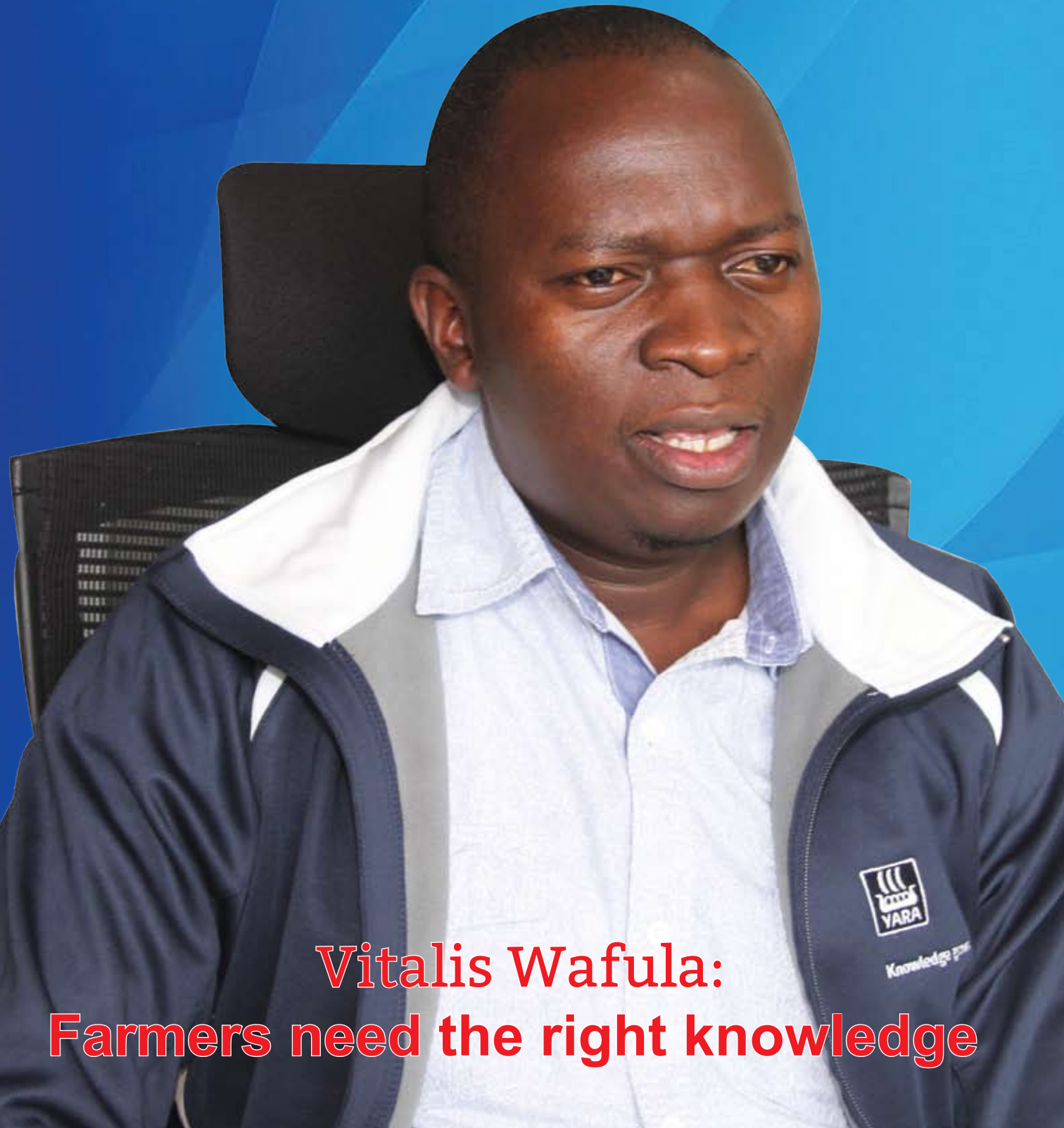


# CEREALS

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### Signed A Contract with Indian Ocean



*Most of us remember the rural Nyanza mother now turned celebrity of “Serikali saidia.” We all remember the former Bundalangi MP complaining of water killing his constituents.*

*These scenes revisit themselves whether in towns or rural of how rains are causing deaths. But thereafter, we all forget to plan to harvest rain water next time it rains.*

*Am forced to ask have signed a contract with Indian Ocean to allow all the water drain there? Or let's say we always want the ministry of devolution and the Red Cross to saidia. If we are serious, then Kenya has alot of water we can all harvest.*

*Rainwater harvesting is an extremely important activity globally in the present times as the whole world is in a desperate need to conserve water and avoid its wastage so much so that our coming generation does not have to live in the scarcity of this natural resource.*

*Rainwater harvesting is an innovative alternative water supply approach anyone can use. Rainwater harvesting is beneficial because it reduces demand on existing water supply, and reduces run-off, erosion, and contamination of surface water.*

*Masila Kanyingi  
Editor*




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# Dear Mr. President

***2018 is the most crucial year for the political leadership, National government and also for many counties. In 2018, the challenges will be very complex both in global front and also in domestic front.***

With every passing day, we are adding to the list of challenges. At the same time, there are many serious issues which are hurting common man very badly.

## **Factual Position:**

Between 2009 and 2019, there is the addition of about 14 million people. I understand there is also a reduction in some population due to natural reasons, but the requirements of growing population are different than people those are leaving this world.

Looking forward to the following basic challenges are:

## **Food and Nutrition Security:**

Do we have enough affordable food and feed to ensure minimum nutritional requirement for all? Kenya needs about 14 million of additional food to meet the need of growing population. How much additional food and feed will we produce this year?

One on the side we can claim it is manageable, the fact is 50% of Kenyans most children, you may call future of Kenya, are suffering for hunger and malnutrition. So any claim that we have enough food has no meaning.

Unfortunately, we have not seen any agriculture and food security policy of the government at last so many years. Can we expect agriculture policy this year to address these fundamental needs of any society to address the farmer's distress and consumers inflation? Please share your agriculture and food security Plans so that private capital also support your efforts in making Kenya food secure.

Farmers Income and agro-based enterprises are all linked to government policies. Growing imports and reducing exports is clear message that people prefer to import than produce locally even for local consumption.

Food inflation will remain the biggest political challenge. Without a clear and visible road-map, no

one can contribute to this huge challenge. So, please release your Agriculture and Food Security Road-map in 2018.

## **Water Conservation:**

To produce more food, we need more water and more land. How much more water will we save this year to meet the need for agriculture, drinking purpose and other requirements?

Kenya is one of the countries where water harvesting is the least. It is important that we make water harvesting a national mission and every person must cut down their water requirements without compromising on hygiene. There must be a mission to design water saving technologies which can be used by every individual. We have water wasting technologies and policies. Can we expect some major water conservation plan in line with "food security"?

## **Governance and Employment:**

Sensible governance can create better socio-economic order. Vibrant markets will create entrepreneurs and innovation. There are many laws which are killing entrepreneurial spirit in the country in the name of regulation. Why so many approvals and inspections are required in this country. Is this ease of doing business. We trust our inspectors more than our entrepreneurs. Why there is no transparency in inspection and testing systems in the country. Why citizens are not told how many inspections were done and what was the outcome of the work done by so many inspectors. Still, people are suffering due to adulterated foods, fake agrochemicals, and poor product quality.

Please show us one department where due to inspection, things have improved and that sector is producing world-class products, consumers are happy and there is no allegation of corruption.

*Yours Citizens of Kenya.*

“

**Sir, as citizens of Kenya seek your kind attention with a request, please address the some of these challenges or at least share your plans which are time-bound so that citizens can feel comfortable.”**







Knowledge grows

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## Vitalis Wafula

# With Yara, Knowledge Grows... !

Kenyan farmers love their crops. of course they invest their livelihood to produce the best. At Yara we tell them with the right knowledge come the right results as Edwin Kirwa of Cereals Magazine found out during an interview with Vitalis Wafula, Commercial Manager Yara East Arica Ltd.



*Subsidies are good things, they are done in western countries too and this is good for Kenyan farmers but to contributing towards productivity, sustainability, safety and food security NO since they have not invested enough in research and development process.*



**Briefly discuss Yara Kenya, its background, operations, branches in Kenya and its management team.**

Yara, was started in 1905 in Norway, making it the pioneer of Nitrogen fertilizer manufacturing company. Over the years Yara grown her Crop Nutrition business globally, with manufacturing plants in several European countries including Norway, Belgium, Finland, Italy, UK among others as well as in Asia, Middle East, North and South America and Africa. The expansion has seen the company gain a footprint in more than 56 countries (Operational presence ) and products selling in over 160 around the world.

Yara in Kenya was instituted back in 1995 and is famously known for her "Chapa Meli" brand, which is a Swahili translation of the company's logo. The brand name is still used in some fertilizer products like UREA, DAP and CAN. Yara specializes in crop specific fertilizers that are, but not limited to, YaraMila Cereal, YaraMila Power, YaraMila Winner, YaraMila Java, YaraBela Sulfan, YaraBela Extran, YaraLiva Nitrorbor among others.

**What are the crop nutrition products and/or solutions you offer to the Kenyan Farmer? How do you ensure the farmers uses the right crop nutrition products?**

"With more than a century in operation since its inception, Yara through an intense Research and Development process has managed to develop products stretching to all crops. Therefore, we have Crop nutrition products, tailor-made to specific crops, ranging from Coffee, Maize, Tomatoes, Potatoes, Vegetables, melon, sugarcane, Tea etc ..Our products fall under the following product ranges **YaraMila** ( Compound NPK range ) **YaraBela** ( Calcium Ammonium Nitrate range ), **YaraVera** ( Ureic Products ), **YaraLiva** ( Calcium Nitrate Range ) and **YaraVita** ( Foliar products range ).

With investment in qualified and experienced

Agronomists all around the country, we continue to focus on farmer knowledge enhancement, by training and coaching farmers in best practices in areas of Crop Nutrition ( Fertilizers and fertilization ) as well as general crop Agronomy to improve farmers productivity and profitability." Said Vitalis Wafula

**How accessible is Yara's fertilizers to the farmers?**

"With 22 years in operation in East Africa, and in Kenya, we have grown a network of more than 250 distributors segmented in different regions in Kenya. These distributors range from Major distributor agents, farm input suppliers and stockists. With a clear segmentation of the distribution network, our farmers are now able to access the products at the right time in without travelling long distances to access these products."

**How is quality ensured for fertilizers sold to the farmers? How can the farmer select right combination and ratios of fertilizer for any crop?**

"With investment majorly on R & D processes, we focus on manufacturing soil friendly, less acidic and crop specific compound fertilizers, relevant for the regions we operate in. We ensure our products are of the best quality, living to our mission which is on sustainability both for the business and the farmers. We do this through enabling the farmers to increase productivity when using our products and still be able to conserve the environment. A great team of agronomists, NGO'S , government agencies and seeds companies whom we partner in business helps us scale up the process of educating the farmer and advising them on the right products for specific crops and conditions."

**Briefly discuss the term "balanced fertilization"? Are chemical fertilizers harmful for crops, if used in excess quantity or in wrong combination of nutrients?**

Every product is potentially harmful when used

incorrectly; For fertilizers, all the raw materials are obtained naturally including Air, Natural gas and naturally occurring and mined rock phosphate, that are then chemically combined in the manufacturing process, that makes the nutrients plant available. And with investment in farmer knowledge as well as cooperation with government regulatory authorities, our products are safe to use and to the environment. Environmental Sustainability, Ethics and compliance are at the core of our business.

**Products can be mis-used (Over or underused). What mechanisms are in place to fully equip farmers with knowledge in matters crop nutrition so as to ensure they get value out of their investments**

"Our main focus when we manufacture our products is rooted in productivity, sustainability and production of less acidifying products which are friendly to the environment. With this in mind and in partnership with a competent team of agronomists, NGO'S, seed companies and government agencies, we continue to disseminate this knowledge to the farmer , to ensure they use the **Right Fertilizers**, in the **Right Amounts**, at the **Right Time** using the **Right Application** methods. . With our partners and our Agronomists, we therefore continue to scale up this knowledge and have seen significant increases in farmer productivity in the many crop segment we work in.

**Why should the farmer consider Yara Fertilizer?**

As knowledge leaders in Crop Nutrition with global experiences of over a century, we bring this experiences to share with our farmers and translate that to local Performance and excellence. Our Integrity even as we do business assures our customers and partners that we deliver on our promise. As we say, " What's printed on the bag , is in the bag " for us, hence the trust we

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*Mr. Vitalis Wafula speaks with Edwin Kirwa of Cereals Magazine*

**From Page 7**

have seen from our farmers in our Brand for many years. Unlike many other players, we are not here to just sell a bag of fertilizer, but rather to partner with and walk with the farmer to improve his/her productivity, and therefore performance for all involved in the chain. It's the reason why we have invested heavily on farmer knowledge through consistent trainings and demonstrations in different farms and knowledge dissemination through different marketing platforms." So to choose Yara, is to choose Trust and knowledge for productivity and Growth.

**Agriculture is a key pillar to the country's economy, how does your business strategy contribute towards economic growth and stability?**

The reason why Kenya is still a net importer of food, more than 50 years after independence, is that we just don't produce enough per unit area. We have no luxury of creating more farmland and even the little we have continues to be subdivided further into un-economical parcels from pressures of population growth. This and many other pressure factors point to the unquestionable truth that we must produce more, efficiently and sustainably per unit area for both our food security and economic growth. We currently produce about 1.5

to 2 tonnes per hectare compared to other excelling countries which produce more than 5 tonnes per hectare. We must therefore all invest in closing this knowledge gap in Agricultural productivity to mitigate this perennial hunger caused by less than optimal production. Yara is partnering with like-minded entities to lead from the front in this battle, and the Kenyan farmer is at the core.

**Last year, the country experienced food shortage despite the fact that we actively participate in agriculture. How is Yara helping towards enhancing food security and playing part in the president's big four agenda, especially food security?**

This challenge was witnessed due to inadequate knowledge by the farmers, and in some cases inaccessibility to the necessary inputs by farmers. So, developing a good distribution network of inputs and scaling farmer knowledge will go a long way in alleviating this challenge. I believe that with the right knowledge about the growing conditions, the right products for the crops and clear training and demonstrations from agronomists and other stakeholders in the sector; productivity will definitely increase. For maize for example, we have approximately 2.1 million hectares; therefore we are talking about millions of farmers against a small number of agronomists and Extension technical

staff and other relevant stakeholders who disseminate knowledge to the farmers. In Yara we try to address this imbalance through investment in marketing activities like this and in other platforms to scale up this so critical farmer knowledge

We at Yara also have a program named **Yara Shujaa program**, where we have recruited lead farmers in different crops who have used Yara's products and seen the results. This provides a platform for farmers to share experiences and best practices in their day-to-day activities. As you can see we are clearly playing out significant part in contributing towards the president's big four agenda and especially food security. But we all still have a long way to go.

**What would you say of the government subsidy scheme? Is it working?**

Subsidies are good initiatives, and have been implemented in many countries around the world, including the western countries. So it's a beneficial scheme for Kenya farmers too as it addresses key gaps; Access and affordability of inputs. Successful stories have come from countries that have structured the subsidy through a voucher scheme in partnership with the private sector so that a farmer is able to redeem that voucher with the



fertilizer of their choice based on their knowledge and experiences. Such a scheme would not only give the farmer an option to choose what works best for them, but would also incentivize private sector ( Input Suppliers including Manufactures such as Yara etc as well as Distributors and Stockists) to invest in better products and farmer knowledge so as to avail the best solutions. I am aware that the government has plans to pilot such a scheme and we look forward to it.

**Comparing Kenya with other countries like Tanzania and South Africa for instance, we experience favorable conditions that should contribute to more produce but this is not the case, what advice can you give farmers in a push to attain maximum yields?**

It is very true we produce less compared to other nations. The Kenyan farmer should strive to seek knowledge so as to know and understand the right products they need to use in every specific crop. This will ensure that they practice farming in a professional way paying attention to all the necessary parameters ranging from the right seed selection and correct crop Nutrition, Protection and general crop husbandry practices. Knowledge indeed Grows.

