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Kenya farmer

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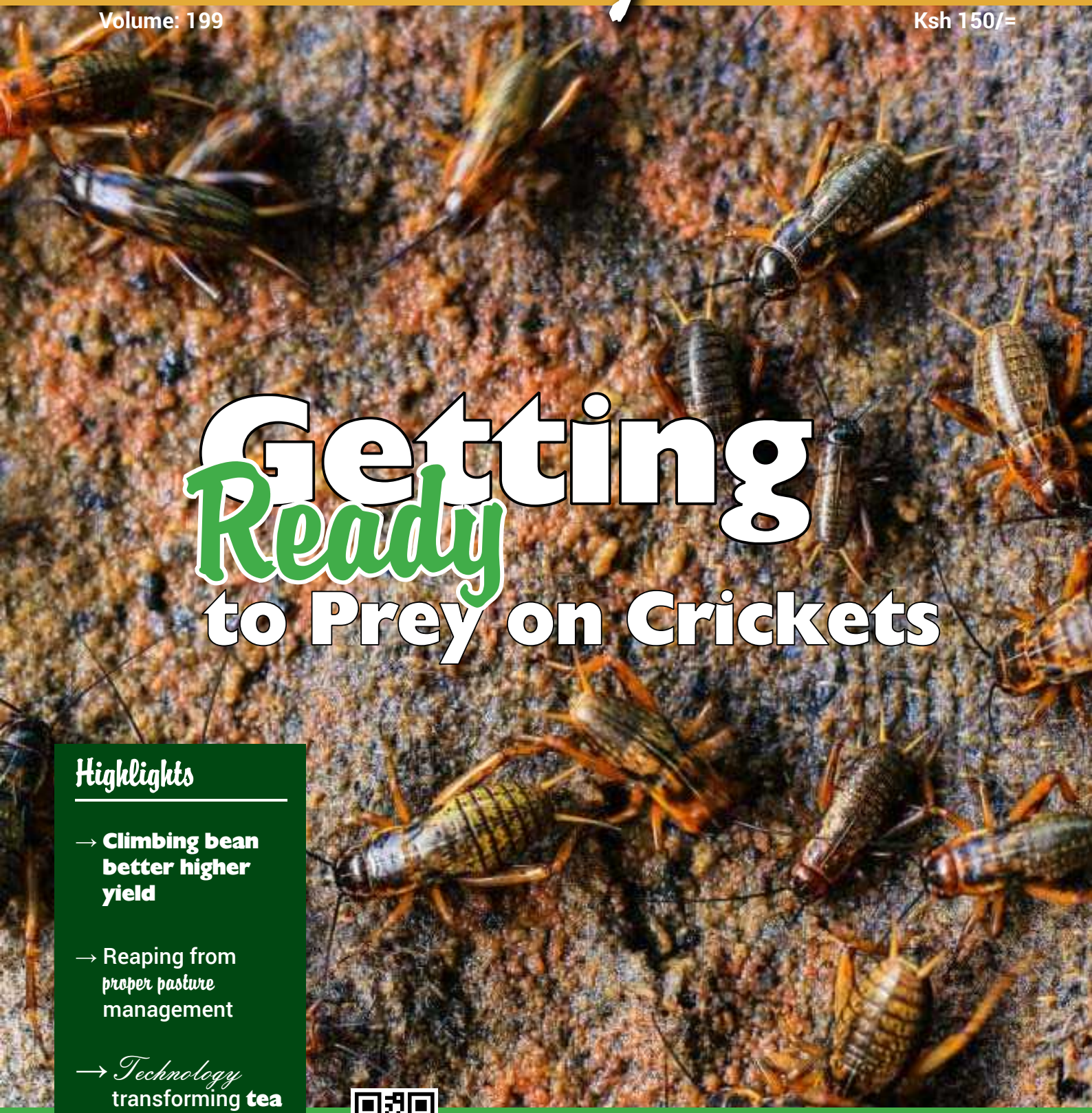

Getting Ready to Prey on Crickets

Highlights

- → **Climbing bean better higher yield**
- → Reaping from *proper pasture* management
- → *Technology* transforming **tea farming**

March 2019 Issue

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Kenya farmer

Welcome to issue 199

Agriculture is the Backbone to Develop Any Economy

It is my pleasure to welcome you to read this first issue of the Kenya Farmer Journal (KFJ) in 2019. The team here has outdone themselves as they strive to bring you information on how farmers from across the divide are embracing new technologies in a bid to improve their output.

