate and quantify the effects of human influences.

Policy makers and the public may wish for the comfort of certainty in their climate science. But I fear that rigidly promulgating the idea that climate science is "settled" (or is a "hoax") demeans and chills the scientific enterprise, retarding its progress in these important matters. Uncertainty is a prime mover and motivator of science and must be faced head-on. It should not be confined to hushed sidebar conversations at academic conferences.

Society's choices in the years ahead will necessarily be based on uncertain knowledge of future climates. That uncertainty need not be an excuse for inaction. There is well-justified prudence in accelerating the development of low-emissions technologies and in cost-effective energy-efficiency measures.

But climate strategies beyond such "no regrets" efforts carry costs, risks and questions of effectiveness, so nonscientific factors inevitably enter the decision. These include our tolerance for risk and the priorities that we assign to economic development, poverty reduction, environmental quality, and intergenerational and geographical equity.

Individuals and countries can legitimately disagree about these matters, so the discussion should not be about "believing" or "denying" the science. Despite the statements of numerous scientific societies, the scientific community cannot claim any special expertise in addressing issues related to humanity's deepest goals and values. The political and diplomatic spheres are best suited to debating and resolving such questions, and misrepresenting the current state of climate science does nothing to advance that effort.

Any serious discussion of the changing climate must begin by acknowledging not only the scientific certainties but also the uncertainties, especially in projecting the future. Recognizing those limits, rather than ignoring them, will lead to a more sober and ultimately more productive discussion of climate change and climate policies. To do otherwise is a great disservice to climate science itself.

Dr. Koonin was undersecretary for science in the Energy Department during President Barack Obama's first term and is currently director of the Center for Urban Science and Progress at New York University. His previous positions include professor of theoretical physics and provost at Caltech, as well as chief scientist of BP, BP.LN -0.82% where his work focused on renewable and low-carbon energy technologies.