**What challenges does Yara face in the market (fake and counterfeits, government policies etc)? How are you handling them? What would you suggest as permanent solutions?**

We face numerous challenges and especially fake

products and counterfeits and these cases occur every year especially during the subsidy fertilizer period but we have partnered with the right agencies including the Anti-counterfeit Agency and our partners in educating the farmer about the products so as to avoid the farmer purchasing the wrong products. Farmers also are aware of our specific distributors in their areas so this helps more in tackling counterfeits because they will purchase these products in specific accredited distribution points. We are working towards finding even better solutions for these challenges including installing technologies to detect and prevent counterfeiting. Infrastructure is also a challenge because it costs a lot to transport our fertilizers to areas with poor access, making the last mile delivery a challenge and costly. However, scaling up farmer knowledge still remains one of the biggest challenges and is the reason why Yara invests a lot in this area.

**You have been in operation for more than two decades in Kenya; do you have any CSR programs?**

Yes we do operate different CSR programs across the country. Just to mention some; we have a programs that support the conservation of the water towers and ecosystems such as the Aberdares, and Afforestation programs in Western and Nyanza regions. We also support other programs such as girl child support projects in semi Arid areas including Tharaka Nithi County to nurture both talent and grow Agricultural productivity in the future generations.

**Recently you acquired Urea plant in India from Tata Chemicals; this affirms the ongoing mergers and acquisitions. Is this beneficial to the Kenyan farmer?**

To the Kenyan farmer probably not directly, but it is possible that other fertilizer importers may directly import fertilizer to Kenya from such a facility. But for India, it is also an opportunity to grow the Yara Farmer- Centric strategy in improving productivity.

**To be in the cutting edge of these factors, how has Yara positioned itself in the next five years, how prepared are you for such changes and emerging ones in the industry?**

Acquisition is not entirely the only way to grow. But investment in knowledge, sustainability, getting the farmer to access the product in time and being consistently present in the market, will definitely allow us to grow by default. Investment in infrastructure such as the Huge Terminal in Dar-Es-Salaam will also improve access to fertilizers, reducing costs and improving farmer productivity eventually.

**Customer complaints are part of any business, how do employees react to these unplanned crises?**

"We have instilled the right capacity to our staff in line with our ethical values to serve and attend to our customers at all times. We have a great customer service team which handles any complaints that may arise and we are also in constant communication with our customers through follows up from our Agronomists and technical staff .

**What else can you advise the country, counties, farmers and farm input suppliers so as to enhance food surplus within the country?**

We all have to find ways to enhance the productivity of our farmers through knowledge creation and empowerment. The trade mentality to just sell a bag of fertilizer is certainly NOT the game for us at Yara, but rather sustainable business for both our farmers, distributors and ourselves.

**Give your final comments?**

For us farmer knowledge, productivity, sustainability and safety is central in our business. Through continuous research and development we commit to generating more knowledge, enhancing productivity and sustainability paying attention to the environment and the health of our soils. Welcome to Yara and be part of the change as we push towards farmer productivity and profitability.

With Yara , Knowledge Grows... !



*Mr. Vitalis Wafula speaks with colleague - Carol Mumo*

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# A Date With Lizano Limited: Passion Beats “Gender And Age Stereotyping”

“Skills are cheap passion is priceless” said Shamira of Lizano Limited; a powerful agro inputs supplier company. My first encounter with her was at Eldoret Agri-Expo which was held at Eldoret polytechnic; what got my attention was the way she attended to each and every customer at their stand; whether a customer was only consulting about the product or purchasing, they were all accorded the same special treatment. Given the constraints of time at the show I had to book an appointment with her to learn more about the kind of zeal and passion she exhibited at the show as far as agriculture was concerned.

“We are investors in agriculture from this we culminated our passion out of enormous experiences in the farm” said Shamira. Interviewing both Shamira and Catherine who are the founders of Lizano limited unleashed a lot of resourceful and inspiring details on their triggers to actively participate in the sector. Being investors, they understood the niche and what the farmer really required. With this knowledge in mind they defied all the odds by investing in a field which for a while now, has been perceived and believed to be a male’s venture and especially agricultural moguls who are of older age ranging from 40 years moving forward.

What makes Lizano exceptional from other suppliers in the country is that; they offer more than just selling products, they understand what they do and they do know it is their obligation to educate the farmer, to institute linkages with them and see to it that farmers achieve desirable results from their investments. With their passion, charming personalities and hospitality farmers feel obliged to express their needs: with this freedom comes confidence and trust for the product and those selling it.”We strive to make good returns in our ventures, but it is not always about the money” said Catherine. I was really inspired by those humble utterances from Catherine; we are in an era where entrepreneurs have made money their first priority without paying attention to quality, market factors and customer hiccups hence exploiting the farmers in return. At Lizano; networking, farmers’ training and quality assurance are their priorities. When this sequence is followed to the latter, farmers will willingly to spend every penny provided they are assured of value.

Well, with only seven months in the market; Lizano keeps on growing, building networks and transforming farming. Lizano

limited is a rising giant in agro input supplies. With shops now in Nairobi and Eldoret. Farmers are keen on supporting and trading with those passionate on what they do. They keep on improving agriculture and touching lives one farmer at a time. The energy, passion, commitment and honesty are what any investor, company and farmers would bet their money on. Check them out



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# Celebrating Kenyan Farmers

The Elgon National Farmers Awards celebrated the very best of Kenyan farming by recognizing and rewarding innovation, hard work and passion for agriculture. The awards, now in its fifth year, provided an opportunity to the agricultural sector to showcase the best farmers in the country by telling their stories.

The cream of Kenya's agriculture came together to celebrate the country's best farmers at the Elgon National Farmers competition Awards on 2nd February 2018. Hundreds of farmers and industry stalwarts gathered for a gala dinner and awards presentation at the Laico hotel. Winners and guests danced into the early hours following an awards ceremony hosted by Elgon Kenya Ltd.

About 21 top farmers from different parts of the country were awarded during the fifth National Farmers Awards Competition gala. The competition which takes place every year has seven categories with an extra eighth category which was launched during the gala that is horticulture category: A top farmer and two runners up from every category are awarded trophies, some cash and farm inputs from the event sponsors.

The categories included youth in agriculture, women in agriculture, physically challenged in agriculture, large scale agro-input, small scale agro input, large scale fully commercialised, small scale fully commercialised and now the eighth category large commercial growers in

horticultural sector anticipated to be celebrated in this year's awards.

The competition is a partnership between Elgon Kenya and the Ministry of Agriculture. Other sponsors involved with the awards included BASF East Africa, Arysta Science and Seeds of Gold.

Simon, the principal agriculture officer at State Department of Agriculture and one of the judges said, "Judging is a rigorous process which begins at the sub-county level. Winners from that level are then grouped for judging at the county level then finally at the national level". "We were keen on the use of technology, environmental conservation, marketing and farm records," he said, adding that besides judging they also give recommendations to help farmers improve their farms.

He, however, said those who were enrolled in 2017 are not eligible for the 2018 competition. "We want to give more time for improvement, and those re-entering after three years should demonstrate improvement. We also encourage inter-visits among farmers involved in the competition to enhance knowledge sharing."

## Winning Ways

- **Ambitious plans to get fresh produce to the markets year-round**
- **Investing heavily in modern technologies and techniques**
- **Identifying value-added opportunities such as quality dairy breed**
- **Infectious enthusiasm for farming**

## Blind Farmer Scoops Top Award

Nyeri-based Anthony King'ori is pushing small scale farming top to the fore, leading the county's revival of dairy and coffee growing by investing millions to better compete with other farming counties.

Today, his farm in Othaya, Nyeri County, teams with towering banana plants, vegetables, tomatoes and coffee trees and mooing of cows.

The small-scale farmer, who rears dairy cows, grows batian coffee and vegetables on a two-acre plot was the night's top farmer under the 'physically challenged category'. The blind farmer studiously took a stair after another on his way to the stage with his wife's steady hand guiding him.

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## Elgon National Farmers Awards is about Farmers.

**Baiju Kantaria**



### From Page 13

Identifying a big market for “his milk and fresh farm produce” is not a big headache since Othaya market which is just a few kilometres from his home offers ready customers with some traders also buying the produce at the farm.

The business is pushing to get to the point where consumers will be able to buy quality vegetables throughout the year; Anthony is committing to grow more to continually supply beyond his home county.

Speaking exclusively to *Cereals Magazine*, Mr. Kingori said, “Initially, I concentrated on coffee only then I re-established the venture to include dairy cows and horticultural crops such as cabbages, kales and spinach. Through the new ventures I knew I could significantly enhance my income to support my family,” said the farmer.

Mr. Kingori has also invested in embryo transfer fertilisation to boost his local inferior breeds to produce pedigree calves and more milk. He has also dug over five pits which he uses for silage making and storing fodder for dry days. He has employed two farm assistants but he occasionally helps them in some technical issues.

The business prides itself on having some of the ultra most modern technologies to best farm management, proper record keeping and usage of the best agronomic practices. This system also means it is easier to manage and requires less handling, which is helping to bring down operational costs and maximize on returns.

### ‘Unique understanding’

Mr. Kingori is a name that’s known across agriculture. The piece of work for which he’s perhaps best known is proving that disability is not inability.

Fellow farmers, companies, organisations, charities and politicians respect him as a man who has been a tireless advocate of the industry. Whether it’s at home on his Othaya farm, or in other farming forums, where he occasionally features, Mr. King’ori has always been a champion of farmers.

Meanwhile, a bench member says: “He is articulate, but he also listens to people. He knows the industry inside out. In recognition of his outstanding contribution to farming in his 25 years as an agricultural extension officer, farmers described how his insight, vision and innovation reshaped farming and talked of his remarkable ability to find solutions to complex problems”.

Some of his neighbours described him as “quite simply the wisest, brightest, kindest, most creative and energetic person to work with, it has ever been our privilege to work with him”. “Good’ is a word that is rather overused, but it’s absolutely the right word for him. He is a really good man – not just in terms of what he does for the industry, but what he does in his personal life. He cares about people. That’s why people admire him and work for him.” “When Kingori talks about farming you can see his face light up as he remembers the young lad of 16, desperate to go out work on the family farm in Othaya. As a result, he has a unique understanding of the industry and of its people who are so keen to get their first opportunity.”

### A Great Marketing Platform

Bimal Kantaria, CEO Elgon Kenya, the chief sponsor of the event, announced that they have introduced the eighth category in the 2018 contest targeting big flower farmers and horticultural farms. Mr Kantaria further indicated that the contest whose judging panel is drawn from the Ministry of Agriculture is a great marketing platform for upcoming farmers besides being an opening for smallholder farmers to becoming better and innovative farmers.

Thomas Kipkorir, Country Manager BASF said they have introduced disposable safety kits for farmers to help in protecting the environment and health of farmers.

Ann Onyango, Agriculture Secretary at Agriculture ministry, said she was happy the award has grown to attract more sponsors. “The idea started as a unique collaboration between Ministry of Agriculture and Elgon Kenya but now it has attracted many sponsors and it is increasingly becoming more competitive every year. We appreciate the role of the private sector in supplementing the work of the government,” she said, emphasizing the inclusion of youth and women in agriculture.

Franklin Bett, chairman Agricultural Finance Corporations, indicated that AFC has 46 branches countrywide but there are plans to have branches in every county to enable more farmers to access loans to boost their farming activities.

He added that they are bench marking with other countries lending to farmers without collateral to make sure even farmers without securities can access loans.

“Our biggest challenge right now is the high rate of loan defaulting. Many farmers take huge loans from AFC and fail to repay then ask the government to give them a waiver,” said Mr Bett. “This time we only want to deal with serious farmers.”





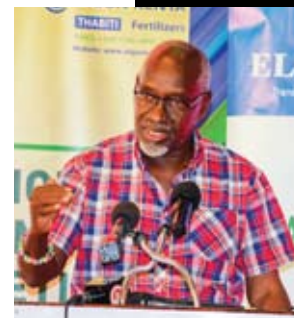
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AFC Chairman- Government



*Launch of 2018 farmers award and part of the farmers celebrating the awards*

## Winners

### Youth in Agriculture

1. Nicholus Njogu - Muranga County
2. Josphat Kipruto - Uasin Gishu County
3. Mohamed Abdalla - Kilifi County

### Small scale farm gearing to commercialisation

1. Lucy park - Kiambu County
2. Lulu Farm - Vihiga County
3. Mary Wairiumu Oloo - Trans Nzoia County

### Physically challenged in Agriculture

1. Anthony Kingori - Nyeri County
2. Francis Kimani - Laikipia County

3. Alice Mukami -

### Women in agriculture

1. Gladys Migwi - Nyeri county
2. Hellen Wairimu - Nyandarua
3. Nelly Enterprises - Kilifi

### Large scale agro-input dealer, over Sh5million investment

1. Josemo distributors - Kisii County
2. Tarakwa Agrochemicals - Nandi County
3. Muhoroni Agrochemicals - Kisumu County

### Small scale agro-input dealers, less than Sh5million investment

1. Beatrice Okello - Kisumu
2. Green Track Investment - Laikipia
3. Safina Farmers Ark - Vihiga

### Small scale farms fully commercialized

1. Peris Gitau - Nakuru
2. Robert Githua - Nyeri
3. Kenneth Ongenge - Bungoma County

### Large scale fully commercialized

1. Fresh gold Kenya - Laikipia
2. Eldonyo-Narok - Narok County
3. Patbon Investment - Kilifi

# From the Sponsors Desk

In a classic example of how public private partnership can work for the benefit of the economy and its countrymen; Elgon Kenya Limited has partnered with the Ministry of Agriculture to organise The National Farmers Competition Award, now on its fifth year it is meant to celebrate the country's unsung heroes who have surmounted odds to provide for millions and through their ventures oil the economy.

Kenyan farmers have been among the region's most unlucky. From erratic supply and price of fertilizer in recent times, to late delivery of planting materials like seeds which have ultimately affected planting and harvesting seasons and lack of ready markets. Farmers have nevertheless braved new and emerging challenges to keep business and the profession going.

Elgon Kenya Limited, a regional agro input behemoth, inspired by the hard work of millions of smallholder farmers has committed to reward them in an yearly basis, working closely with the Ministry of Agriculture. "We have sought to return the dignity of the soil and appreciate the immense contribution that goes into placing food in the table of millions of Kenyan families. With these awards, we just don't want people to enjoy their meals. We want them to also remember what goes on in the production of that food. From the first seed planted to the bunch they buy in the markets," said Bimal Kantaria Elgon Kenya Director.

The National Farmers Competition Award Scheme replaced the famous "Presidential Farmers' Competitions Award Scheme" which the Ministry of Agriculture had been conducting annually covering all the provinces in three competition categories namely: Large Scale Mixed Farms, Small Scale Mixed farms and the Agricultural Training Centres.

Consequently, in a bid to prove that their kind of farming is all inclusive and responsible, the competitors especially those in the large scale farm categories will be graded on their level of commitment to environmental protection,

climate change mitigation measures, the use of modern technological ways of farming and working environmental improvement issues among other criteria.

"We hope to keep improving the awards every year but we are overly excited with this one. This is not just rewarding farmers, it is also playing our part as a company to make the world a better place," said Nelson Maina the Head of Communication at Elgon Kenya.

Elgon Kenya head of communications Nelson Maina said the fifth edition of the scheme is an indication the awards have grown to be an important event in the country's farming calendar since the inaugural winners were honoured in 2013. "This year's awards comes at a time when more farmers and county governments continue expressing growing interest in the awards that have grown in status and numbers", said Mr Maina.

"With these awards we seek to return dignity to the soils and reward a constituency that works tirelessly to keep the country fed despite all the odds," said Bimal Kantaria, Elgon Kenya managing director and awards patron.

Kenya's agricultural sector is the nerve of the economy contributing a quarter of the country's earning and employing over 75 percent of the population both directly and indirectly. Experts from the sector are relied upon by the government in delivery of important public services.