In other areas, the farmers are also challenging themselves to embrace new ways of farming as they walk away from crops or livestock farming that has stopped working due to various changes happening either due to climate change or economical challenges.

The government too is stepping up its efforts towards supporting the agricultural sector in the country. One such initiative is the boost in cash that has been released to the avocado and macademia farmers to help them increase their yields to cope with the local and international market.

You will also get to read on some of the new innovations that researchers have in store for us this year. This includes challenging us to embrace insects as part of the delicacies on our plates that have high nutritional value. The researchers too are set to develop the East Coast Fever vaccine that has proved to be a growing concern in recent years.

We are keen to keep you the reader at the heart of every article we write. It is in this regard that I would like to encourage us to give us your candid feedback on what you think about the journal-what works, what doesn't and what we can do differently. I look forward to reading from you and incorporating your ideas towards making this journal beneficial to you.

Joseph W. Mugo
Editorial Board Chairman

Happy reading.

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"My Government is working to ensure that farmers not only have access to quality and affordable agricultural inputs, but improved markets as well. The interventions we have initiated like livestock insurance schemes, feedlots among others, are key to my dream of achieving food security."

Patron,
Agricultural Society of Kenya
H.E. Hon. Uhuru Kenyatta, CGH

"Placing value in modern agriculture will enhance production, ensure quality assurance, promote diversification and accelerate food and nutrition security. Tapping into emerging markets will make farming a lucrative venture while boosting the country's gross domestic product."

Deputy Patron,
Agricultural Society of Kenya
H.E. Hon. William Ruto, EGH

"I urge all stakeholders in the agricultural sector to double their efforts and work together in the development and promotion of viable innovations and appropriate sustainable technologies for this sector."

First Vice Patron,
Agricultural Society of Kenya
Hon. Mwangi Kiunjuri, EGH

EQUIPPING FARMERS WITH MODERN TECHNOLOGY

Annabel Kiriinya (Mrs)
NATIONAL CHAIRMAN,
AGRICULTURAL SOCIETY OF KENYA

It is with great pleasure that I welcome you to the curtain raiser of the 2019 Society events; **Eldoret National Show and Embu Branch Show**.

As a key and strategic stakeholder, the Agricultural Society of Kenya is committed to ensuring capacity building for sustainable systems that support healthy food production in the agriculture sector.

This is in line with the Society's mandate of providing forums for exchange of information and learning in agriculture and agribusiness while promoting excellence in agriculture.

As a country we rely heavily on Agriculture as a mainstay of our economy providing employment to the masses. It is paramount that this sector continues to see the many strides being made towards supporting its growth.

Promoting the use of new, modern and appropriate technology will not only promise this great nation food security but ensure economic growth is realized.

It is therefore imperative that we equip our farmers with modern technology. This is because it is more than just better and faster, it is also about sustainability. Advances in agricultural technology are greatly changing approaches to farming in Kenya.

I therefore urge farmers to visit any if not all of our shows countrywide to be adequately equipped with knowledge and input in modern agricultural technology. This will in the long run improve their yields and help us realize the Governments development agenda on food security.

To the exhibitors, guided by our theme, **"Promoting innovation and technology in agriculture and trade"**, I urge you to showcase the latest advancements in technology and innovation to especially attract the youth and investors into the sector.

This is a promising year and we are optimistic that the Society will make a positive impact on the agricultural sector in as far as technology is concerned. We shall continue to leverage on the latest technologies and innovations in its diversities to empower our local farmers.

Be part of our very educative and vibrant shows countrywide.

Karibu Kwa Maonyesho!!!

INCREASING DEMAND FOR EXHIBITIONS

Batram M. Muthoka,
CHIEF EXECUTIVE OFFICER,
AGRICULTURAL SOCIETY OF KENYA

It is yet another great year and the Agricultural Society of Kenya welcomes you to our first shows; the Eldoret National show and Embu Branch show and indeed to all 2019 Shows and Trade Fairs Countrywide.