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FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Aaa- Flowers-Simba		Nakuru	Banerjee	0704788852	banerjee@aaagrowers.co.ke
Aaa Growers	Vegetables/Flowers	Nairobi	Musa Sando	0787866022	sando@aaagrowers.co.ke
Aaa-Chestnut		Narumoru	Kiai/Sando	0722944030	sando@aaagrowers.co.ke
Aaa-Growers Simba Farm		Nakuru	Moses Sando	0787866022	sando@aaagrowers.co.ke
Aaa-Hippo		Thika	Steve	0721778736	steve@aaagrowers.co.ke
Aaa-Turi		Nanyuki	Japhet Mbaabu	0722-926663	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	0735384552	samir.chandorkar@xflora.net
Afriscan Kenya Ltd		Naivasha	Khaemba Andrew	0722431170	andrew.khaemba@afriscan.co.ke
Agriflora LtdFlowers		Nakuru	Laban Koima	0722544199	lkoima@sianroses.co.ke
Akina Farm		Nakuru	Arfhan	0722728441	arfhan@fontana.co.ke
Altitude Flowers		Nakuru	Dominic	0723684277	
Aquila Development Co		Naivasha	YoGesh	050 50609/10	info@aquilaflowers.com
Ayana Farm		Nakuru	Gideon	0718980566	gideon@fontana.co.ke
Bamboo Farm-Sunripe		Nakuru	Reuben	0723920237	
Baraka Farm		Nakuru	Lucy	0720554106	lucy@barakaroses.com
Batian		Nanyuki	Dirk Looj/Meindert	0720102237	dirk@batianflowers.com
Beautyline		Naivasha	Peter Gathiaka	0722676925	peter@beautyli.com
Bigot Flowers		Naivasha	Kakasaheb Jagtap	0722,205,271	jagtap.kt@bigotflowers.co.ke
Bila Shaka Flowers		Naivasha	.Joost	0722204489/07	bilashaka.flowers@zuurbier.com
Black Petals		Limuru	Nirzar Jundre	0722848560	nj@blackpetals.co.ke
Blissflora Ltd		Nakuru	Sajin / Prabha	0789101060	appachu7@yahoo.com
Blue Sky		Naivasha	Mike	0720005294	info@blueskykenya.com
Bobmill Roses	Flowers	Nanyuki	Sunil	0732373322	
Buds And Blooms		Nakuru	Shivaji	0720895911	shivaniket@yahoo.com
Carnation Plants		Athiriver	Ami R.	0733626941	amir@exoticfields.com
Carzan Kipipiri		Naivasha	Nicholas	0721844367	kipipiri.production@carzankenya.com
Carzan Kipipiri		Naivasha	Justus Metto	0722755396	gm@carzankenya.com
Carzan Rongai		Nakuru	Francis	0720890920	rongai.production@carzankenya.com
Carzan Rongai		Nakuru	Mtembei	0720639392	rongai.production@carzankenya.com
Charm Flowers		Athiriver	Ashok Patel	020 352583	ashki@wananchi.com
Color Crops		Timau	Ken	0716389472	colourcrops@tmu.com
Colourcrops		Nakuru	Maina	0722578684	bahati@colourcrops.com
Colourcrops Naivasha		Naivasha	Geoffrey	0722200972	nva@colourcrops.com
Countrywide Connections		Nanyuki	Peterson Thuita	0724786004	bondet.production@kariki.biz
Delemere Pivot		Naivasha	Rose Ngina	0721954082	rose.ngina@vegpro-group.com
Desire Flowers	Flowers	Isinya	Rajat Chaohan	0724264653	rajatchaohan@hotmail.com
Duro Farms		Naivasha	George	0723665509	
Enkasiti Thika	Flowers	Thika	Tambe	0734256798	enkasiti@gmail.com
Equator Roses	Flowers	Eldoret	Charles Mulemba	0721311279	cmulemba@sianroses.co.ke
Equinox		Nanyuki	Tom Lawrence	0722312577T	tom@equinoxflowers.com
Everflora Ltd.		Thika	Ashesh	0735873798	everflora@dmblgroup.com
Fairy Flowers		Limuru	Sylivester	0753444237	sylvesterkahoro@yahoo.com
Fides		Embu	Kirima Nturibi	0714026988	k.nturibi@fides.com
Finlays Flamingo Farm	Flowers	Naivasha	Peter Mwangi	0722204506	peter.mwangi@finlays.net
Finlays- IbiS Farm	Flowers	Nanyuki	Purity Thigira	0722279176	purity.thigira@finlays.net
Finlays Kingfisher Farm	Flowers	Naivasha	Charles Njuki	0724391288	charles.njuki@finlays.net
Finlays Kingfisher Farm	Flowers	Naivasha	Jacob Wanyonyi	0722773560	jacob.wanyonyi@finlays.net
Finlays Ibis Farm	Vegetables	Nanyuki	Augustine Mwebia	0721447430	augustine.mwebia@finlays.net
Finlays-Siraji Farm	Flowers	Nanyuki	John Magara	0722763628	paul.salim@finlays.net
Finlays Kericho	Flowers	Kericho	Elijah Getiro	0722873539	elijah.getiro@finlays.co.ke
Finlays Kericho	Flowers	Kericho			japhet.langat@finlays.co.ke
Finlays Kericho	Flowers	Kericho			aggrey.simiyu@finlays.co.ke
Finlays Kericho	Flowers	Kericho			richard.siele@finlays.co.ke
Finlays Londiani	Flowers	Kericho	Francis Maimba	0710602719	francis.maimba@finlays.co.ke
Finlays Out Grower	Vegetables	Nairobi	Dickson Kimathi	0721547674	dickson.kimathi@finlays.net