**“With these awards, we just don't want people to enjoy their meals. We want them to also remember what goes on in the production of that food”.**

**Bimal Kantaria**

Elgon Kenya Ltd Director







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# The Truth

Herbicide resistance is a global problem as a direct result of farming practices and there is no single answer to it.



**Reliance on herbicides alone is not sustainable and weed control. Strategies should be based around cultural methods. Increasing the diversity of farming systems is required.**



**Stewardship of existing herbicides is vital, since very few new modes of action have been discovered in over 20 years. Farmers trust farmers! Allowing farmers to help communicate positive stories/messages can deliver great results**

*“Doing the same thing over and over and expecting a different result”* is often quoted as Einstein’s definition of insanity. It could easily be argued that is exactly the practice that farmers and agronomists have found themselves following in recent years. This is because herbicides in the past were highly effective, cheap and easy to use. But reliance on herbicides alone has contributed to the widespread herbicide resistance problems that we are seeing today. If you look at the problem simply, herbicide resistance is nature’s way of telling us herbicides alone are not sustainable and introducing more diverse weed control methods is required to disrupt the weed’s life cycle.

*So, how are farmers and agronomists dealing with the challenge of herbicide resistant weeds?* To investigate this further I visited a number of farms in Timau, Narok, Uasin Gishu, Bungoma as well as attending numerous industry events discussing how to manage herbicide-resistant blackgrass. I chose to visit these areas because by many it is seen to be the home of cereals. I found Narok to be one of the most intriguing counties that I visited. It gave me the opportunity of seeing how farmers react to a land that has been used since colonial times. It led to over 60% of cropping land being placed in wheat production and the rapid development of herbicide resistance in a number of weeds.

I found that farmers and agronomists were actively looking for better ways of dealing with herbicide resistance, with the momentum moving to more cultural controls of weeds rather than relying on synthetic chemistry. This is particularly important since very few new herbicidal mode of action has been discovered for over 20 years, and even if a new mode of action was discovered today it would take many years to work its way through the regulatory process before reaching the market.

*To put it simply: herbicide resistance is a problem that is not going to go away, but it is certainly manageable!*

#### Herbicides and resistance

The accepted definition of herbicide resistance is the one given by the Global Herbicide Resistance Committee, which is: “Herbicide resistance is the ability of a weed biotype to survive an herbicide application, where under normal circumstances that herbicide applied at the recommended rate would kill the weed. In contrast, plant tolerance to a particular herbicide is the inherent ability of that plant species to survive and reproduce after treatment with that herbicide.”

Herbicide resistance is broadly broken down into two groups: target site resistance and non-target site resistance. Herbicides work by binding onto enzymes and inhibit the metabolic process within the plant, leading to death. In target site resistance the binding site within the plant has been altered by mutations meaning that the herbicide can no longer bind to the enzyme and will lead to the plant surviving. Target site resistance is a total resistance and affects herbicides that are in the same chemical group. All other forms of herbicide resistance fall into non-target site resistance, and this may most commonly come into a group known as enhanced

metabolism resistance, which is where the plant can detoxify the herbicide faster than it reaches the target site within the plant.

#### Herbicide resistance in Kenya

Currently we have six different herbicide-resistant weeds that are an issue in farmland in Kenya. Three are grass weeds: and three are broadleaf weeds: The most problematic and widespread herbicide resistance in Kenya would be blackgrass, followed by ryegrass. Although herbicide resistance is predominantly in grass weeds, the three broadleaf weeds should not be ignored since herbicide resistance in the broadleaf weeds is almost entirely down to relying on the same mode of action at reduced rates year on year.

#### Herbicides – weed control of choice for the last 50 years

Ever since people have cultivated soils to grow crops, farmers have had to deal with weeds. Weeds are an issue because they compete with the crop for light, water and nutrients. Prior to the introduction of the first herbicides in the late 1940s which started with 2-4D, a highly effective broadleaf weed herbicide, the only methods of weed control would be cultural methods such as cultivation, hoeing, rotation, rouging etc.

#### Resistance testing

The benefits of herbicide resistance testing are obvious. Without testing for resistance to herbicides then you can never be 100% sure that you have resistance. Inadequate control of weeds from a herbicide can come from a number of factors involving poor sprayer set up, and can include: water volume, coarseness of spray, sprayer speed and boom height. Climatic factors also come into play, such as: temperature, soil moisture and speed of weed growth and growth stage.

**When it comes to rotation planning the key is certainly that the more diverse the better, and avoiding mono-cropping systems that often lead to repeatedly spraying the same chemistry year on year.**



*Rotating different crops is vital for better yields*

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### Chemical groups and labelling

Why should you ask: “do you know and understand what mode of action you are using?” To put it simply, the mode of action describes how an effective herbicide controls susceptible weeds through disrupting or blocking an enzyme in the weed. Therefore, to avoid herbicide resistance, alternating modes of action and not relying on one particular herbicide group is a very good idea. All herbicides that work in a similar pattern are grouped together by the Herbicide Resistance Action Committee (HRAC).

One thing that is very obvious everywhere I travelled was how manufacturers put the herbicide chemical group on the side of the product. I was also amazed at the level of understanding amongst agronomists and farmers about the need to rotate as many different modes of action as possible within the rotation and not to rely on one chemical group alone because that hugely increased the risk of herbicide resistance.

To make it easier it should be taken one step further and develop a five-stage colour code system for pesticide containers and boxes, using green labels for products with the least environmental impact, through to red for those that have the greatest environmental impact.

### Crop walking / scouting

Large scale farmers have employed an agronomist while the medium scale consults technical representatives from agrochemical companies. Everywhere I travelled farmers seemed to really value the opinion of a professional agronomist, even if it was often only for strategic and seasonal advice. While visiting Kitale, I was lucky enough to be involved in one strategic agronomic meeting, planning for the next season’s cropping. Despite having to rely quite heavily on my host’s translation, the conversation was wide ranging from the obvious gross margin implications of changing crop rotations to how changing rotation could influence cover crop options and the ability to rotate more chemical modes of action to improve weed control. In fact it could be said that weed control was one

of the main drivers of the conversation after the obvious need to maintain profitability!

### Cultural control

Cultural control of weeds encompasses everything that does not come out of a chemical can. Cultural and chemical controls are often combined and used together as part of an Integrated Weed Management form of approach.

### Crop rotation

Changing and extending crop rotation was probably one of the first cultural controls that farmers were willing to change in the fight against resistant weeds.

When it comes to rotation planning the key is certainly that the more diverse the better, and avoiding mono-cropping systems that often lead to repeatedly spraying the same chemistry year on year.

Mono-culture (Kitale) is perfect for the development of multiple herbicide-resistant weeds. However, with a change in altitude,



and changes generations, more crops became viable. By extending their crop rotation they have been given different opportunities to tackle herbicide resistant weeds throughout the rotation, and rotate more modes of action, and not just rely on one herbicide as the main chemical control.

Typical current rotations would be one cereal crop followed by a break crop, mostly established by a no-till seeder. For example, the herbicide resistance capital of Kenya is old cereal growing areas e.g Narok ; this is partly because they were the first to move into more intensive cropping - and 80% of that was in one crop, wheat! This lack of cropping diversity led to repeat exposure of the same herbicides. Agventure group has tried to introduce Canola as a break crop. Broadening the rotation has enabled usage of a more diverse range of herbicide mode of action and, in some cases, 'double breaks' are used to maximise that opportunity to mix herbicides up.

#### Cultivations: 'To till or not to till'

Most of the large scale growers I visited were in favour of No-Till. In these hot climates moisture conservation is key to establishing a successful crop. In other farms I saw a mixture of no-till and mini-till establishment methods.

When it comes to weed control, cultivations can often be seen as either a blessing or a curse. This is because a tine cultivator sweep or a disc cultivator can do a really good job of chopping through the roots and cutting up existing plants, but can lead to another germination of weeds which, again, can be controlled out-of-crop with a non-selective herbicide or another cultivation pass.

#### Cover cropping / brown manures

Planting cover crops though minimal is the 'fashionable' thing to be doing on farms at the moment, with some of the benefits including reduced erosion, trying to improve soil organic matter, holding nitrogen and 'mining' phosphate from the soil; and, by keeping roots living within the soil, improving mycorrhizal activity (depending on the species of cover

crops planted) as well as trying to improve weed control through creating a mulch layer. Once terminated this cover would provide mulch that would slow down the emergence of weeds within the crop.

This reduces the cost from out-of-crop herbicide sprays which have climbed up to unmanageable costs. The massive increase in one herbicide resistance means that more herbicides had to be used to control out-of-crop weeds. In some cases this makes cover crops cost-neutral because the reduced weed germination from the cover crop meant a cheaper cover crop destruction spray is required; and the farmers are starting to benefit from re-building soil organic matter again. This cover has the benefits of providing ground cover therefore reducing weed germination, as well as giving a nitrogen boost to the following crop.

#### Rouging

With the decline in control, increased herbicide resistance, rouging should be making a massive comeback.

Some of the farms I visited on my travels were quite large in size making labour availability an issue. The move back into rouging is probably one of the biggest signs that herbicide resistance has developed to such a high level that farmers are returning to this most ancient of weed control methods: hand pulling and removal of weeds and their seeds. In developed agricultural counties, rouging is happening on a scale that probably has not been seen since before the start of the green revolution in the early-to-mid 20th century.

#### Organic

During my visits, I was fortunately lucky to visit a farm in Narok. I was particularly keen to examine the 'Farming Systems' to investigate the process of organic conversion.

The emphasis is on Maize and bean production to replicate what is actually happening in area, but the conventional and organic plots are in different rotations because of the need to build fertility within the organic system.



**Ever since people have cultivated soils to grow crops, farmers have had to deal with weeds. Weeds are an issue because they compete with the crop for light, water and nutrients."**



## Engaging Local Consumers

DowDuPont Inc (NYSE: DWDP), the US-based chemical giant, will set up an agriculture division that is working to enrich the lives of those who produce and consume in the face of declining global output. Following the successful merger of Dow and DuPont last year, the company launched the corporate brand names that each of its three divisions plans to assume once they are separated as independent companies as intended. The intended Agriculture company will become Corteva Agriscience™ (kohr-'teh-vah), which is derived from a combination of words meaning "heart" and "nature".



# DowDuPont Agriculture Division is Now Corteva Agriscience™

The *Cereals Magazine* spoke to Corteva Agriscience™ Agriculture Division of DowDuPont Chief Operating Officer **Mr. James C. Collins** in a round table meeting with journalists. We engaged him on the state of agriculture and how technology can be used to boost output and support food security while taking care of emerging environmental and health concerns. He was in Nairobi accompanied by other senior company staff from Africa and Middle East region.

## What brings you to Kenya?

Two years ago, Dow and DuPont made a very deliberate decision to merge and create three standalone companies, including a pure play agriculture company. End of February, the company announced brand names for the three independent companies, reflecting ongoing progress towards separations to serve their consumers better. At the same time, we are focusing on building our business in sub-Saharan Africa. As part of that decision, we located our East Africa headquarters in Nairobi. We have a leadership team for East African region here — from where we are trying to build a foundation for agriculture in the region. That's why we are placing a lot of emphasis in this part of the world.

## What does this mean to Kenya's Agricultural Sector?

In Corteva Agriscience™, we bring together three businesses with deep connections and dedication to generations of farmers. Our new name reflects our commitment to enhancing their productivity as well as the health and well-being of the consumers they serve. Our name reflects our purpose: enriching the lives of those who produce and those who consume, ensuring progress for generations to come. With the most balanced portfolio of products in the industry, nearly a century of agronomic expertise, and an unparalleled innovation engine, we are creating a new agriculture company that will work together with the entire food ecosystem to produce a secure supply of healthy food sustainably and efficiently.

Other than the regional headquarters, we have also built a state of the art seed production facility which we will be improving to higher standards, we have a research centre, that is part of the Africa Technology hub and we are

investing in talent.

## Describe Corteva Products

Corteva represents the most comprehensive and balanced seed and crop protection portfolio in the world and a strong pipeline of new products that will enable us to continue to provide substantial value to farmers now and over the long term. Corteva is known for its Pioneer and PANNAR brands in the seed category. In crop protection we have well established product brands like Lancelot, Tracer and very soon we will be launching Radiant which is a good control for Fall Army Worms. Other than Herbicides and Insecticides, Corteva has also lined up some good fungicides. Our R&D is also lining up some very interesting products which will be launched between now and 2021.

## Food insecurity has become a major challenge to Kenya where climate change has become a reality. How is Corteva relevant to this emerging dispensation?

There is no one single solution that addresses the whole challenge. It is a multiple dimensional challenge that requires collaboration from companies like us, Government and other partners. One thing that can make a big impact on this matter is technology. Other than high yielding resilient seed and quality crop protection products, we are also driving customer value through digitization by offering the most advanced digital solutions. These include Farm management software by Granular®, Agronomy software and services by Encirca®, Farmland valuation and research by AcreValue™. When farmers use our products and services and get better harvest, they become part of the solution to food insecurity.

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*“Other than Herbicides and Insecticides, Corteva has also lined up some good fungicides”.*



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There is also tremendous opportunity of doubling productivity by enabling farmers to access the right products and services. Technology is a great piece of the answer to food security. But for technology to reach the farmer, there is a need for enabling policies that allow companies to develop technology that is tailored for realities of the African farmers and put that technology in their hands.

### Is agriculture a profitable economic activity?

Agriculture is profitable when you do the right things, and a great piece of being profitable is to be able to embrace the right technology.

Corteva Agriscience helps farms and farmers flourish, and together we forge meaningful relationships that advance agricultural industry. We are on the ground, innovating collaboratively with producers to help enable their success. We earn the trust of customers and consumers by doing what is right and delivering solutions that meet their changing needs. Partnering with Corteva will lead to a profitable farmer.

### Is GMO crop the solution to weather challenges and is Kenya losing out on or failing to harness this opportunity due to policy constraints?

There is no doubt biotech is one of the

tools farmers can use to adopt to changing patterns we face in the world today. It is not a magic bullet but a powerful tool that has helped farmers to manage risks and increase yields as well as significantly reduce the use of pesticides in the fields.

We know technology works and if farmers have access to it, they will improve their productivity and profitability of agriculture as an economic activity. This in turn helps lift growers, especially the millions of small scale-farmers in rural areas out of poverty.

A good point to start with is giving countries the opportunity to choose whatever technology they think is good for their environment. Corteva respects country policies and regulations. Kenya is yet to formulate that policy. Corteva has invested heavily on Biotechnology and we will line up the products when the policies are done.

### Farming in Kenya has been Left for the Old and Men. What are you doing to bring the youth and women into farming?

This is not a Kenyan problem but a global problem. Given that agriculture is one of the continent's biggest economic sectors, generating broad economic development and providing much of the population with food, this poses a serious threat to the future of farming and to meeting

the demands of a rapidly growing urban population.

Corteva has set an example in its employment. In this region, 40% of the staff is women. Looking at the age set of the employees most is relatively young.

Likewise, are digitization farming and linking it to social media. The media, ICT and social media can all be used to help better agriculture's image across a broad audience and allow for sharing of information and experiences between young people and young farmers. We will also continue engaging other stakeholders on how to help the situation.

### Are you investing in Post-harvest Solutions?

Reducing the postharvest losses, especially in developing countries, could be a sustainable solution to increase food availability, reduce pressure on natural resources, eliminate hunger and improve farmers' livelihoods. However, as Corteva we believe on holistic approach. We cannot solve this problem singly. We are teaming up with other stakeholders like USAID, Governments etc. In Ethiopia we have started village Silos and we will be thinking on Kenya and other countries in the region.



# Kenyan Pesticide Makers Attack Use of **GMO** Crops in Africa

**By Joan Conrow**

Though it's been documented that Western organic industry groups stoke the fires of the anti-GMO movement and fund anti-GMO activists and researchers, the opposition by Kenya Pyrethrum Joint Venture (KPJV) and its marketing agent, Green Earth Trust, appears to be the first by an African industry promoting its own economic interest.

Pyrethrum is an insecticide made from the dried flower heads of chrysanthemums, a daisy-like flower grown commercially in Kenya.