The Society through her newly adopted 2018 – 2022 Society Strategic Plan will continue to effect her four Strategic Themes; Exhibitions, Membership, Outreach and Institutional Capacity to achieve her mandate. This is expected to raise the number of exhibitors and visitors by at least 25% this year. Trade visitors from all over East & Central Africa are being invited directly and in collaboration with several regional trade bodies in Kenya, Tanzania, Ethiopia, Uganda, Somalia, Mozambique & Congo.

The rapid industrialisation and modernisation in the Agricultural and Trade sector has resulted in an increased demand for knowledge and information. Today more than ever the demand for exhibitions is remarkable attracting both individuals as well as business enterprises. The Agricultural Society of Kenya has remained in the forefront with the most prolific exhibitions and the largest trade fairs and shows in the region.

The shows have continued to showcase top products, new innovations and technologies in Agriculture, equipment and machinery among others.

> ***Over 2000 exhibitors from Agriculture, Trade and allied industries take part in the Society's Shows and Trade fairs annually.***

Building on the success of previous shows, the Agricultural Society of Kenya has continued to engage all stakeholders in embracing scientific innovations and technologies to ensure agriculture is improved and farming technologies strengthened.

Our shows will continue to be a major access point for Agricultural and Trade information. They form an enticing mix of consumer interaction as well as industry presence.

The Agricultural Society of Kenya will continue increasing collaborations between the central government, the counties and research organisations to spur agricultural transformation within the rural farming communities.

2019 is your year of growth, we therefore request you to make a date with A.S.K starting this March for the Eldoret National Show and the Eastern Kenya Branch show - Embu.

Karibuni Kwa Maonyesho!

2019 CALENDAR OF EVENTS

THEME: "Promoting innovation and technology in agriculture and trade"
"Ukuzaji wa uvumbuzi na teknolojia katika kilimo na biashara."

EVENT	DATE	VENUE
Eldoret National Show	March 6th - 9th	Eldoret
Eastern Kenya Branch Show	March 14th - 16th	Embu
A.S.K Annual General Meeting	March 29th	J/park
Y.F.C.K National Camp	April 8th - 12th	Nakuru
Y.F.C.K Tree Planting Day	May 18th	Nanyuki
Mt. Kenya Branch Show	May 23rd - 26th	Nanyuki
Western Kenya Branch Show	May 30th - 1st June	Kakamega
Meru National Show	June 5th - 8th	Meru
Makueni Satellite Show	June 13th - 15th	Makueni
Royal Highland Show	June 20st - 23rd	Edinburgh
Y.F.C.K National Rally	June 22nd	J/Park
S.E. Kenya Branch Show	June 26th - 29th	Machakos
Nakuru National Agricultural Show	July 3rd - 7th	Nakuru
Southern Kenya Branch Show	July 11th - 14th	Kisii
Kisumu Regional Show	July 24th - 28th	Kisumu
National Agriculture Teachers Conference	August 14th - 16th	JKUAT
Mombasa International Show	Sept 4th - 8th	Mombasa
Kabarnet Branch Show	Sept 12th - 14th	Kabarnet
Central Kenya National Show	Sept 11th - 14th	Nyeri
Kitale National Show	Sept 18th - 21st	Kitale
Bungoma Satellite Show	Sept 26th - 28th	Bungoma
Nairobi International Trade Fair	Sept 30th - 6th Oct	J/park
S. W. Kenya Branch Show	Oct 10th - 12th	Migori
National Ploughing Contest	Nov 22nd - 23rd	Kitale
N. E Kenya Branch Show	TBA	Garissa

Mr. Ratcliffe Nangalama
Branch Chairman - Eldoret

SHOWCASING VAST OPPORTUNITIES IN ELDORET

Welcome to this year's A.S.K Eldoret National Show which opens its gates to the public on 6th – 9th March 2019. The theme of the Show is, "Promoting Innovation and Technology in Agriculture and Trade".

The branch has attracted new exhibitors from far and within the region in areas of Agriculture, Livestock, Education, Trade, Manufacturing, Finance among others. There shall be more exhibitors this year than last year. Expect to find a wide array of displays from our various exhibitors ranging from new agricultural innovations & technologies, rich information on current business practices & transaction ideas, career advice, financial information among many others.

We have also arranged training workshops in partnership with SNV for farmers and the general public where they will be trained on best agricultural practices, breeding & calf rearing, modern ways of making fodder & conservation, cow house design among other various topics.