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FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Flora Delight		KiamBu/ Limuru	Marco	0710802065	marcovansandijk@yahoo.com
Florensis Ltd		Naivasha	Eddy Ver Beek	0722204308/	verbeek@florensis.co.ke
Fontana Ltd		Nakuru	Kimani	0718158434	fontana@africaonline.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		Thika	Chris	0723408471	gatoka@swiftkenya.com
Gladioli Ltd		Naivasha	Pieriguichi / Claudia	0722206939	torres.palau@yahoo.com
Golden Tulip		Nakuru	Umesh	0738359459	
Golden Tulip		Nakuru	Ashok	0738359459	ashok@btl.co.ke
Gorge Farm		Naivasha	Purity	0714639100	pnjue@vegpro-group.com
Groove		Naivasha	Marklow /John Ngoni	0724448601	grovekenya@gmail.com
Hamwe		Naivasha	Maina / Njoya	0724255059	hamwe@kariki.bizz.co.ke
Harvest / Manjo Plants		Naivasha	Kinoti	0708788700	kinoti.julius@gmail.com
Harvest Ltd		Athiriver	Mr. Farai Madziva	0722-849329	farai@harvestflowers.com
Imani Flowers		Nakuru	Moses	0722977214	
Indu Farm		Naivasha	James	0733959722	jimboyia@gmail.com
Indu -Olerai Farm		Nakuru	Everline Debonga	0723383160	everlyne.adhiambo@indu-farm.com
Interplant Roses		Naivasha	Geoffrey Kanyari	0712215419	info@interplantea.co.ke
Isinya	Flowers	Islnya	Pradeep	0736586059	pm@isinyaroses.com
Jatflora		Naivasha	James Oketch	0724418541	jatflora@gmail.com
Jesse Eaga		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	Nandakumar		nandakumar@karuturi.co.ke
Karuturi	Flowers	Naivasha			ravi@karuturi.co.ke
Karuturi/Twiga Flowers	Flowers	Naivasha	Pius	0750873258	pius@karuturi.co.ke
Kenflora Limited		Kiambu/ Limuru	Abdul Aleem	0722311468	info@kenfloraa.com
Kentalya		Naivasha	Linnet	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 Mutis	0722254757	mutiso@khekenya.com
Kisima Farm		Nanyuki	Martin Dyer	0722475785	operations@kisima.co.ke
Kongoni River Farm-Gorge Farm		Naivasha	Anand	0728608785	anand@vegpro-group.com
Korongo Farm		Naivasha	Macharia	0721387216	
Selecta Kenya		Thika	Alnoch Ludwig	0738572456	l.allnoch@selectakenya.com
Kreative		Naivasha	Julius Kinyanjui	0734505431	manegenejulius@yahoo.com
Kudenga Ltd		Nakuru	Rotich/Juma	0723248600	production@kudenga.co.ke
Lamorna Ltd		Naivasha	Mureithi	0722238474	accounts@lamornaflowers.com
Lathyflora		Limuru	Mbauni John	0721798710	mbaunij@yahoo.com
Lauren International	Flowers	Thika	Chris Ogutu/Carlos	0722783598	laurenflowers@accesskenya.co.ke
Lex International			Nyaribo	0722771351	
Liki River	Flowers	Nanyuki	Madhav Lengare	0722202342	madhav@vegpro-group.com
Liki River	Flowers	Nanyuki	Nitin	0700000342	nitin.golam@vegpro-group.com
Livewire		Naivasha	Esau	0727439610	management@livewire.co.ke
Lobelia Ltd/ Sunland		Nanyuki	Simon Koech	0707-286956	info@lobelia.co.ke
Loldia Farm		Naivasha	Gary/Rotich	0720651363	
Longonot Horticulture		Naivasha	Chandu	0724639898	hmilbank@vegpro-group.com
Longonot Horticulture		Naivasha	Patrick Mulum	0722498267	patrick.mulumu@vegpro-group.com
Maasai Flowers	Flowers	Isinya	Andrew Tubei	0722728364	atubei@sianroses.co.ke
Magana		Nairobi	Lukas	0788695625	farmmanager@maganaflowers.com
Mahee		Nakuru	Anbarasan	0789777145	maheefm@eaga.co.ke
Mahee Wilham		Nakuru	Mureithi	0733700270	muriithimr@gmail.com
Maji Mazuri Roses	Flowers	Eldoret	Wilfred Munyao	0725848912	wmunyao@majimazuri.co.ke
Maridadi Flowers		Naivasha	Jack Kneppers	0733333289	jack@maridadiflowers.com
Maua Agritech	Flowers	Isinya	Madan Chavan	0738669799	production@mauaagritech.com