Ironically, a popular anti-GMO narrative claims that multinational agrochemical companies have developed GMO crops primarily to boost sales of their pesticide products. Now KPJV is using anti-GMO sentiment to build a bigger market for its own pyrethrum products, which the US Environmental Protection Agency has determined are a "weak carcinogen" with "high toxicity to aquatic organisms." As a result, the EPA regulates them as restricted use pesticides for crops — the same classification given to many synthetic pest control products applied in conventional agriculture.

The opposition was outlined in a letter to a high-ranking US EPA official that stated: "The emphasis genetic engineering places on transgenic seeds is an ethically contentious matter for which there is no general objective consensus in the scientific community and must not be imposed on Kenyans."

The letter was accompanied by a press release that downplayed climate change as

a major factor in Kenya's declining yields and food insecurity "for which GMOS are constantly prescribed as the solution. Nothing could be further from the truth." Instead, the press release proclaimed, "revival of Kenya's pyrethrum industry is the solution in war on hunger and food safety." But KPJV and Green Earth Trust, which has marketing offices in Canada, the United Kingdom and the US, have vested interests that extend well beyond that one African nation.

The EPA last year granted KPJV permission to export its pyrethrum-based products to America, where they are used primarily in organic agriculture. In the 1980s, Kenya accounted for nearly 70 percent of the world's production of pyrethrum, according to a Business Daily report, with just two percent of the supply used locally. Europe and the United States buy about 80 percent of Kenya's product.

As The Daily Nation reported: Despite this huge market, the sector has been reeling under huge debts due to years of mismanagement, corruption, theft and underfunding by the exchequer.

The press release goes on to state: "It is our position, as Kenya Pyrethrum Joint Venture, that intensified food production, by itself, may not yield the desired results if regulations governing food safety in the country, from farm-to-fork, are not reviewed to enhance public health and environmental conservation through adoption of pyrethrum-based natural, organic pesticides, which are proven to be healthy, safer to humans and the environment and have greater knock-down effect on pests, compared to synthetics."

However, as a Cornell University publication

notes: "The natural pyrethrins are contact poisons which quickly penetrate the nerve system of the insect. A few minutes after application, the insect cannot move or fly away. But, a 'knockdown dose' does not mean a killing dose. The natural pyrethrins are swiftly detoxified by enzymes in the insect. Thus, some pests will recover. To delay the enzyme action so a lethal dose is assured, organophosphates, carbamates, or synergists may be added to the pyrethrins."

The press release did acknowledge that GM crops "might offer benefits" in terms of drought tolerance. But it went on to falsely claim that relatively little research has been carried out on the human and environmental safety of insect-resistant Bt corn. In fact, two new studies show that GM corn is not only safer and more productive than non-GM corn, but its cultivation creates a "halo effect" that benefits farmers who grow non-GM and organic crops.

The press release also offered a completely mistaken account of what happened with GM cotton in Burkina Faso, erroneously contending that the nation's decision to drop the product was caused by poor quality due to farmers' replanting the same seeds each year. In fact, Burkina Faso cotton producers provide farmers with new seeds and inputs every year, and the quality problem was due to a short fiber length.

## **Alliance for science**

*Article Above does not reflect the stand of this Periodical on the above Topic.*

**In our next issue we call on Scientists and any concerned parties to file articles on GMOS.**



# Reasons for Farmers to Test their Soil

Did you know that as much as 60% of crop yields depends on soil fertility? Therefore soil is a precious resource that we need to manage carefully. You can do this by performing soil tests on a regular basis. Want to know more about why testing your soil is so important? *Cereals Magazine* discusses reasons to test your soil.





### Farmers will know the current condition of their soil and how to improve it

Soil fertility is determined by the soil's chemical, physical and biological properties. Properties such as soil texture, color and structure are visible to the eye. However you can't see the chemical composition of soil. Therefore it needs to be measured. That is why soil sampling is essential. Soil tests are used to determine the soil's nutrient content and pH level. With this information you can define the exact type and quantity of fertiliser needed to be applied to improve your soil. This is important because fertile soils are necessary to grow healthy crops.

Soil testing before applying fertilisers is recommended in order to determine the soils status and nutrient need. Only then you know the exact type and quantity of fertiliser you need to use. If you apply fertiliser without knowing what your soil needs, you risk using too little fertiliser (under-fertilisation) and not achieving optimal yield. If you apply too much fertiliser (over-fertilisation) or apply it at the wrong time, there is a chance of "fertiliser burn" - scorching of plant foliage as a result of excess.

### Farmers can minimise fertiliser expenditure

Knowing the exact type and quantity of fertilisers your soil and crops need prevents you from wasting money on unnecessary fertilisers. Moreover, nutrients such as phosphorus and potassium that are part of inorganic fertilisers are limited resources. Their supply is finite thus we need to be cautious in our usage to prevent future shortage of inorganic fertilisers.

That is simply a waste of money. The

excessive fertiliser will not improve your yield and might have a negative effect on the environment.

### With soil testing farmers can avoid over-fertilisation

Applying fertiliser without knowing the actual nutrient needs of your soil might lead to over-fertilisation. Testing your soil and receiving a fertiliser recommendation prevents applying excessive amount of fertilisers and the related environmental damages. Over-fertilisation might result in nutrient leaching, water pollution and irreversible harm to the aquatic animal life. A simple soil test can prevent this negative effect. Furthermore, overuse of fertiliser is harmful not only to the environment but also to the crops as it might cause fertiliser burn.

### Farmers can avoid soil degradation

It is estimated that each year 24 billion tonnes of fertile soil are lost due to erosion which is a result of unbalanced soil management. Moreover, land degradation directly impacts the health and livelihoods of an estimated 1.5 billion people. Soil restoration is a difficult, costly and time-consuming process. Therefore, proper soil management in the form of soil testing and application of the right fertilisers is more efficient and financially justified.

### Farmers with fertile soils can contribute to feeding the world's growing population

Nowadays we put more pressure on our soil than ever before. We need fertile soils to feed the world's rapidly growing population. Improved soil fertility means more crops worldwide, potentially closing the world's food gap. This will bring a better life for millions of people particularly in developing countries.

Soil testing is the first step in soil fertility management. Soil testing gives valuable information and helps you improve your soil's health. And healthy soils mean healthy crops!

### Test your Soil Before Buying Fertilizer

Did you know that global fertiliser use is expected to surpass 200 million tonnes in 2018? Fertilisers are increasingly popular because they successfully support plant growth and increase the yield. But what are the dangers of overusing fertilisers? Did you know that too much fertilisation might cause "fertiliser burn"? There are more the negative effects of using fertiliser without knowing your soil's nutrient needs.

### Wasting limited resources

Nutrients such as phosphorus and potassium present in inorganic fertilisers are limited resources. Phosphorus for example is mined from phosphate deposits that are unevenly distributed around the world. The term "peak phosphorus" is used to describe the point in time when we reach the maximum global production rate of phosphorus. According to researchers peak phosphorus will be reached in approximately 2030, whereas phosphorus reserves are expected to be depleted within the next 100 years. Therefore, we need to be more efficient in our usage of phosphorus-based fertilisers nowadays in order to prevent shortage in the future.

### Causing environmental damage due to over-fertilising

Soil testing provides a fertiliser recommendation and enables farmers to apply the right fertiliser and quantity that will be

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utilised by the plants. This minimises the chances of applying excessive amounts of fertilisers and the resulting environmental damage. For example, excessive nitrogen-rich fertilisers might runoff from the field into water bodies causing excess of nutrients in the water and a rapid growth of plant life – a process known as eutrophication – with detrimental effects for water quality.

### What can farmers do to prevent this?

The popularity of fertilisers is increasing due to the need to feed the world's growing population; however the dangers of overusing them are often overlooked. Agronomists need to promote responsible fertiliser use and sustainable soil management. As discussed above, testing your soil and getting to know its nutrient needs before applying any fertilisation is the best way to avoid over-fertilising your soil and wasting your money on unnecessary soil enrichers.

How fertiliser recommendations are made  
Dr. Christy van Beek, senior soil scientist at SoilCares and expert in soil fertility, shares what 20 years of experience has taught her about fertiliser recommendations.

### So many roads to Rome

Back to the techniques of making a fertiliser recommendation. Again, there are some decisions to make, starting with the fundamental approach of the recommendation. This is followed by the input parameters used and the way they are derived.

Fertiliser recommendations basically serve to restore or maintain the productive capacity of the soil. Therefore, they commonly consider the soil status and the amount of nutrients withdrawn by crops.

To do so, one can use one of the following methods:

#### Balance method

Apply as much as is withdrawn from the system taking into account managed (e.g. harvest) and

un-managed (e.g. erosion) losses. This method is sound and clear, but assumes that the soil is currently in good condition. If this is not the case, this approach will 'recycle poverty'.

#### Threshold method

When the content of a certain element in soil is below a specific threshold; it is applied to the level in which it is not insufficient anymore. This method is widely used, but the correct determination of the threshold is difficult, nor does it consider interactions between nutrients.

#### Trial and error

Different combinations of fertilisers are applied and one looks at the highest yield response. Although this is not very scientific; the approach is often used.

#### Yield response method

This method is based on field experiments in which a relationship is determined between the amount of fertilisers and the yields obtained per crop. Apart from the costs of doing extensive field trials, the method is also only valid within the area of the experiment.

#### Simulation modelling

Empirical, semi empirical and physiological relations are used to calculate the exact fertiliser requirement. This method is actually only applicable for scientists and requires substantial amounts of data.

#### Combination of different techniques

Often, the methods above are combined. For example, a threshold is corrected with a balance method, or the yield response curve is used for simulation modelling. Many examples of the above methods can be found in Ethiopia, which is currently reviewing its fertiliser policy. Notwithstanding the method, all except the balance method require soil data.

Soil data can be obtained from wet chemistry laboratories or from 'dry chemistry', which uses spectrometers like the technology developed at SoilCares.



Testing your soil and getting to know its nutrient needs before applying any fertilisation is the best way to avoid over-fertilising your soil and wasting your money on unnecessary soil enrichers.





“ *Subsistence crops may give the peasantry ‘food security, but they do not offer a path to any meaningful prosperity.*”



## ‘Food security’ masks real issue

Every so often, French farmers invade the orderly streets of Paris to demonstrate against their government’s agriculture policies.

They line up hundreds of tractors to block traffic. Or they drive large herds of sheep (or dump tonnes of manure) onto some street selected for its symbolic value.

This sometimes ends with the kind of street battles between police and protestors which we have somewhat grown used to now here in Nairobi, ever since the disputed presidential election of August 8, 2017. Only of course, the French police do not fire live ammunition, even when under extreme provocation from the demonstrators.

The proximate causes of recent demonstrations (in 2015) were, to quote one report, “plummeting food prices, ever-increasing taxes and social charges, and ‘crazy’ environmental standards”.

In short, the farmers drove into Paris to force their government to take measures that will secure their livelihood, when this was threatened by factors beyond their control.

The bigger point here, however, is that getting agriculture policy right is extremely difficult, whether in a rich country like France, or a ‘lower middle income’ nation like Kenya.

The key to understanding all this is in that phrase “plummeting food prices”. Generally, when the price of something “plummets” it is because there is a surplus of it: It is because more has been produced than is demanded by consumers at that time. And so, we come to the absurdity of an overabundance of food globally being the real reason why those farmers in France stage their fierce demonstrations.

It is within this global framework that I cannot really make sense of President Kenyatta’s focus on “food security” as a major pillar of his plans for the next five years.

Our real problem, when it comes to agriculture policy, is not that of a shortage of food, since the government can always buy food on the global markets to meet any anticipated shortfall. Our problem can instead be summarised in the following three points:

First, the greater part of our population — roughly 70 per cent of all Kenyans — live in rural areas and thus are largely dependent on agriculture for their livelihood.

Second, these people are mostly small-scale farmers — or ‘peasants’ to put it bluntly. This gives them relatively little room to manoeuvre when it comes to making that livelihood, as their farms are really very small.

And thus, arising from these two points (and the third consideration here) is that if the millions of youths now living in rural Kenya are not to drift into the towns and cities in search of economic opportunity — a doomed endeavour that will only lead to a rapid increase in our slum populations — then economic opportunity must be created for them in the rural areas where they now live.

Additional to these economic realities is the fact that historically, when Kenyan peasant farmers have been able to make a decent living off their land, it has rarely been by growing food crops that might contribute to ‘food security’. Whether you speak of tea or coffee or cotton or sugarcane or pyrethrum or cashew nuts — these all require an external market, whether local or global, for the farmers to sell their produce. Subsistence crops may give the peasantry ‘food security, but they do not offer a path to any meaningful prosperity.

My point then is that ‘food insecurity’ is a problem that can be solved by prompt imports of whatever food products might be needed once a shortage looms on the horizon — and in Kenya this usually means importing maize and wheat.

Schemes for irrigating vast tracts of semi-arid public land for growing maize may seem impressive when presented on PowerPoint by determined-looking technocrats. But there are other — and much cheaper — solutions to any impending food shortage the country may face.

What is not at all easy to solve is the problem of how to bring about a measure of prosperity to the rural masses, currently trapped in agrarian destitution: How to create for them a path into the middle class. And this is the challenge that the President has skillfully avoided with his talk of food security”.

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# NPSB Fertilizer

## What is NPSB

NPSB is a Phosphate and Nitrogen based fertilizer enriched with Sulphur and Boron.

Chemical Characteristics;	Physical Characteristics;
Nitrogen: 18.8% (N)	PH: 7.5
Phosphorus:37.7% (P2O5)	Loose Density: 0.90
Sulphur: 6.95% S (Sulfate origin)	Taped Density: 1.02
Bore: 0.1% (B)	Physical State: Granule
	Appearance: Light Brown

## Why is NPSB important today?

NPSB is increasingly important due to declining soil sulphur levels in our farms. Sulphur is an essential micronutrient that is key for protein & chlorophyll synthesis, energy storage and nitrogen fixation. Addition of Boron supports formation and strengthening of plant cell walls which is critical for growth.

NPSB is suitable for high sulphur requiring crops such as maize, wheat, soybean, sunflower, groundnuts and high value crops such as tea and cotton

## How do I use NPSB?

NPSB is used at planting. Use 150 kg of NPSB per hectare (75kg per acre). In a planting hole; add about 2885 mg of NPSB, cover lightly with soil and plant the seed. To achieve maximum benefits from NPSB, ensure the following;

- Optimum plant spacing
- Use certified seed
- Use a recommended top-dress fertilizer
- Control weeds and pests

## What are the benefits of using NPSB?

- 1) NPSB is more suitable to acidic soils due to its higher granule pH
- 2) Planting with NPSB increases yields of maize, beans, soya beans and climbing beans by 20% or more compared to other common planting fertilizers.

## Packaging

- In Bulk
- 50 Kg bags
- Other: Available upon request

**Tel No:** 0740 034625/27/33

**Email:** admin.ke@ocpafrika.com

**Website:** www.ocpgroup.ma





# Two New Herbicides Available in 2018

Broad leaved weeds and grasses continue to challenge growers who are requesting new tools to help manage their fields.



# BASF Launches

## Two New Herbicides in 2018

A new pre-emergent and a new post-emergent herbicide will be available for maize farmers in 2018. BASF launched the two herbicides in a well attended maize farmers' trainings in Kitale and Eldoret. Integrity® is a broad-spectrum pre-emergence herbicide for the control of broad leaved weeds and grasses and Stellar Star® a broad spectrum post-emergence herbicide, specifically formulated for weed control in maize farming were introduced at a time when most farmers are calling for better solutions in their weed management programs.

“Broad leaved weeds and grasses continue to be a challenge and growers are requesting for new tools to help them manage their fields,” said Matija Gorsic, Herbicide Technical Manager for Africa and Middle East Region, in an interview with this periodical. “Some are especially difficult to control because they continue to emerge throughout the season. Our research trials have shown that the products we launch today provides a longer residual control of these challenging weeds”. The products offer a low usage rate which allows farmers to select the best rate for their fields. Increased application flexibility, from fall to early pre-plant and early post-emergence in maize giving growers more options throughout the season.