In addition, farmers will benefit from maize production methods, value addition, ways of marketing and transforming their maize to silage to avoid losses that have been witnessed in the past one year.

Farmers and the general public should turn out in great numbers to benefit from these new advancements in industry, trade and farming which if adopted, will enhance significant wealth creation and the well-being of our people. Business people will equally benefit from the networking and marketing opportunities that will be available. Not forgetting the auctioning Dairy Cows and Fatstock at our livestock area.

This year's arena events and funfair provides more edutainment than before; Military bands display, dog display, musicians, comedians and mass choirs are just among the many lined up.

The Branch continuously endeavors to nurture and encourage the young people to actively participate in the Branch and Show affairs. This year we have interested the youth from various institutions of higher learning to attend the Show.

In conclusion, I humbly thank the Show Committee and collaborators for their dedication, all the sponsors, stakeholders, the County Governments, the National Government and the ASK National leadership for working towards making the 2019 Show a success!

John Mukundi
Ag. Branch Chairman - Embu

PROMOTING NEW TECHNOLOGIES FOR FOOD SECURITY

On behalf of show organizing committee, I take this chance to welcome you all to this year's eastern Kenya Branch Show which opens its gates to the public from 14th -16th March.

They call Embu a county of opportunities and Embu Show definitely provides opportunities to experienced farmers, upcoming farmers, youth and general public for prosperity in agribusiness and entrepreneurship.

This year's show gives farmers a great opportunity to learn new methods that ensures increased productivity, access to markets and credit facilities in trade and Agricultural sector. This annual event has gained more popularity and relevance especially in the region, coming after the severe drought that affected parts of Tharaka Nithi, siakago and Mbeere leading to skyrocketed prices for food stuffs and basic commodities. Fortunately, the short rainy season did not fail hence agricultural demonstration plots are well established and farmers will be well taught and trained.

This year show, we have diversified sectoral exhibitions ranging from agriculture, financial (banks & Sacco's), education, health, manufacturing, hospitality, transport, Jua Kali among others. We wish to thank all these stakeholders and exhibitors for their continued partnership with us.

The County Government of Embu has continued to play a significant role through up scaling the adoption of technologies exhibited in various regions. This has boosted agricultural productivity of the County, which now plays a key role in the national agricultural outputs good example being Macadamia nuts.

In conclusion, I wish to thank the National Government, our neighbouring County Government of tharaka Nithi and Kirinyaga , ASK National Office, sponsors, Exhibitors and all the other stakeholders for making the Embui show a great success.

I urge all Kenyans and beyond to take advantage of this international event by attending this year's show for interaction and good business networking opportunities.

Karibuni sana Embu show Your Region's Premier leading exhibition partner.

Climbing Bean Varieties

a better option for higher yields

By Leopold Obi

Climbing beans plantation; inset:is the bean harvest

Farmers in bean growing zones have been urged to grow climbing beans, which are more productive compared to the locally available beans.

Dr. Robin Buruchara, Pan-African Bean Research Alliance (PABRA) director, says climbing beans can yield up to four times more than regular beans making it quite profitable.

Once they start yielding, the beans are harvested continuously for up to four months giving farmers more yields and income.

The bean variety is popular among farmers in Central African countries but have recently been introduced in Kenya and Uganda.

Since climbing beans grow up to four metres high, they need to be supported through staking.

"You have to support their growth with a stick for it to climb, if you don't have sticks it won't climb meaning the beans wont yield as much," says Dr Buruchara, the Kenyan researcher.

He further, added that farmers could develop different sticking options such as using strings or inter-cropping the beans with cassava or banana.

The expert however advises farmers to be cautious while intercropping the climbing bean varieties with maize, pointing out that some can strangle maize.

Climbing beans are of different types; therefore, you should keen not to inter-crop very aggressive varieties with maize since they can thin out maize.

Two superior varieties: MAC 49 and Omuvano are available for planting. Farmers can get seeds from Kenya Agricultural and Livestock Research Organisation (KALRO) in Kakamega.

The global trade of beans has increased significantly over the last few decades. Hence, PABRA is collaborating with national research institutions to produce high yielding and drought tolerant bean varieties, which can be sold to large processors.

Planting of various bean varieties in one plot among smallholder farmers is however, one of the biggest challenge in local bean farming sector making it had for these rank of farmers to access market.