W. kordes' sönne

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Mauflora		Nakuru	Mahesh		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
Morop Flowers		Nakuru	Sammy	0720467551	agribiz@africaonline.co.ke
Mt Elgon Orchards		Eldoret	Bob Anderson	0735329395,	bob@mtelgon.com
Mweiga Blooms		Nanyuki	Stewart/ Mburu	0721674355	mweigablooms@wananchi.com
Newholland		Nakuru	Ashok	0738359459	
Nini Farms		Naivasha	Menjo / Philip	0720611623	production@niniltd.com
Nirp International			Michael	0720477717	michaeltsm@nirpinternational.com
Ol Njorowa		Naivasha	Charles	0723986467	mbegufarm@iconnect.co.ke
Olij Kenya Ltd		Naivasha	Vijay	0737888028	v.bhosale@olijkenya.com
Oserian Td	Flowers	Naivasha	Musyoka	0722888377	stephen.musyoka@oserian.com
Panacol Flowers		Eldoret	Daniel Sang	0722950894	paul.wekesa@panocal.co.ke
Panda Flowers		Naivasha	Chakra	0786143515	chakra@pandaflowers.co.ke
Panocol Flowers		Eldoret	Mr. Paul Wekesa	0722748298	paul.wekesa@panocal.co.ke
Penta	Flowers	Thika	Tom Ochieng	0723904006	tom@wananchi.com
Pj Dave	Flowers	Isinya	Promina	0733333230	pjdaveflowers@wananchi.com
Pj Flora	FLowers	Isinya		0729266527	pjdaveflora@wananchi.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		Naivasha	William Momanyi	050 20 20282	pplants@kenyaweb.com
Porini Ltd	Flowers	Nakuru	Pitambar	0726774955	porini@isinyaroses.com
Pp Flora		Nakuru	Robert /Prakash	0718045200	ppflora2010@gmail.com
Primarosa I		Athi RiVer	Dilip Barge	0731000404	dilip@primarosaflowers.com
Primarosa Ii		Nakuru	Vj/Kadam	0721823675	anand@nyh.primarosaflowers.com
Racemes Ltd		Naivasha	Bonny	0721938109	bonny@kenyaweb.com
Ravine RosesFlowers		Nakuru	Peter Kamuren	0722205657	(pkamuren@karenroses.com)
Redland Roses		Thika	Aldric Spindler	0733603572	aldric@redlandsroses.co.ke
Redwing Flowers		Nakuru	Simon Sayer	0722227278	sayer@redwingltd.co.ke
Rift Valley Flowers Ltd		Naivasha	Peterson	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		Nakuru	Mahindra	0717617969	gm.roseto@megaspingroup.com
Rozzika Gardens –Kamuta Farm		Naivasha	Mbuthia	0721849045	jwachiram@yahoo.com
Schreus		Naivasha	Roddy Benjamin	0733207729	roddy@schreursnaivasha.com
Shades Horticulture	Flowers	Isinya	Mishra	0722972018	info@shadeshorticulture.com
Shalimar Flowers		Naivasha	Mr Anabarasan	0733604892	anbarasan@eaga.co.ke
Sierraflowers Ltd		Nakuru	Sherif	0787243952	farm.sierra@megaspingroup.com
Simbi Roses		Thika	Mr. Karue	067 44292	simbi@sansora.co.ke
Sirgoek Flowers		Eldoret	Andrew	0715 946429	sirgeok@africaonline.co.ke
Solai Milmet/Tindress	Flowers	Nakuru	Mr Ravindra	0788761964	tindressmilmet@gmail.com
Star Flowers Flowers		Naivasha		0722203750	sailesh@vegpro-group.com
Subati Flowers		Nakuru	Patel	0712 584124	naren@subatiflowers.com
Subati Flowers - Naivasha		Naivasha	Charles / Tushar	0717719003	
Suera Flowers Ltd	Flowers	Nakuru	George Buuri	0724622638	gbuuri@suerafarm.sgc.co.ke
Tambuzi		Nanyuki	Kahiga Godfery	0723059230	production@tambuzi.co.ke
Timaflor Ltd	Flowers	Nanyuki	Brian Allen	0715 270037	info@timaflor.com
Transebel		Thika	Mr. David Muchiri	0724646810	davidmuchiri@transebel.co.ke
Tropiflora		Kiambu/Limuru	Veronica/Joseph	0724319935	tropiflora@africaonline.co.ke
Tulaga		Naivasha	Steve Alai	0722659280	tulagaflower@africaonline.co.ke
Tk Farm		Nakuru	Gichuki	0721499043	davidgichuki20@yahoo.com
Uhuru Flowers		Nanyuki	Ivan Freman	0713889574	ivan@uhuruflowers.co.ke]
V.D.Berg Roses	Flowers	Naivasha	Johan Remeeus	0721868312	bergken@africaonline.co.ke
Valentine Ltd		Kiambu/Limuru	Maera Simon	0721583501	simon.maera@valentinegrowers.com
Van Kleef Ltd		Nakuru	Ayapar	0738461111	
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