“We’ve all seen this trend for a while now. Consumers want high-performance, high-quality products that have improved environmental profiles,” said Mr. Patrick Ngugi BASF’s Regional Marketing manager.

### Integrity® - Take the first mover advantage

The introduction of Integrity® a pre-emergence herbicide for the control of large seeded weeds which germinate from deeper soil layers due to its unique movement in the soil is a welcomed move. The product which reduces early competition from weeds right from germination allows maize to freely utilize the entire moisture and soil nutrients contributes to BASF’s expanding portfolio of cereal products and offers farmers a high level of control with a reduced environmental impact and maximum delivery on yields.

Integrity® is an innovative, broad spectrum, pre-emergence residual herbicide powered by the new technology Kixor that will control the toughest annual grasses and broadleaf weeds in maize farming. The new active ingredient Kixor brings a new dimension in control of weeds due to its mobility in soil which enables control of large seeded weeds as well.

### Mode of Action

A dual combination herbicide that combines the high-performing PPO inhibitor Kixor, HRAC E with the powerful cell division inhibitor Dimethenamid-P, HRAC K3 is applied after emergence of the crop when severe injuries will occur.

Kixor, ensure lipids and proteins are attacked and oxidized, preventing manufacture of chlorophyll and carotenoids in leaky membranes, which allows cells and cell organelles to dry and disintegrate rapidly, resulting in plant death.

In addition, DMTA-p ensures cell division

inhibitors are active at two main sites, the developing shoot and the root stops plant cells from dividing, which inhibits shoot elongation and lateral root formation.

### Water Solubility

Due to higher water solubility, Integrity® will rapidly penetrate the soil surface and quickly enter the soil capillary moisture within the soil profile. This makes it rapidly available for uptake by germinating weeds hence a superior pre-emergent herbicidal activity.

In addition, Integrity® requires less rainfall for activation than competitor products. This makes its performance more consistent in drier soil with greater lateral movement in soils due to water solubility resulting in total phase out of weeds.

### Excellent Soil Dispersion

Integrity® has a good lateral distribution. After rapidly penetrating the soil surface, DMTA-P quickly enters into soil moisture and air spaces within the soil profile. It has low vertical movement in the soil leading to low leaching. The most important factors influencing bioavailability are water solubility and soil adsorption. DMTA-P has the lowest soil adsorption and the highest water solubility, which contributes to an increased bioavailability – especially under dry conditions

### Control of yellow nuts edge

This can be improved if Planting is immediately preceded by thorough ploughing with a mould board plough making a fine, even, and firm

## From Page 33

seedbed. Application should be followed by at least 10 - 15 mm of soft penetrating rain (or irrigation) to wash the herbicide into the soil, prior to the emergence of yellow nuts edge (normally 7 - 10 days after ploughing). More rain is required on heavier soils to obtain good results and insufficient moisture is often the reason why poor control is experienced on turf soils. When planting into moist soil, application of Integrity® should be made at, or immediately after planting, to ensure herbicide activation, prior to emergence of yellow nuts edge.

When planting into dry soil (insufficient moisture for yellow nuts edge germination), application should be timed as close as possible to, but definitely before, the first rain

### Integrity® Watch Outs

Integrity® should not be applied after the crop has germinated – pre – emergence only and when organophosphate or carbamate insecticides are applied on seed or during planting or on inbred parent lines.

### Why Integrity®

Integrity® has a long residual activity (outperforming commercial standards in trials). It is a broad spectrum solution for control of annual broadleaf and annual grass weeds. It also controls large seeded broadleaf weeds emerging from deeper soil layers and the toughest BLW like *Nicandra physaloides*, *Xanthium strumarium*, *Datura stramonium* and *Ipomea spp.*

When using Integrity®, fewer weed escapes due to lateral soil mobility. It needs less water for activation, more flexible application and has a good performance even under drier conditions. It is able to control glyphosate, ALS and triazine resistant weeds; it is a program that has shortest waiting periods for follow up crops.

### Stellar® Star - Still on time

During the same meetings, BASF also announced the launch of Stellar® Star, a powerful and innovative new broad-spectrum, post-emergence herbicide specifically formulated for weed free field in maize farming.



*Patrick Ngugi - BASF Regional Marketing Manager speaks to farmers*

Stellar® Star is a highly effective herbicide for post-emergence application to control annual and perennial broadleaf weeds and annual grasses in maize. It has an adjuvant present in the formulation for optimal efficacy. The post-emergence maize herbicide also has the widest flexibility of application.

Stellar® Star offers an exciting new tool for maize farmers to combat a wide spectrum of weeds and maximize crop yield," says Mr. Matija Gorsic. Adding, "It is a proven performer that delivers reliable broad-spectrum weed control to Maize farmers. Trials utilizing Stellar® Star have demonstrated efficacy against perennial broadleaf leaves and annual grasses in maize".

### Mode of action

Speaking to the farmers Mr/ Matija Gorsic said, "Stellar® Star combines the trusted control of HPPD inhibitor Topramezone HRAC F2 with an Auxin inhibitor Dicamba HRAC O mode of action, providing maize farmers a new weed control option for their field and offering a convenient resistance management tool. As a post-emergence herbicide, Stellar® Star has a systemic activity Leaf uptake and translocation and foliar uptake providing early season weed control during critical crop stages.

Topramezone inhibits the Carotenoid / Plastoquinone biosynthesis pathway while Dicamba is soil and foliar active, systemic with broadleaf activity. Dicamba also complements Topramezone by increasing the control of additional creeper broadleaf weeds such as: *Citrullus lanatus* - Wild watermelon,

*Commelina benghalensis* - Wandering Jew, *Fallopia convolvulus* - Climbing Knotweed, *Ipomea purpurea* - Morning Glory and all perennial broadleaf weeds.

### Timing of application

The post –emergence weed control should be applied when most of the weeds are in 3 – 4 leaf stage. No application on inbred parent lines and waiting periods must be respected

### Why Stellar® Star?

It is an excellent herbicide for post-emergence applications in maize and sugarcane with a safe and flexible post-emergence application which offers complete weed control and high selectivity. Stellar® Star has a Broad-spectrum control via leaves of all annual grasses, annual and perennial broadleaf weeds and also is a reliable control for large weeds with later applications. It also boasts of a long application window. The two modes of actions ensure an enhanced control and resistance management. With incorporated adjuvant it is simple to handle.

### Parting Shot

"Given the increasing occurrence of herbicide resistance and a potentially shrinking number of solutions available for combating tough-to-control weeds, the two herbicides present a welcome opportunity for farmers to ensure they have the crop protection they need," says Matija. "These new herbicides affirm BASF's position as a leader in maize solutions and our commitment to growing and furthering innovation within cereals farming."



**Most varieties of sorghum produce much more forage than maize. Unlike maize, the lower leaves do not dry out as the plant matures; they remain green and therefore retain a higher crude protein content.**



**S**orghum can grow well in areas with less rain and produces the same amount of fodder as maize. Sorghum was one of the most important food crops in Africa in the past. Over the years, farmers have abandoned it in favour of maize and other food crops. KARLO together with the Ministry of Agriculture have developed better varieties that can be grown as animal feed and even as human food.

#### Advantages of sorghum

Sorghum has many advantages over maize and other pasture grasses:

It can grow well in both high and even in low potential areas with poor soils, where maize cannot do well. As a fodder crop it can be used in adequate supply when maize and other feed sources fail. Sorghum can regenerate (grow again) after cutting the stalks for fodder and harvesting the grain (second crop or ratoon); The ratoon crop will mature early in the following season but yield slightly less than the first crop – depending on level of plant feeds available. This way the farmers can reduce the cost of replanting, land preparation, seeds and time.

#### Easy to plant

To get a good sorghum crop a farmer needs to observe these guidelines:

**Land Preparation:** For both forage and food

varieties of sorghum, start preparing the land at the end of the rains following a crop season. Sorghum does well in sandy soils. It can also be grown where the soils are not disturbed much (where conservation tillage is practiced).

**Seed rate and spacing:** Farmers should plant sorghum at a seed rate of 2.4-3.2 kg per acre (6-8 kg/ha). Fodder varieties of sorghum should be planted at a spacing of 75 X 10 cm. Varieties mentioned can replace maize for making silage and grain and even fresh chopped fodder for all animals (cows, goats, sheep, pigs and chickens).

- As animal feed, it has the same energy level as maize or other cereals.
- Sorghum can withstand dry conditions (600 mm annual rainfall) and remain green at very low moisture levels. It provides the farmers with for feed and grain (dual-purpose sorghum) requires a spacing of 60 x 20 cm; this spacing allows for a higher grain-fodder ratio.

**Sowing:** Sorghum should be sown at the onset of the long rains. Drill seeds along the furrows (trenches). Seeds should be planted 3 cm deep when dry planting to avoid germination in false rains, but 2 cm deep if the ground is wet.

**Manure application:** Well-composted manure should be applied during land preparation and worked into the soil. Organic foliar feeds can

be added when the plant is knee high.

**Thinning:** The crop should be thinned when it is 30 cm high or 30 days after planting, whichever comes first, to ensure a spacing of 75 X 10 cm between rows for fodder sorghum and 60 X 20 cm between rows for dual-purpose varieties. The spacing for dual purpose varieties allows for higher grain to herbage ratio.

**Weeding:** Hand weeding should be done at least twice. A sorghum field should be kept weed-free especially at early stages of growth.

**Pest and disease control:** Control of cutworms, aphids, shoot-fly and stalk borer is important. Birds like sorghum especially at milk stage; they prefer white-seeded varieties. Sorghum is generally disease tolerant. Control disease when necessary.

**Harvesting:** Sorghum meant for seed production should be harvested at maturity stage. Sorghum meant for feed can be cut when still green and fresh. Leave it in sun to allow wilting for 12 hours then chop and then feed the animals. To make silage, start harvesting at dough stage (between milky and hardening stage). For dual-purpose sorghum, cut the head with a knife or use a combine harvester.



This planting season, the choice of seed is very important. In rural farming areas, many farmers still plant traditional maize varieties that give very low yields. According to a study conducted by Egerton University's Tegemeo Institute (Enhancing Small-holder Productivity in Kenya, 2016) findings show that maize yields have been declining at the rate of 10 per cent. The same study shows that in some regions in the country, only 0.72% of the seeds used are certified hybrid seeds; a very small proportion indeed.

Maize yields have been going down in regions where farmers use traditional varieties although the area under maize has increased. Farmers interviewed in the study indicate that the high cost of certified hybrid seed and the increase in fake seeds in the market had forced them to use traditional open pollinated maize varieties or recycled seed.

Another problem that faces farmers is buying their maize seed or planting late due to lack of proper preparations. Ideally, all maize should be planted by mid- March. But due to the impacts of the changing climate sometimes, maize planted in March may fail if the rains are insufficient. So, it is advisable for farmers to subdivide their land into two portions with one portion planted in March while the other portion is planted in mid-April. This will help prevent loss of inputs such as seed and even labour if the rains fail. Due to the high demand for seeds, especially the popular varieties, farmers who buy their seeds late face the danger of either buying fake seed or getting none. However, the problem of fake seed

is likely to reduce following new measures introduced by the Kenya Plant Health Inspectorate Service (KEPHIS), which enables farmers to verify if the seeds they have bought is genuine or not.

#### **Avoid planting uncertified maize**

Due to lack of money, some farmers in rural areas use commercial maize (harvested the previous year) for seed. Commercial maize cannot produce good maize yield. It is important for farmers to know that maize seed is produced in a special way that enables it to produce high yields when planted only once. After it is harvested, commercial maize cannot be used as seed as it loses most of the characteristics or vigour once it is planted again.

#### **Control diseases and pests**

Besides, commercial maize when replanted can transfer diseases and pests such as the Maize Lethal Necrosis (MLN), leaf inflammation, stalk and the Larger Grain Borer (LGB). Currently, there are many diseases and pests that threaten maize production in the country. The most serious disease is the Maize Lethal Necrosis (MLN) diseases. The main vectors of the disease transmission are insect pests such as thrips, stemborer and flea beetles. To avoid the disease, farmers are advised to plant only certified seeds from established companies to avoid transferring the disease to their farms through infected maize.

#### **Practice crop rotation**

Maize is a heavy feeder, which means that it

takes a lot of nutrients especially Nitrogen, Phosphorus and Potassium (NPK) from the soil. Unless the farmer has very little land, it is always advisable to practice crop rotation. Farmers can also prevent diseases such as MLN or head smut and pests. Farmers can rotate maize with beans, peas, potatoes, cabbages, onions, carrots, kales (sukumawiki), sunflower or any other crop that is not in the maize family. Crop rotation with leguminous crops such as beans and peas help replenish important nutrients such as nitrogen into the soil.

#### **New method to identify genuine maize seed**

Buy your seed only from stockists licensed by KEPHIS (see license before buying the seed).

- Expired seed cannot do well. Always check to ensure the seed is not expired.
- Genuine maize seeds in small packages of 2kg and below now have a new inspection label from KEPHIS attached to each bag. Remove the label and scratch it the same way you do for mobile airtime scratch cards. Type the number in the label and send to 1393. You will receive a message indicating the seed is genuine and certified.
- For 10kg and 25kg seed packages farmers are advised to check for the KEPHIS tag that is inside the seed bag from where they can check the maize variety and lot number. You can call or text KEPHIS using the telephone number given in the tag to confirm if the seed is genuine.



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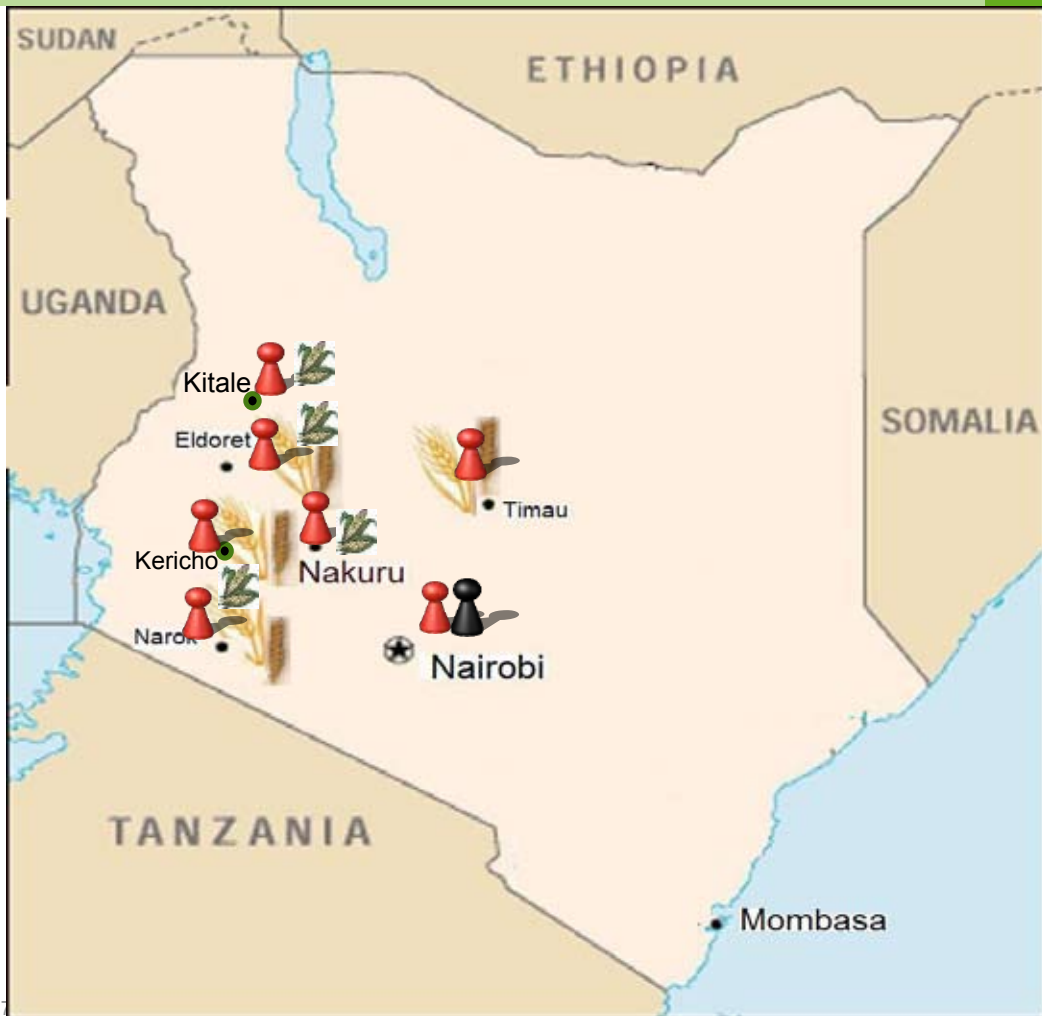
An insecticide for the control of Fall Armyworm on Maize with biochemistry that acts as an insect juvenile hormone analogue that inhibits insect maturation processes

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# Distribution map and Key crops



- Distributor
- Wheat
- Maize
- Warehouse
- Barley

Target is six major Cereal and Maize growing regions. Commercial cereal and maize farming is found in these regions.