"PABRA and organisations such as KALRO are training farmers on agribusiness focused bean farming. So that they know how best to grow the crops and we also link them with buyers and processors," says Dr Buruchara.

This is aimed at encouraging the small holders' farmers to access these beans and ensure the trade links are well maintained. KFJ

Getting ready
to prey on cricket

By Wahinya Henry

Depending on the region, the mention of cricket transports people to a major tournament perhaps even a World Cup often pitting world arch-rivals India and Pakistan and the respective nations pride at stake.

In most parts of Africa, crickets are those nuisance of insects that will ruin your evening prime time TV news by chirping intermittently behind a large cupboard.

But soon, crickets will also be at the dinner table — as meals.

Efforts by researchers at a local university to rear insects with high protein value received a big boost after studies identified Scapsipedus cricket as ideal for the purpose. According to the scientific journal Zootaxa, the Scapsipedus species of cricket was discovered by scientists at the Nairobi based The International Centre of Insect Physiology and Ecology (ICIPE) under its 'Insect for Food and Feed Programme'.


Photo Credit - www.modernfamer.com

"Scapsipedus is widely farmed across Kenya, however until now its true scientific information was unavailable," notes ICIPE scientist, Dr. Tanga Mbi. He adds; "Our study is important and can ultimately enhance the effective incorporation of the species as a component in food and feed."

Scapsipedus is commonly found around the buildings and fields.

"We have conducted research on the potential of farming of edible insects as an important contribution to nutritious food now and in the future," says Nanna Roos, Associate Professor, Department of Nutrition, Exercise and Sports, University of Copenhagen, Denmark, which is leading the initiative at the university.


Cricket farm

She adds; "The species already has demonstrated great potential for large-scale farming." The latest development is a big relief for the Jomo Kenyatta University of Agriculture and Technology (JKUAT)'s Dr. John Kinyuru.

Dr. Kinyuru has been spearheading an initiative to encourage Kenyans to take up cricket farming and at the same time make cricket insect consumption part of their regular habit.

Researcher Caroline Kipkoech: "Crickets are dominant in the wild and are a source of food in the form of muffins and cookies instead of letting them sing in the night as families go hungry in Arid and Semi-Arid Lands (ASALS), she says adding: "They also utilize very small space".

"In Kenya the human population is increasing but our land is not increasing, so we need to look for solutions that can utilize the small land that is available. Crickets can multiple in quite a short time span such that in three months, one can have proteins. They can also be reared using domestic organic waste. That is, what one would have thrown away as waste can effectively be used to produce proteins," she says.


Cricket granola bars

Dr. Kinyuru, a Lecturer in the Food Science Department, Faculty of Agriculture, who is spearheading the cricket initiative, says; "The Edible Insects' Research Centre seeks to optimize conditions for medium and large scale cricket farming; develop animal feed using mature crickets, build capacity and develop dissemination manual on cricket farming and utilization."

Joyce Muniu, a graduate in food science says that preparation of recipes and cricket based human food products is necessary in order to demystify the idea of insects being suitable for human consumption. Some of the products are: cricket stir fry, mini pizzas, cookies, muffins, granola bars, and pancakes, among other products

According to Dr. Kinyuru, the increased demand for animal protein coupled with high costs of fish meal and soybean, low yield of food crops due to climatic changes, among other environmental factors have also informed the search for alternative sources of protein for livestock feeds.

The nutrition profile of insects specifically proteins exceeds that of conventional sources such as omena and other plant proteins.

He contends that insects farming will lead to less pollution, less space and less time utilized compared to large animal sources of protein. Insects too, are easy to farm since they occupy a small space compared to other protein rich feedstock. KFJ

Here are five reasons to eat crickets

- Quarter of the World's population knows that insects can be quite delicious;
- Crickets are densely nutritious, even compared to traditional sources of proteins;
- Cricket farming is environmentally sustainable;
- Crickets are quite adaptable to different environmental conditions;
- Crickets can help meet the demand to feed the ever growing human population.

How to rear crickets

Crickets and other insects, as you may have heard, are a vastly more sustainable form of protein than livestock. They are also an ideal protein source for urban homesteaders: unlike creatures that might disturb your neighbours with their bleating, mooing, or cock-a-doodle-doo-ing, crickets are quiet, take up very little space, and won't cause a ruckus if they escape. Unless they escape indoors, that is – then you will have quite a ruckus on your hands.