FLOWER & VEGETABLE FARMS IN KENYA

FARM NAME	PRODUCT	LOCATION	CONTACT PERSON	TELEPHONE	E-MAIL
Waridi Ltd		Athiriver	P. D.Kadlag 0724-407889		kadlag@waridifarm.com
Wildfire		Naivasha	Lucas / Boni	0720830146	roses@wildfire-flowers.com
Wilmer	Summer Flowers	Thika	Wilfred, M.Kamami	0733714191	kamami@wilmar.co.ke
Winchester Farm	Flowers	Nairobi	Raphael Mulinge	0725848909	rmulinge@sianroses.co.ke
Windsor		Thika	Vikash	073705070	vikas@windsor-flowers.com
Xpression Flora		Nakuru	Mangesh Rosam	0720519397	mangesh.rasam@xflora.net
Zena		Thika	Peter	0722825429	productionthika@zenaroses.co.ke
Zena Asai Farm		Eldoret	Phanuel Ochunga	0722506026	phanuel@zenaroses.co.ke
Zena Roses Sosiani		Eldoret	Rakesh Kuttaiah	0734834097	Rakesh@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	Raghbir Sandhu	Ntemagalo Wakiso	0772 72 55 67	pearl@utlonline.co.ug
Roses	Aurum flowers	Kunal Lodhia Shiva	Bulega, Katabi Wakiso	0752 733 578	kunal@ucil.biz
Roses	X-pressions	Ali Droiya	Katabi Wakiso	0712 787788	xpressions@utlonline.co.ug
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
Roses	Melissa Flowers	Tobby Maddison	Katabi Wakiso	0755 722 262	toby.maddison@melisa-flowers.com
Chrysanthemums	Fiduga	Jacques Schrier	Kiringente , Mpingi	0772 765 555	j.scherier@fiduga.com
Chrysanthemums	Royal Van Zanten	Jabber Abdul	Namaiba Mukono	0759 330 350	j.Abdul@royalvanzanten.com
Impatiens, poinsetia	Wagagai	Olav Boenders	Iwaka Bufulu Wakiso	0712 727377	olav@wagagai.com
Chrysanthemums	xclussive cuttings	Peter Benders	Gayaza- Zirobwe rd	0757 777 700	pbenders@xclussiveuganda.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	Heikki Niskala	Arusha	255 27 2553385	office@mtmount-meru-flowers.com
Roses	Tengeru Flowers	Mark Ngalo Arusha	Tanzania	255 27 255 3834	teflo@africaonline.co.tz
Roses	Hortanzi	Mr Micheal Owen	Arusha	255 784 200 827	hortanziagm@cybernet.co.tz
Roses	La fleur de Afrique	Greysom Mrema	Arusha	0784 363 570	fda@ars.bol.co.tz
Hypericums	Kilimanjaro flair	Greg Emmanuel	Arusha	255 784 392 716	greg@kilimanjaroflair.com
Crysenthemums	Multi flower Ltd	Tjerk Scheltema	Arusha	255 27 250 1990	tjerk@arushacutting.com
Crysenthemums	Fides	Greg Emmanuel	Arusha	255 27 255 3148	fides@habari.co.tz
Crysenthemums	Dekker Bruins	Lucas Gerit	Arusha	255 27 255 3138	info@tfl.co.tz
Crysenthemums	Arusha cuttings	Tjerk Scheltema	Arusha	255 27 250 1990	tjerk@arushacutting.com