## Angaza:

Bringing Light and Sustainability to Farming



**It takes more than tech know-how,  
cash and enthusiasm to pull off a  
successful distribution chain.**



## When it Comes to Success, Distribution is King....

### BASF Launches Angaza.

Long before your product hits the market, you must begin by designing the foundation for its eventual success. This is by no means the most attractive part. But if you want to survive past the development process, then you'll need to earmark a good chunk, if not the majority of your time to researching and securing the distribution network that will best reach your target customer.

Marketing team are put to task of generating the best ideas on how to make the process stand out; with a lot of power and authority they recommend the features to add, calls to make and resources to commit. Securing these networks guarantees you a reliable feedback from the market environment; it is easier said than done though. But to realize success in the distribution chain one has to walk the talk; in which one of the companies in Kenya's agrochemical sector has been able to triumph on.

BASF EA Ltd hit the market early this year with their new distribution strategy, Angaza; bringing light and sustainability to farming. Speaking during the Launch Mr Patrick Ngugi said "Angaza was a new business model by BASF in Kenya. This will see the company change from agency to merchandise business –with more distribution partners and a local warehouse".

Speaking to key distributors and other

stakeholders in the agricultural sector, Mr. Ngugi said, "It's about propelling our technologies to more farmers together with our "Angaza partners". Adding, "Angaza in Swahili means "to light up". We are lighting up investments of thousands of Kenyan farmers by providing sustainable solutions for yield maximization. This is relatively exhibited in our theme: "Bringing light and sustainability to farming". BASF will be reaching out to more farmers through various touchpoints and offering their quality technological innovations together with their partners -providing a platform for growth and sustainability.

The new strategy will ensure their new technology for modern farming reaches the farmer faster (Innovation) with its priority being farmer satisfaction (Customer centricity). In addition, it will better their customer needs responsiveness (Operational excellence) and promote business growth (Sustainability).

#### How are we bringing light?

We wanted a piece of the action: We essentially wanted to be proximal to the farmer selling value not products. BASF wanted to provide solutions to improve farmers' yields through effective weeds and disease control. To breathe life to this dream, we settled on transformation of farmers from traditional ways of farming to modern technology.

To achieve this goal BASF has established a

Local warehouse to support their merchandise business approach. In addition they have adopted designated distribution partners (light bringer) to distribute the products in Kenya. This strategy will translate to farmer focus –going level down to understanding their customers, listening to them and engaging them further even in the roll out of new innovation through quality training and provision of technical support to enable successful introduction of technology into farmers' ventures.

#### A Win-Win Strategy

The new strategy will lead to:

**BASF:** A sustainable business, business growth, wider market access and a strong link to the end users.

**Distributors:** The distributors will expand business with rather low investment, gain preferential position in a crowded distribution business and enjoy strong support service and direct communication and linkage to BASF.

**Farmer:** The farmer will have the highest benefits by gaining access to quality products, minimizing counterfeit infiltration of their stocks hence improving their production and maximizing on returns.

**Stockist:** The stockist will enjoy business Growth, farmer interaction and quality technical training.



*Canola oil processed from Kenyan Planted Canola*

## Invest in Branding and Direct Marketing

Consumer desire should always be at the core of any producers branding activity. To that extent, producers or marketers should consider the desires and/or values of their consumers to ascertain the value of various provenance elements against these in order to determine the ultimate value. This has potential to assist with deciding which assets are worthy of greater communication or prominence on packaging.

### **Branding – What is it?**

A brand is a distinguishing symbol, mark, logo, name, word, sentence or a combination of these items that companies use to distinguish their product from others in the market. In simple terms, it is your unique identity that consumers know you by. The identity is communicated through mediums such as packaging, websites, and advertising and, in some cases, farm gate and visitor centres.

A brand is a necessary evil, they add a layer of complexity to the buying decision, but they also allow for routines ('Ah, there's my brand' or, 'oh yes, I've heard of that one'); such habits make buying easier- automatic even. A brand is how food producers can strive to build a loyal following but also what consumers use to recommend or discuss with others.

### **What it is not?**

Branding is not just a logo. Branding is what a consumer associates with or feels when they see a product on the shelf or in market. Branding is not defining a product category. A brand is, or should be, unique to a particular product and create a personality that consumers will remember or connect with. In most product categories these days, consumers are spoilt for choice and at retail level only have a limited time to make their decision.

“ Producers are moving beyond relying on attractive logos alone and those who communicate provenance values clearly and quickly will compel purchase and drive loyalty.”





*Canola Field*

For food producers, the process of branding involves creating a unique product name and image which, in the consumers mind, aims “to establish a significant presence in the market that attracts and retains loyal customers.

### Consumers and Brands

Consumer desire to know more about the origin of their food has moved beyond country of origin labelling alone. Consumers are presented with more food choices than ever before from both retail private labels and both small and big brands. The challenge for producers to attract both brand awareness and loyalty has never been greater.

The rising consumer demand for more information to guide their food choices opens the door for producers to respond by increasing their own consumer communications and in doing so establish their value proposition to differentiate their product. By ensuring the proposition is meaningful they will build credibility and create a lasting favourable impression which will in turn deliver customer loyalty and ongoing success.

A global food landscape and a rise in the availability of information means provenance as a food term has moved well beyond place and now provides producers with a broadened central theme to highlight their uniqueness in terms of other elements linked to production and processing which

is referred to as ‘social provenance’, and reputation and perception, known as ‘cultural provenance’.

Consumers are impressionable and growing consumer trends highlight an emotional connection to food that impacts purchasing decisions. Producers are moving beyond relying on attractive logos alone and those who communicate provenance values clearly and quickly will compel purchase and drive loyalty.

Producers ‘calling out’ a combination of provenance values on packaging are likely to achieve a price premium on shelf, compared to those that call out either one or none. Each provenance element appears to be valued differently.

Valuable element variables include, but are not limited to:

- Reputation – depends on the notoriety of the consumer if using as an endorsement.
- Place – if a county has more brands leveraging from the same ‘place’ that are of a higher quality, the value appears to be higher and more consistent than counties less well known for production of a product.
- Official production certifications such as organic.
- Food awards.
- Public identity ( food influencer) endorsement.

The use of provenance values can validate a price premium.

The Halo effect of the provenance element of place and the production method of organics appear to add immediate value to the bottom line of products and offer a premium pricing opportunity, in particular to small-scale producers or those operating in a commodity market seeking a price premium. However, consumer trends have a significant impact on the weight of various provenance values and may change both in time and across various country markets at any time.

A strong provenance identity can offer some brand protection, especially when the value is tied strongly into unique production (social) elements such as organic or farmed. However, the author notes that ‘protecting’ is as important as marketing provenance, and where an industry or regional framework is not in place, producers should consider various means of external validation to authenticate or/and to enhance their credibility.

These three provenance values as central themes that act as a guide in assisting producers develop brand strategy or further develop their produce by assessing the value of associating with, and the subsequent pricing proposition offered, by leveraging from one or more of the following provenance elements: spatial, social and cultural.



*Maasai women keenly following the speeches*

## Monsanto Supports Maasai Women Empowerment

Over 2,500 Maasai women in Kajiado County are set to benefit from a US\$75,000 poultry project to boost house hold incomes and food security. The transformational poultry project in the semi-arid nomadic community is the result of a continuing partnership between Latia Resource Centre (LRC) and Monsanto Fund, the philanthropic arm of Monsanto Company, the world's largest agriculture technology company.

The Maasai pastoralists in Kajiado are struggling to adapt to rising temperatures, erratic rainfall patterns and other effects of global climate change. Many pastoralists have been forced to adopt other means of earning a livelihood including crop farming and keeping of alternative livestock like poultry. Latia Resource Center supports poultry production as it addresses both the food insecurity and income generation needs of the households besides being a culturally acceptable practice for Maasai women.

According to LRC Managing Director, Peter Muthee, "Latia Resource Center has adopted the Farmer Field School (FFS) approach as an innovative organizational structure. Each field school will set up a demonstration enterprise and will receive 16 chicken which will be used for training of members. Upon attending the training, each farmer will receive a start-

up breeding stock of 4 chicken, feeds and vaccines needed in the initial 3 months. At the end of the first laying cycle, each farmer will give 4 chicken back to the project to be distributed to more farmers in the project."

Poultry beneficiaries who generate surplus eggs and chicken beyond their domestic consumption will be assisted to access markets. The project will organize the FFS into production clusters and introduce value chain players including buyers for eggs and chicken as well as suppliers of inputs like feed, ingredients and drugs.

According to Jimmy Kiberu, Corporate Engagement Lead Africa, Monsanto, "Monsanto is once again privileged to help strengthen farming communities in Kenya faced with climate change and food insecurity. Monsanto Fund's charity giving resonates with the UN's Sustainable Development Goals."

The project will encourage FFS groups to carry out visits to one another so as to facilitate knowledge exchange among different regions. As such, the project will catalyze a continuous learning process and exchange of good practices and innovations ultimately enhancing farmers knowledge, productivity and nutrition.

About Latia Resource Center

Latia Resource Center (LRC) is a Kenyan Social Enterprise established in 2008 to provide training and business support services to farmers, pastoralists and Agribusinesses in Africa. LRC believes that the modernization of agriculture and improvement in food security in Africa can be greatly enhanced by effective practical training, adequate dissemination of knowledge and technology and the provision of business support services to farmers, pastoralists and Agribusinesses. Over the years LRC has grown and set itself apart by putting social impact as its overriding end objective and employing innovative, agile business thinking and processes to meet the needs of its key customers the farmers, pastoralists and agribusinesses. LRC strives to increase agricultural productivity in an economically and environmentally sustainable manner.

About The Monsanto Fund

Monsanto Fund is the philanthropic arm of Monsanto Company and is focused on strengthening both farming communities and the communities through provision of funds for food and nutrition, education, and community development projects around the world. In Africa, the Fund currently supports projects in Kenya, Tanzania, Zambia, Malawi and Nigeria.





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## Transforming Agriculture into Business

**YARIV KEDAR** joined Green Rava around three years ago after heading Amiran Kenya's agro-division, a company that has made great strides in the greenhouse technology since its inception in 1963. He spoke to Masila Kanyingi



During his tours in the country, Yariv Kedar learned that more than four million people were facing starvation in Kenya, he was surprised, as the country should be agriculturally rich and food secure.

"I met farmers who applied chemicals with leaves. They had no proper tools, used poor quality seeds and fertilisers, and did agriculture for the sake of it," Yariv recalls.

At the time, Yariv had just arrived from Brazil where he had worked with Makhteshim Agan in various capacities, the last being as the global herbal portfolio development director.

Yariv resolved to introduce new innovations in the agricultural sector and uplift the standards of farming in Kenya; and to develop markets for their produce through Green Rava Israel technologies.

### Why Green Arava Technology?

Green Arava Group designs complete systems to suit the client's needs. The design takes into account the available natural resources in the project area, initial investment, operational costs and desired outputs. The design is done according to the highest international standards incorporating the latest innovations and technology in agriculture. As the Green-Arava group head office is located in Israel, the leading hub for innovation and design of agricultural methods and products, we are in constant touch with the leading agricultural research institutions in Israel and incorporate the latest innovation and trends into our projects.

### Galana Kulalu project

Galana Kulalu project has seen the two governments Kenya and Israel establish a working framework on water resource management, technologies, irrigation and capacity building. Based on the Israel expertise in the water sector, the Kenyan side expressed areas of interest and sought assistance and counsel from Israel counter hence coming up with the Mashav-capacity and training on irrigation and drainage programme.

The key mandate of the Galana irrigation project is to move the country from rain-fed agriculture in the wake of climate changes. If well managed the project should see one acre produce 40 bags of

maize, higher than the national average of 17 bags that farmers in the country's grain basket of Rift Valley harvest currently.

### Property Reality Company

Property Reality Company (PRC), a real estate property firm in Kenya has worked with Agri Green which to boost its Agribusiness projects as it looks to give Kenyans an opportunity to invest in farming and create employment opportunities.

According to Gacari, PRC CEO and Chairman, the company's decision to work with the Israeli based company that designs, develops and implements turnkey agricultural projects was advised by Agri Green's expertise in Agribusiness, making them the ideal partner for the project.

Speaking on the agreement, Green Arava's Country Manager, Ofir expressed his elation at the unique opportunity that will see more and more Kenyans become urban farmers, through opportunities to invest in Greenhouses within the plots and have them fully managed on their behalf.

"We will adopt the latest farming technology within these plots of land and ensure that investors will gain revenue generation even as the property appreciates. We are delighted to be providing the agronomical support needed for successful harvests," he said.

The partnership will see Agri Green be responsible for farm management, selection of cash crops to be cultivated, boreholes and storage facilities among other roles. The two partners will also provide market linkages upon harvesting.

### Innovative kit

Green Rava has also invented Farmers Kit; a kit that has grown widely popular around the country, including the arid and semi-arid areas, as it offers a complete solution to small scale growers who get to enjoy simplified modern inputs at one go. In addition, the kits come with training and farm support from Green Rava extension Officers.

### Changing Africa from the root

Green Rava is also investing in the newest technologies which when well used will also change the farming sector completely. Farmers around the

world today suffer the same problem. Input costs keep going up while yields drop. More and more fertilizer is required to get the same outcome. At the rate we are using those available phosphate reserves, it is estimated the world could run out 50-100 years, and soils suffer. The way out is Mycorrhizal Fungi. The newest technology from Green Rava promotes root mass expansion, better soils, nutrient uptake efficiency, drought tolerance, healthier disease tolerance crops and better yields from lower inputs.

### Green Rava Travel Gun irrigation System

Traveling gun irrigation is an irrigation machine that consists of wheeled cart with large sprinkler (called "gun"), a chassis with rotating drum and main PE pipe. The wheeled cart with the sprinkler moves slowly on the ground at a controlled speed that has been set by the operator, while the sprinkler is operating, thus applying water to the land. The "Gun" (or "big gun") is a sprinkler containing a large (>0.5-inch diameter) nozzle and discharging relatively high discharge.

The sprinkler may rotate through a full-circle or may only rotate through a portion (usually 230 to 270 degrees) of the arc.

The main advantage of the Traveling Gun is the rapid and simple installation of the system. The system can be easily towed to any area that needs irrigation and can be put into operation in minutes. It is practically automatic operation with minimal labour requirement. It has a relatively low cost of the system per unit area and reliable operation

Farmers have a wide range of options for the control of the system and have easy change of discharge by changing the nozzles of the sprinkler and change of water depth of application by changing the speed of the gun. It is suitable for odd shapes of fields and flexible to irrigate several different fields with different crops

### Conclusion

Yariv believes despite agriculture being the backbone of this country, Kenyan farmers are unable to produce foods like in European countries because most lack adequate knowledge, know-how and high quality inputs such as seeds, irrigation systems and fertilisers. This is where Green Rava will thrive.