Obtain Crickets and Materials

Starter crickets are easily obtained from pet stores (which sell them as food for reptiles and amphibians) or via mail-order online suppliers. If you're just experimenting, start with a box of fifty; if you're ready for crickets to become a staple in your diet, purchase five hundred or more.

Set Up the Housing

Crickets thrive in warm, moist, shaded environments. You can raise them pretty much anywhere – closet, barn, shed, backyard patio – that you are able to maintain tem-peratures between 60 and 90 degrees Fahrenheit (the closer to 90, the faster they'll breed) and high humidity. A location away from wind and direct sun is best to keep them from drying out.

Feed and Care for the Adults

Crickets can eat a wide variety of foods. There is even commercially available

Cookies made from wheat flour and cricket meal

cricket food, but some folks find that their crickets don't taste as good when raised on this – better to use grains, nuts, fruits, and vegetables. Feel free to feed the scraps that would otherwise be headed for the compost bin. Just don't let them linger too long in the cricket tote; uneaten food should always be removed before it becomes mouldy. Water may be supplied by filling the containers with the sponges to a maximum depth of ¼-inch each day. This will let the crickets drink, but prevent them from drowning, and will keep the sponges moist, adding humidity to the air.

Incubate Baby Crickets

When heat and humidity are optimal, the male crickets will begin chirping which is the sign that mating has begun. After 7 to 10 days, the potting soil should be full of eggs (they look like miniature grains of rice). Place the container (without its screen) in the second tote and keep it warm and humid. Within a week, baby crickets, called nymphs, will begin to hatch. The baby crickets will need the same setup as the adults – a perlite substrate with con-tainers for food and water/ sponges – and the same daily care routine.

Harvest

Adult crickets reach their full size within two months. "Harvest" consists of transferring them to a freezer where they go painlessly into a state of hibernation and never wake up.
If you have a chest freezer big enough, place the entire tote inside. A few hours later, you can come back and scrape off all the dead crickets into plastic bags. Alternative-ly, stuff the cricket-covered egg cartons into plastic bags and place these in the refrig-erator. This won't kill them, but after a few hours they'll be too cold to hop about and you can scrape them off into smaller bags to put in your refrigerator freezer.
Frozen crickets may be roasted, seasoned and eaten whole. You may also dehydrate them and grind them into flour.

The Cricket Farming Cycle

After each harvest, discard the perlite and potting soil and disinfect the tote. Once your tote full of baby crickets starts chirping, place a container of potting soil in it so they can lay eggs and continue the cycle.

New farming methods increase smallholder farmers' productivity

Farmers display harvest at the Embu Banana Market

By James Nzasi

Agriculture plays a critical role in addressing poverty, food security and equitable developments but climate change remains a threat to sustainable agriculture in Embu County. The county government of Embu has taken several steps to initiate capacity support for farmers to scale up agriculture in the county.

This has been facilitated through concerted efforts from both National and County government and other stakeholders like World Bank and Farmers Agricultural Organization (FAO) .As a result, more focus particularly on investments in climate change adaptation and mitigation measures that enable sustainable and profitable climate proof agriculture is attained.

However, in pursuit of food security and sustainable agriculture, Embu county government with the collaboration of other stakeholders, new farming technologies, agro-meteorological information and climate smart agriculture has been adopted and made accessible by small-scale farmers. Late last year, Embu county was among the 21 counties that benefited from Ksh.21.2 billion , a five year National Agriculture and Rural Inclusive Growth project funded by the World Bank. The programme aims at improving agricultural productivity among the rural smallholder farmers.

Embu County generates about 70 % of their economic earnings while employing about 85 % of the population in agriculture. Embu has a geographical advantage in that the county has diverse and favorable climatic conditions that make it suitable for farming different food crops. These include maize, beans, sorghum, root crops, horticulture and industrial crops mainly coffee, tea, macadamia and cotton.

While the emphasis on climate change adaptation measures is widely explored at the county level, climate smart technologies and practices therefore present opportunities for small-scale farmers in Embu to navigate through the challenges of climate change to increasing their food production. A number of modern methods of farming especially conservation agriculture (CA) has been extensively advocated by the county government through various farmers support programmes.