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FLOWER FARMS IN ETHIOPIA

TYPE	FARM NAME	CONTACT PERSON	LOCATION	PHONE NUMBERS	E-MAIL
Roses	Linsen flowers	Peter Linsen	Holeta		Elinsenroset@ethionet.et
Roses	Karuturi Farm/Ethiopia meadows	Peter Pardoen	Holeta	0922 750602	Peter.Pardoen@karuturi.com
Roses	Alliance flowers	Navale	Holeta		navele@nehainternational.com
Roses	Ethio dream Rishi	Holeta	Ethiopia	011 23 72335	holeta@jittuhorticulture.com
Roses	Holeta Roses Navale	Holeta	Ethiopia		navale@nehainternational.com
Roses	Arsi Agricultural Mecahanization		Holeta		arsiflower@ethionet.et
Roses	Supra Flowers	Kaka Shinde	Holeta	0911 353187	kakashind@rediffmail.com
Roses	Agriflora	M. Asokan	Holeta	0922 397760	flowers@ethionet.et
Roses	KAF Flowers	Baker Elkadi	Holeta	251 913 202 460	baker-elkadi@yahoo.com
Roses	Rose Ethiopia	Betemarian Kiflu	Holeta	0911 91 22 81	betemariankiflu@yahoo.com
Roses	Ethio- Agricerft	Alazar	Holeta	0910 922 312	alazar@yahoo.com
Roses	Flowerama	Admin manager	Holeta	0912, 9311 81	flowerama@ethionet.et,
Roses	Dire flowers	Seifu Bededa	Holeta	251-11-5156888	dhf@ethionet.et
Roses	Addisfloracom P.L.C	Kitema Mihret	Holeta	0912 264190	tasfaw@addisflora.com
Roses	Joe flowers	Mihrtu Tafare	Holeta	0911 370519	miheretuta@yahoo.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	Roshen	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	Dire flowers 2	Abenet Fiktu	Sebata	0911 149 329	abifiktu@yahoo.com
Roses	Sharon Flowers		Sebata		saronfarm@ethionet.et
Roses	Zagwe roses	Melaku Terefe	Sebata	0912 426635	zagweflora@yahoo.com
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	Alemayehu	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@herburgroses.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
Crysenthemums	Maranque	Mark Drissen	Merjetu	(251) 22 1190750,	md@maranqueplants.com
Freesia & Statice	Freesia Ethiopia	Ronald Vijvrberg	Sebata	(251) 115 156259,	freesia@ethionet.et
Hypericum	Yelcona	Andreas	Sebata	0921 146 930	Andreasndieolens@hotmail.com

Greenlife Crop Protection Africa Ltd Understands the Language of Love; Do You?

By George Kariuki

What is love?

This fundamental question, posed by Shakespeare in Twelfth Night, is one that also has captured the imagination of social scientists.. But one thing is obvious the flowers express the language of love. As you probably already know, Kenya is one of the biggest exporters of cut flowers in the world. I would be right to declare here that Kenya is central to promoting "issues of the heart; mending broken relationships, encouraging the sick among many.