## It's Wangu Embori's Time to Grow!

Farm Engineering Industries Limited FEIL is the Exclusive CLAAS Dealer in Kenya and Uganda. It is known for quality products and efficient customer service. The company strategy has been oriented towards innovation from the very start. It has been able to get market preference for its high quality and performance. Wangu Embori farm is well known for its top-grade barley production having owned the CLAAS Dominator, Averro and now The Tucano 320. Wangu Embori Farm has been running for over 40 years with James Muhoho being the Farm Director. FEIL factory trained technicians together with a team of CLAAS technical experts will conduct a technical clinic at Wangu Embori Farm in Timau from the 14th to 17th of March 2018. The goal of the clinic is to offer an open platform for existing CLAAS clients for machine diagnosis and technical assistance and training.



There shall be CLAAS machinery available for viewing and testing. This will be followed by a field day at the same venue as from the 16th to the 17th of March. We shall offer assistance on the best equipment for different farming functions and areas, technical aspects of the machines, best ways to maintain the equipment, etc.

### About The Claas Tucano Range Combine Harvesters.

For the 2018 harvest, the new TUCANO 320 model will be available. The new TUCANO remains true to the principle of providing arable growers with the best alternative. Originally launched for the 2008 harvest, the CLAAS TUCANO combine range has proved extremely popular with smaller to medium sized arable farmers and contractors, who want a high capacity combine harvester.

One of the reasons the TUCANO has stood out in the medium sized sector is the use of the well proven APS threshing system, and more recently the APS HYBRID system, which helps ensure that high outputs can be maintained even in difficult threshing conditions. The ability to also use the VARIO cutter bar on the TUCANO has also proved extremely popular. For the 2018 harvest, a complete new range of TUCANO models will be available which boost output and productivity with its new features.

The new TUCANO is available in three ranges with a total of six models. Topping the line up will be the new TUCANO 570 which is fitted with an APS HYBRID threshing system. The four-model TUCANO 400 range uses the APS system in combination with straw walkers, whilst the TUCANO 320 has just a single conventional drum and straw walkers.

From the outside, the most notable difference is the appearance of the new

TUCANO range, especially with the adoption of a 'top-pivot' type unloading auger. The main benefit of this is an increase in loading height and discharge speed, which is now about 30% higher. This also means that longer discharge augers can now be available, plus it makes access for servicing far easier.

The new TUCANO is powered by a Tier 4 compatible Mercedes-Benz engine, with the exhaust gasses treated using selective catalytic reduction (SCR) and exhaust gas recirculation (EGR). Fresh air for the engine is drawn in through a rotating radiator screen and active preseparation ensures that fewer particles get into the two air filters. For difficult or hilly conditions, a new 4-wheel drive axle is available, which uses two central hydrostatic motors integrated into the axle and provides 30% more traction.

As previously, the new TUCANO can be used with the complete range of CLAAS cutter bars, including the new VARIO and CERIO models, which are quickly mounted using the simple multi-connector.

On all the new TUCANO models can be used with the full range of CLAAS steering systems and the concaves are now adjusted using CEBIS and incorporate a hydraulic overload device.

The concave is hydraulically pre-tensioned and opens as the pressure increases, after which it returns automatically to the set working gap.

Having passed through the APS threshing system, on the TUCANO 400 and 320 models, the remaining grain is separated using either five- or six- straw walkers with the Intensive Separation System (ISS) for efficient separation. The two larger six-walker machines have three-channel sieves,

which have the benefit of being stronger, provide greater separation and improved material control.

Other new functions within CEBIS include automatic crop settings, with default settings for over 35 different crops. In addition, the operator can also then save their own settings for different crops or varieties, which can be called up at any time. In addition, a rear-view camera can also now be integrated into CEBIS.

All the main operating and cutter bar functions are controlled using either a multifunction joystick control or the new CMOTION ground speed control lever. From the seat, the operator can also easily monitor the grain tank level and the quality of the crop through a wider, centrally positioned grain tank window. The grain tank lids are also now controlled electronically using a switch in the armrest.

### About FEIL

FEIL is a specialist in the supply of world-class, construction, agriculture, mining and forestry equipment. Established in 1985 with headquarters in Nairobi, our product line consists of a large inventory of new machinery as well as genuine spare parts.

FEIL's expansive range of products is suited to almost any requirement in the agriculture, construction, forestry and mining industries.

Combined with the support of our experienced technical teams, our clients can be rest assured that their requirements will always be met. Our dedicated management team, broad range of expertise and a committed staff guarantee you a professional service with high emphasis on personal attention to detail to ensure all your needs are met in the most cost-effective manner



*Mr. Kilezi grooming his children*

# Grooming the Next Generation

**Management transfer evolves naturally within a farm business through making a conscious decision to formally allocate roles. It defines reporting channels and accountability, and how decisions are to be made within specific areas of responsibility.**

Many family owned businesses have the long-term objective of passing the business on to the next generation; this is often not an easy process. Much planning, preparation and communication is needed to move the business from one generation to the next.

Allowing members of the next generation to sit in on a variety of business meetings from a young age and talking with them openly about the businesses position and vision will often encourage them to

want to contribute to the family business in the future. This contribution may not necessarily result in a direct position within the family business, but would often allow a greater understanding of the business and a desire for all siblings to see the family farms continuation. This in turn will help greatly in future succession planning discussions.

Finding a way to instil pride and respect amongst future generations is important. 'We need to understand what it took to get here'. This can be achieved by documenting the family farm's history, outlining the journey that has been taken to get there as well as the values and ethics that have been held by previous generations. Including a summary of the major events of the season including yields, prices, climate, capital purchases and personal milestones guarantees the story's integrity for future generations and youth may take more notice if they read

this information for themselves rather than being told by their parents.

It is often beneficial for family members to spend time working or studying outside of the family business. This allows them to enter the business with a fresh set of ideas and skills. It can make them accountable, by having to report to someone other than family. 'Where family members enter the family business, have them report to a member of staff who is not a family member where possible. This can reduce some of the conflict and make them both more accountable'.

## **Management and communication systems**

'With 80% of businesses failing to pass on to the next generation due to a lack of conflict resolution, it would seem essential that a family farm facilitate open and honest communication channels' .



## Increased efficiencies within the business can result as decisions can be made promptly and without doubling up of resources.



*One of Mr. Kilezi's sons, already a farmer*

Structured meeting processes and open communication channels to engage with all the relevant stakeholders are paramount to the success of a multi-generational family business. When a partnership exists, as with many small family farming businesses, 'it is crucial for the greater good of the company, its culture and its people, that the leadership is 100% on the same page'. Children who know when parents are not getting along, it is the same with business. It is important to have monthly meeting designed for business partners to communicate thoughts and listen to concerns to reconnect and solve issues that may be angering an individual. The meetings are not often peaceful and can indicate the need for mediation. Ultimately, these meetings aim to solve issues before they are brought into the business and exert a detrimental effect on its operation and its people.

There are integral meetings to maintain effective communication within a family business: operational meetings which include weekly toolbox (i.e. what we did last week, what we are doing this week and who is doing it), and budget planning meetings (i.e. questioning 'what did we make last year, what cash have we got now and what will our peak spending and debt be?'), are of high importance to business functionality. While operational meetings are important in keeping finances in check, business members on task and providing those involved with an opportunity to voice

their concerns, such meetings do not do not effectively address issues concerning family dynamics.

Issues concerning family dynamics often fester privately with individuals or family units as a result of them attempting to avoid conflict and which, left unresolved, can be a greater source of conflict at a later date. 'Meetings need to be scheduled, prioritised and executed in a productive way as they will build the foundations for an efficient and harmonious work environment'. It is important to set aside time to meet with all family members involved in the business, including all partners. Often done off-farm and facilitated by an independent advisor to provide 'neutral ground', the meetings provide an opportunity to raise operational issues including working hours, remuneration and homestead investment, and human resource issues like requesting time off, children's schooling or a change of employment status for an off-farm partner. Every member should have their uninterrupted input into this process, particularly those not involved in the day-to-day operations of the business, as they can bring new ideas and novel approaches.

In addition to family meetings, it is important to recommend the implementation of the Entrepreneurial Operating System (EOS) by families during business transitions to assist with business, rather than family, fundamentals. This system assists transitions through

strategic meeting systems and focuses on six key components: This management system, whilst aimed at medium to large workforces, provides framework and promotes the discipline needed to maintain an efficient, transparent and trusting work environment no matter the size of the business. By implementing this type of operating system with clearly defined roles, managerial transition and workplace unity are greatly improved.

### **Management Transfer**

Clearly defined roles and responsibilities within the business are an essential component of Management Transfer and building the family farm as they allow for concise (and either gradual or immediate) handover of those roles and responsibilities during transition.

Definition of roles should be as specific as is practical. For example, a large-scale business may have a dedicated parts manager role, where a smaller business may require parts management alongside other responsibilities within one role. Responsibilities within a role are set out in a job description, and breaking down roles into specific task-orientated job descriptions provides a clear understanding of roles and responsibilities that need to be filled.

When assigning roles to people, 'it is critical

## Way Forward

### Vision

- Work as a team to clarify the vision of the business. This will include the core values, core focuses and goals for the business.
- This vision will set out the way in which business members operate.
- Provides the framework for jobs to be undertaken.
- This vision should be shared and reiterated with all members of the business.

### Issues

- Identify and discuss issues as they arise through regular meetings.
- Become decisive in decision making.
- Develop a clear company vision and clear job descriptions to make it simpler for individuals to make decisions.
- Create trust amongst team members.

### People

- Understand peoples core values and skills.
- Set clearly defined job descriptions.
- Ensure the right people are in the right positions.
- Create accountability for individuals.

### Process

- Identify core processes.
- Document your core processes.
- Share these documents with the whole business and explain them clearly.
- By doing this it becomes clear to everyone how to approach various aspects of the business.

### Data

- Determine key performance indicators for the business as a whole, AND for individual job descriptions.
- Accurate data allows for accurate and consistent business management.
- Create accountability and goals for business members.

### Process

- Make yourself replaceable.
- Weekly meeting.
- Quarterly meeting.
- These should always have a clear agenda and start and finish on time.
- These operational meetings aim to create efficiencies and give control and direction to daily activities.

### From Page 49

to understand the strengths, weaknesses and aspirations of those involved in the business to ensure they are allocated roles in which they can thrive in. This will ensure their involvement will contribute to the operations future success' It is suggested that the success hinges on remembering that 'nothing stays the same'. Making assessments as to who fits which role needs to be informed by asking who will step into a role if the existing person was highly skilled or specialised'. Bear in mind that 'transitioning from one generation to the next should start earlier than you think it should'. The allocation of roles should be reviewed regularly, planning when and who

the jobs will be transferred to. Doing so could highlight potential training needs that may otherwise prevent a smooth transition into the role. Preparation and motivation is key. 'The next generation needs to show initiative in gaining the skills and experience needed to be a good manager. They need to put effort into their own management education and skill development. If the next generation are given management without adequate practical experience, they may not be well-enough prepared to maintain a successful business.'

Even returning family members, prior to their return and whilst filling an active role in the business, pro-actively sought to extend their knowledge for the betterment

of the business. All stakeholders should have input when setting out and allocating roles and responsibilities. Doing so means everyone involved has a clear picture of the functionality of the business, and can have confidence in their ability to execute their roles, because they have been approved by all involved. Joint decision making in allocating roles means that those making the final call on a given issue can accept full responsibility. 'I trust you. We made this decision. It is your area to implement. I trust you to do the best that you can'. It is critical to understand mistakes will be made which is an important part of learning new skills. 'when are you going to allow me to make the mistakes to obtain the knowledge that you have?'



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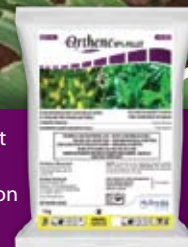
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## Take Care of Your Soil to Increase Land Productivity

Farmers rarely take care of their soils. Good farming practices can restore and build soil fertility, increasing crop yields and income for the farmer.



Soil fertility is the ability of the soil to support agricultural production by providing all essential nutrients for the crops to grow and yield bumper harvest in form and suitable balance that are available for plant uptake. On the other hand, land productivity is dependent on several factors such as soil fertility, good management practices, water availability and suitable climate. Fertile soils, contain an adequate supply of nutrients, sufficient content of organic matter, a proper balance of soil pH, water draining and retention capacity, active soil life and a good soil structure. Proper balance of the nutrients and other factors in the soil are important for the soil to be highly productive.

Various factors lead to the loss of soil fertility. Below are some of these factors and the proposed ways of mitigating them.

#### **Soil erosion**

The top soil is rich in nutrients and organic matter which are important for soil health. These nutrients can be lost through the soil erosion is very common in many regions in Kenya. It can occur because of human activities such as deforestation, overgrazing and poor soil management. Besides human activities, other agents such as wind and water through floods leads to the loss of the fertile top soil. Planting cover vegetation, mulching, retaining walls around areas of erosion to prevent runoff water, leaving crop residues lying on the soil, mixed cropping and intercropping, practising minimum cultivation, early planting among others can prevent soil erosion.

#### **Nutrient mining**

This is as a result of the removal of more nutrients by crops and no adequate replenishing by use of manures or fertilizers leading to depletion of the soil nutrients. Physical degradation of the soil (poor structure, compaction, crusting and water logging e.t.c) are some of these factors that come about as a result of poor management practices e.g. poor tillage (ploughing, weeding, etc) techniques which may cause the development of hard pans that limit water infiltration. Also, poor land use planning such as failure to integrate intercropping systems and crop rotation leads to the physical

degradation of soils. Water-logging causes loss of nitrogen into the air.

#### **Decrease in organic matter content and soil bioactivity**

A decrease in soil organic matter results in poor physical, chemical and biological properties of the soil. Soil bioactivity or microbial activity is dependent on soil organic matter and as a result, plays a significant role in nutrient availability and recycling.

#### **Soil acidification, salinization, alkalinity**

All the above factors cause a reduction in soil fertility and eventually problems of nutrient deficiencies, toxicities and imbalances. Inefficient soil management Monocropping practices (planting only one type of crop every year) and improper crop rotation practices lead to decline in soil fertility as it results in depletion of various nutrients. Also, excessive soil tillage will lead to erosion which results in decreased soil fertility and productivity in general.

#### **Soil pollution**

This comes about as a result of introduction of chemicals and heavy metals into the soil through the indiscriminate use of chemical fertilizers. Hence, the growth of useful soil organisms is adversely affected, which eventually causes a decline in biological soil fertility.

#### **Land fragmentation**

This refers to the subdivision of land to create settlement areas for the rapidly growing population especially in the high potential areas (areas with good rainfall and soils). As a result, the size of agricultural land is decreased and productivity, in general, is lowered.

#### **Inadequate extension services and infrastructure**

When there isn't enough back up from the extension agents and the only available infrastructure is poorly maintained; there is lack of motivation to invest in soil fertility improvement.

#### **How to maintain soil fertility Using organic manure**

Soil organic matter is very important in soil fertility and productivity. Organic matter is

important in physical soil structure thereby improving drainage of water, infiltration of the water into the soil, aeration and water holding capacity.

#### **No-till farming**

This can also be referred to as conservation agriculture. It leaves the soil undisturbed, allows residues on the surface of the ground to naturally decompose and build more top soil to minimize erosion. It also makes it easier to manage weeds.

#### **Planting cover crops**

Cover crops while maintaining soil moisture also helps prevent soil erosion and puts nutrients back into the soil, keeping it fertile, more sustainable thus contributing to better harvests.

#### **Precision agriculture**

Precision agriculture is whereby real-time data on the conditions of the crops, soil, air as well as other local weather predictions are obtained using information technology (IT). Farmers can use mobile software applications to monitor their fields and maximize their harvests.

#### **Adopting improved methods of tillage**

These while including conservation tillage methods such as reduced/minimum/no tillage also include direct drilling and strip cropping. These methods are widely recommended to protect against soil erosion and degradation of structure, creating greater aggregate stability and increasing soil organic matter.

#### **Promoting agroforestry**

Agroforestry involves the intentional integration of trees and shrubs into crop and animal farming systems to create environmental, economic and social benefits. Agroforestry reduces the need to use soil nutrients and fertilizers by improving soil quality and maintaining good nutritional balance and fertility.

#### **Developing suitable crop rotations**

Crop rotation involves growing different types of crops in the same area. This is done to replenish and balance the nutrients in the soil. This helps also to reduce soil erosion, increasing soil fertility and crop yields.