Yes I captured your imaginations well! Ever thought of how many billions of cut flowers are purchased in say UK, Holland or USA or even in our own Nairobi? The figure could be mind boggling! It has been proven that flowers are a tangible expression of words unspoken; their language is acceptable to all races, religion, tribes and regions. But roses beat all flowers in the game, yes; the language of love is still the rose.

Ever wondered what different rose colors mean?

Although red roses are the color of choice on during this day, other colors are used to send key statements.

Red roses can be really catchy! According to the American Rose Society, they are the modern day expression of the sender's love and respect. In Greek mythology, the red rose represents desire and passion when Aphrodite spills drops of blood onto a white rose while trying to help her wounded lover, Adonis. Throughout ancient Christendom, the red rose symbolizes the blood and agony of the crucifixion of Jesus. In ancient Persian mythology, a nightingale's self-inflicted breast wound turns a white rose red, colors because of the bird's egocentricity.

Pink roses symbolize grace and gentility in modern rose vocabulary. The various tones of pink can mean different things, too. Deep pink roses say thank you by symbolizing gratitude and appreciation, while light pink roses convey admiration and sympathy.

White roses symbolize reverence and humility. In medieval Christian Europe, Mary is represented by a white rose as a symbol of her purity. In Wales, white roses represent innocence and silence, and are often placed on the grave of a young child. In some Native American cultures, the white rose symbolizes security and happiness and, hence, is traditionally worn at weddings.

Yellow roses signify joy, gladness and freedom in the modern rose arrangements.

Orange roses are often a genetic blend of reds and yellows, and therefore represent a blend of symbols -- enthusiasm and desire.

So, what then?

This time round, make sure you pass the right message. Let a red rose speak for you this Valentine!

GCPAL is at ready to make sure that the Powdery Mildews, Downey Mildews, Botrytis and Thrips that inhabit the dark alleys of farms don't spoil the "party". We will accompany growers till they deliver the roses safely.

Sacrifido 125EC

Is tested and proven, ultimate systemic fungicide for Powdery Mildew.

Sacrifido 125EC contains 2 active ingredients giving enhanced performance as a result of perfect synergy of Myclobutanil 100g/l and Prochloraz 25g/l.

Sacrifido 125EC is highly protective, curative and eradicative fungicide that has immediate action on fungus once applied. Thereafter, the product has long lasting protection.

Fortess Gold 72%WP

Fortess Gold 72%WP is a contact and Systemic fungicide for control of Downey Mildew on Roses. It is both curative and protective, applied by either through drenching or foliar application.

The 2 active ingredients, Cymoxanil 8% + Mancozeb64% present perfect arsenal against oomycetes(water moulds). The curative action is evident by stopping of the pathogen during incubation.

Megaprode Lock 52.5%WP

The fatal kick to Botrytis!

Megaprode Lock 52.5%WP Is a new fungicide with two different modes of action for control of Botrytis on Roses, leaf spots on Carnations. Contact and systemic fungicide containing Iprodione 175g/kg + Carbendazim 350g/kg.

It is highly cost effective, 2 active ingredients is a perfect pair, the synergy of the two.

Taurus 500SP

Taurus 500SP is a highly effective systemic insecticide for control of Thrips, Leaf miners, Whiteflies on a wide range of crops. The active ingredient, Thiocyclam hydrogen oxalate 500g/kg acts mainly by ingestion but has contact activity as well.

As said before, you and Greenlife, both of us are in this thing together. We walk together, make every step together.

Your Growth is our Growth!!

George Kariuki is the Technical Sales Manager-Floriculture and Horticulture, GCPAL- gkariuki@greenlife.co.ke

Rimeta Gold®

300 SC

A fungicide for control of Botrytis on Roses, angular leaf spot, rust & anthracnose on French beans and runner beans, soft rot and black leg on broccoli & early & late blight on tomatoes.

Greenlife
Crop Protection Africa Ltd.

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