*Farmers learn through magazines*

# How Farmers Learn

Extension of agricultural research has been impacted worldwide through cuts to public research, development and extension funding over the past decade. Kenya has traditionally used a 'Top Down' model for R&D in which publicly funded research organisations such as KARLO, universities and other funded bodies have identified research and development priorities. These priorities have resulted in a mix of basic and applied research.

It is important to investigate the most effective ways to extend agricultural research and development outputs to achieve practice change on-farm. Specifically, objectives should include gaining perspective on the impact of research, development and extension on grains sector productivity and profitability, understand what drives and impedes practice change on-farm, assess the

effectiveness of different extension methods, discover ways to bring researchers and farmers closer together for mutual benefit and use case studies from different countries to demonstrate the value of different extension approaches.

Farmers will have different attitudes to adoption of innovation and risk-based on a wide range of previous experiences and personality types and as such, a range of criteria need to be met for change to be embraced

## **The Fact**

**1.** Grower groups need to show a value proposition to industry stakeholders whether they be government, commercial, researchers or farmers to ensure greater recognition of both their economic and





*Monsanto team is always on the ground training farmers on their quality products*

social value.

2. Adequate training of grower group staff must occur to ensure scientific rigour and integrity in research work and validity of outcomes.
3. An internet-based portal of all grower groups should be developed with research projects and outcomes.
4. Expansion of business discussion groups must occur in the grains industry, on a user pays basis using commercial consultants with either extension training or a support system behind them.
5. Data collection method and range of key performance indicators to evaluate business performance with consolidation of benchmark results on a regional level.
6. An internet-based benchmarking portal should be developed to allow data input and examine business performance.
7. Increase the investment from industry and government to fund training of consultants, agronomists and extension agents in extension methodology and adult learning styles.

8. Increase Rural Research and Development Co-operation investment to employ extension specialists to ensure effective communication of research outcomes.

### The Truth

The individual farmer is perhaps the greatest variable between enterprises when it comes to the financial and physical performance of a farm. Extension needs to take into account the individual's nature and attitude to change, along with impediments to adoption, whether they be cultural, economic, social, political or legislative.

Farmers learn by a range of styles; any extension efforts need to vary in delivery method (e.g. face-to-face, written, on-line) to cater for the diversity of individuals involved.

There are two basic models for R&D extension; the 'Top Down' model, which is supply driven and the 'Bottom Up' model, which tends to be more demand driven.

Benchmarking helps drive change because it highlights areas of poor performance, which can then be owned and addressed at the individual farm level.

Peer learning is undervalued as a learning tool and when combined with benchmarking can be a powerful driver



of change at an operational, tactical and strategic level.

**Top Down versus Bottom Up Extension Models**

There are two basic models of research development and extension (RD&E): ‘Top Down’ and ‘Bottom Up’.

In the ‘Top Down’ model, scientists set the research priorities, carry out the research and in some cases the development, before using existing extension networks to disseminate the new information or innovation. The Kenyan grains industry has traditionally relied on the ‘Top Down’ model, with the setting of research priorities and research work being undertaken by universities and state departments of agriculture, and dissemination of information and innovations historically done through state government extension agents. One of the problems with the ‘Top Down’ approach is that it can result in researchers, extension agents, farmers and industry working in ‘silos’ relating to their particular discipline, with little information sharing and networking across disciplines or up and down the value chain.

Cutbacks to the agricultural budget and a move away from traditional extension agents have required investigation of different extension methodologies and avenues. In recent times, a number of large scale farms and input supply sector have implemented a more ‘Bottom-Up’ approach, via farmer visitations. This collaboration between growers, farming systems groups, agribusiness and

***Farmer to farmer peer groups have numerous benefits among them; access to the most up-to-date information, a source of ideas, problem solving and a social outlet.***

researchers identifies research priorities at a local level and determines what needs to be done at a local, state and national level to solve the farm management issue.

**Benchmarking and Peer Learning**

Benchmarking helps to identify strengths and weaknesses in a business and enables the performance of a business to be assessed in an objective manner. When combined with peer learning it can drive practice change.

TOP DOWN	BOTTOM UP
Traditional method	More recent method
Supply driven	Demand driven
Scientist First	Farmer first
Science based	Relies on interaction between science and farmers – more targeted research
Traditional extension channels	Utilises peer learning
Can lead to silos of information	Facilitates information sharing
Validates farmer innovation	Supports innovation

One of the key questions when undertaking benchmarking is – what does ‘good’ look like?

**Benchmarking**

The three important elements of

benchmarking are the size of the database; the geographical spread; and the integrity of the data collection. The larger the size of the database, the more accurate the results could be.

To be of value, it is essential that benchmarking data collection and analysis are done with integrity. Data input must be accurate and datasets need to be compared on a common basis. Geographic location is also important.

Benchmarking helps ground-truth business performance by highlighting areas of strength and weakness. Once the weaknesses are identified, solutions can be sought. This change is then driven from within, giving ownership to the farmer. To quote a farmer I visited, “motivation must come from within, otherwise it is coercion and generally unsustainable”.

Benchmarking the productivity and profitability aspects of a business can stimulate change at an operational, tactical or strategic level. Farmers in the grains industry can use farm financial consultants, most of whom benchmark their clients. The existence of this benchmarking data provides an excellent opportunity to develop a consolidated benchmarking platform with a large data base.





*Farmers visiting Amiran stand in an exhibition*

### Peer learning

A common belief among extension specialists is that farmers learn best from farmers. *"If people don't share information humanity can't progress"* Dave Warner, Neuroscientist

Farmer to farmer peer groups have numerous benefits among them; access to the most up-to-date information, a source of ideas, problem solving and a social outlet. Farmers are able to harness the knowledge of several other farmers and the group advisor for application on their own farms.

It is an additional advantage to have a consultant to complete a full SWOT analysis of the farming operation before the first meeting. The analysis is then shared with the group, which then assess areas of poor performance and identify possibilities for improvement.

### Grower groups - A uniquely Important experience?

Kenyan agriculture has seen a marked change in its RD&E landscape. As a consequence, there has been a significant

increase in 'grower groups', which vary in size from very small regional groups with all work being undertaken on a voluntary or part time basis to larger organisations either covering a geographic area or specific agricultural practice.

Most grower groups are created through local initiative to address local RD&E issues and to facilitate peer learning. However, in some cases, larger groups have been formed with impetus from government or research development corporations.

The groups identify production constraints and either undertake research themselves or feed the issues to relevant researchers, with whom they often work collaboratively, resulting in a strengthening of the linkage between growers and researchers.

As the research is driven by farmers (who in many cases are contributing to the work), there is a strong sense of ownership of outcomes and the work is relevant and timely.

Growers draw on many sources of information in the decision-making process,

however grower groups have greater influence on decision making due to their localised or topic specific focus. Grower groups are viewed as credible and trusted sources of information, which is used for long- and short-term decision making. In many cases, farmers gain ideas and information at a grower group level then use consultants and advisors to ground truth these ideas.

Grower groups also provide significant social benefit and human capacity building via:

- Farmers taking roles within the groups that result in skills and leadership development, in many cases a stepping stone to other leadership roles in the agricultural industry.
- Development of grower group networks allowing for interactions and information sharing beyond the local region.
- Provision of a social support network - especially in times of hardship or emergency
- Employment and skills development for young professional staff.

# CEREAL FARMERS IN KENYA

FARM NAME	LOCATION	CONTACT PERSON	EMAIL	TELEPHONE	CROP MIX	ROTATION CROP
Chemusian ltd		Too	chemusian@gmail.com	0722209754	Wheat / Barley	
Kikwai farm		Patrick	padykikwai@gmail.com	0731817804	Wheat / Barley	
-	<b>ELDORET</b>	-	-	-	-	
Sergoit farm		Yani/ Kruger	tingaspik@gmail.com	0718338099	Wheat / Barley	Maize
Komol farm		George Killi		0722732757	Wheat	Maize
Mohammed		Kaittany		053-2062234	Wheat	Maize
Elfam ltd		Ngetich		0721517701	Wheat	Maize
Mace foods		Margret Komen		0722840799	Wheat	Maize
Kuinet Tarus		Tarus		0721934176	Wheat	Maize
Moiben Chepkener		Chepkener		0719506980	Wheat	Maize
Chepkorio		Jelimo		0722571355	Wheat	Maize
Kenya ordnance		Chirchir		0721851931	Wheat	Maize
Kandelo		Kandelo		0720305041	Wheat	Maize
Kimoso		Kimoso		0734858619	Wheat	Maize
Silas Tiren		Tiren	skktiren@africaonline.co.ke	0725792463	Wheat	Maize
Shiv enterprises		Albert Kimwatan		0722652300	Wheat	Maize
Timothy Busienei		Busienei		0727085756	Wheat	Maize
Plateau Ngeria		Sile		0724752143	Wheat	Maize
Victoria Chebet		Chebet		0753466025	Wheat	Maize
Maji Mazuri		Ziwa		0723024971	Wheat	Maize
Kibogy Moiben		Kibet		0728706668	Wheat	Maize
Kapkabai Farm		John	wilchem@africaonline.co.ke	0722724990	Wheat	Maize
-	<b>ATHI RIVER</b>	-	-	-	-	-
Ausquest ltd		Stuart Barden	stuartbarden70@gmail.com	0703119444	Barley/ Wheat	Sorghum
-	<b>KITALE</b>	-	-	-	-	-
Bubayi		Jonathan Mayer		0735488001	Wheat	Maize
Panocal		Chris Carpenter	cereals@panocal.co.ke	0719505785	Wheat	Maize
Murmet		Chelimo		0722571355	Wheat	Maize
Cheptembe farm		Robin		0722817638	Wheat	Maize
Robert		Tuitoek		0722813381	Wheat	Maize
Biwott		Biwott		0720955748	Wheat	Maize
Express Farm		Mbugua		0722766176	Wheat	Maize
Western seed company		Harry		0720897860	Maize/ Wheat	
Kenya seed company		Mwarei		0722614639	Maize/ Wheat	Barley
ADC Farms Edward			edwardmwando@gmail.com	0728453942	Maize	Sunflower/ Pasture
-	<b>MOLO</b>	-	-	-	-	-
EAML		Gacheru		0722791563	Contracted farmers	Barley
-	<b>KISUMU</b>	-	-	-	-	-
Dominion farms ltd		Okoth		27494585	Rice, Maize, Sugarcane	



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FARM NAME	LOCATION	CONTACT PERSON	EMAIL	TELEPHONE	CROP MIX	ROTATION CROP
-	<b>MT. KENYA</b>	-	-	-	-	-
Oldonyo ltd		Brynn	brynn@oldonyo.co.ke	0722817163	Wheat/ Barley	Peas, Canola
Kisima ltd		Shaun	shaun@kisima.co.ke	0729924353	Wheat/ Barley	Peas, Canola
Wangu Investment		Ben	ben@wanguembori.co.ke	0724545475	Wheat/ Barley	
Marania ltd		Jamie	marania@maraniafarm.com	0721573634	Wheat/ Barley	Peas, Canola
Lengetia ltd		Sessions	Lengetiafarm@gmail.com	0722332647	Wheat/ Barley	Peas, Canola
Mastermind ltd		Gitonga	dgitonga@mastermindkenya.com	0722751488	Wheat	
Tumili ltd		David Beak	tumili@wananchi.com	0722823543	Wheat/ Barley	Peas, Canola
Thamba Ngombe		Thamba	thamba@gmail.com	0724927351	Wheat/ Barley	
Mt Kenya saw mill		shah	nainhshah@gmail.com	0722511691	Wheat	
-	<b>NAROK</b>	-	-	-	-	-
Simba Estate		SS. Dhillon	simbaestate@simbaestate.com	0722511460	Wheat	Maize
Farm Africa ltd		Raghu	raghu.penmetsa@farm-africa.com	0788299442	Wheat	
Lalela ltd		Neylan	neylan@macc.com	0722385329	Wheat	Sorghum
Mann Wheat ltd		Magal		0722518964	Wheat	
Green Farms		Wambugu		0722287337	Wheat	
South Six Farm		Guri	gurbir@southsiouxfarms.com	0722676878	Wheat	
Olerai ltd		Alistair	alandbill@olerai.co.ke	0728484659	Wheat	Seed Maize
Talent Farm		Paul	sarpau@internode.on.net	0729846736	Wheat	
Rm Farms		Amit and Sanju	rishi-amit2007@yahoo.com	0722225330	Wheat	Maize
Ndovu estate		Viney		0722824793	Wheat	Maize
Country motors		Singh	country@africaonline.co.ke	0722764763	Wheat	
Oldonyo Nairasha Estate		Karan	ssdhillon@africamail.com	0722323296	Wheat	Maize
Development Trust		David		0724741718	Wheat	Canola
Oratili ltd		Mahesh	farmpartsltd@africaonline.co.ke	0722848474	Wheat	Canola
Upland crops		Koos	fm@uplandcrops.com	0704681651	Wheat	Maize
-	<b>NAIVASHA</b>	-	-	-	-	-
Kijabe ltd		David Cullen	ndabibi@gmail.com	0729950910	Wheat/ Barley	
Soyonin ltd		Benjamin Kipkulei		0733605071	Wheat	
Livewire Ltd		Goddy Millar	info@livewire.co.ke	0722205992	Wheat / Barley	
-	<b>NAKURU</b>	-	-	-	-	-
Lesiolo ltd		Tundo Franco	frtundo@gmail.com	0724333322	Wheat / Barley	
Madrugada		Jonti	jonti@madrugada.co.ke	0722734179	Wheat / Barley	Maize, Peas, Canola, Sunflower
Tony		Hughes	hoozie@swiftkenya.com	0722808058		
Chepkonga		Andrew	andychep@yahoo.com	0710308917	Wheat / Barley	
Siruai		Rose	skvarose@gmail.com	0722865892	Wheat / Barley	Maize
Sasumua Agriculture		Luke	luke@sasumua-agriculture.com	0722779618	Wheat / Barley	Canola, Peas, Sunflower, Maize
Kenana Farm		Oliver	pkenana@africaonline.co.ke	0722725002	Wheat / Barley	Canola, Peas, Sunflower, Maize
Remsons Ltd		Mugambi	remsons.ltd@gmail.com	0722807773	Wheat / Barley	
Molodowns		Chris Foot	ckfoot@gmail.com	0722717130	Wheat / Barley	
Gogar Farm		Simon	md@gogar.co.ke	0722327718	Wheat	Maize
Kinoru Farm		Barlow	barlow@africaonline.co.ke	0725777479	Wheat / Barley	canola, Peas, Sunflower
Comply industries		Sandhu	sckihumba@complyindustries.com	0729870025	Wheat / Barley	

# From Nomadism to poultry Farming : Thanks to Monsanto Foundation



*Beneficiary Farmers (Esther Sapashina and Joyce Molomet) give Testimonies*

*Kajiado County First Lady Representative reads her Speech*



*Senior Monsanto Staff, Tony Gathungu and Jimmy Kiberu address the farmers*

*Latia Resource Centre MD, Peter Muthee take Syngenta Staff through what Latia does*



*Senior Monsanto Staff Join Area MCAs to officially Launch the Project*

*County Leaders join Senior Syngenta Staff for a standing ovation by the farmers*



*Free at last after the launch*



*Naserian Senkenoi, receives chicken feeder from Mr. Gathungu, Mr. Kiberu and Mr. Muthee*





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- Good standability

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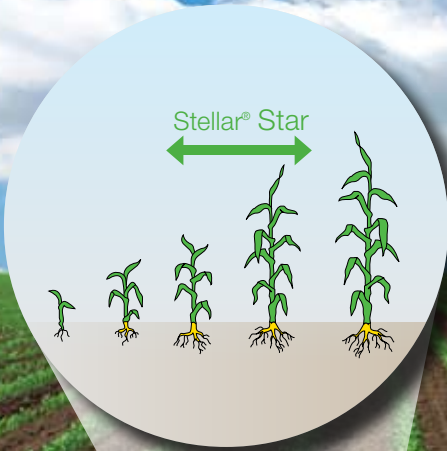


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