Through the department of Agriculture, farmers have been engaged continuously with a wide range of agricultural support programmes that aim at uplifting agricultural food production in the area. These services include climate smart agriculture, agroforestry and the use of drought resistance crops varieties. In addition, integration of pests and disease management for both crop production and livestock.

In line with the department of Agriculture-Embu County's vision, "An innovative commercially and modern agriculture and rural development sector" and mission "To improve livelihood of Kenyans through promotion of competitive agriculture, sustainable livestock and fisheries sub-sector growth of a viable cooperative, equitable distribution and sustainable management of land resources."

> *Small holder farmers have been trained specifically on conservation agriculture with the technical support from FAO to enable them adapt and use resources economically as they increase their production.*

Due to its climatic conditions, the system involves practices such as mixed cropping, livestock combined with the collection and use of livestock manure, integration of leguminous plants and controlled grazing. However, farmers are able to derive economic, social and environmental benefits from the systems.

The diverse nature of the system is expected to increase resilience to drought while improving income of farmers. Hence, the impact of these programs is realized through improved yields and food security. Notably, the Embu County agricultural profile can serve as an input for more investment prioritization in agriculture-especially directed towards initiatives that are technically, socially and environmentally appropriate to the local small scale farmers. KFJ

PICTORIAL

Agriculture and Irrigation CS, Mr. Mwangi Kiunjuri when he toured the AFA stand during the 2018 Eldoret National Show. He is accompanied by the Deputy Governor Uasin Gishu County H.E Hon. Daniel Chemno and Mr. Julius Kiptarus, Director Livestock Production among other officials.

Uasin Gishu County Governor H.E Hon. Jackson Mandago observes a microscopic specimen during his tour of the Department of Agriculture stand at the 2018 Eldoret National Show. Looking on is the Agriculture CAS, Dr. Andrew Tuimur, A.S.K Deputy National chairman Mr. Jackson Tuwei, Eldoret Branch Chairman Mr. Ratcliffe Nangalama among other officials.

Embu County Senator Hon. Peter Ndwiga during his tour of the Multimedia stand at last year's Embu Branch show. Looking on is the Embu Branch Chairman Mr. John Mukundi and the A.S.K CEO Mr. Batram Muthoka, among other Society and County officials.

The Deputy Governor Embu County, Hon. David Kariuki takes a keen look at certified hybrid seeds at Kephis stand during the 2018 Embu Branch show. Accompanying him is the CEC Agriculture Ms. Ann Nyaga, the Embu Branch Chairman Mr. John Mukundi among other officials.

The Patron of the Society H.E. the president, Hon. Uhuru Kenyatta is taken through the artistic impression of the Jamhuri Park Exposition and Conference Centre. Looking on is the Society National Chairman Mrs. Annabel Kiriinya, A.S.K Chief Executive Mr. Batram Muthoka and the current NITF Chairman Mr. Joseph Mugo among other officials.

Society officials led by the Society Chairman Mrs. Annabel Kiriinya at the Kverneland stand at the 2019 Salon Agricultural show - Paris. The delagates also engaged for possible partnerships with the ENKA Group(Turkish) Gelsan (Italian), Niubo Group (French among others.

H.E Hon. Patrick Khaemba, Governor Tranzoia County at the New KCC stand during last year's Kitale National Show. Accompanying him is the Society Deputy National Chairman Madam Edith Onzere and Kitale Branch Chairman Mr. Fredrick Tarus among other County and Society officials.

Agriculture CAS Dr. Andrew Tuimur operates a locally fabricated lawn mower during his tour of the National Irrigation Board stand at the 2018 Kisumu Regional Show. Looking on is the Society Deputy National Chairman Mr. Charles Owelle, Kisumu Branch Chairman, Mr. Caleb Oguya among other officials.

Mango farmers enjoy the sweetness of their labor

By Leopold Obi

It is mango season in Karurumo Location of Embu County. Mzee Gerald Kabire, a horticulture farmer is wary of the impending challenges they are about to face during the sale of the produce.

In the past, trucks from as far as Tanzania would shuttle the remote village scouting for mangoes but systematic failure including poor management practices and lack of proper marketing, would leave the unsuspecting farmers at the mercy of exploitative brokers. This would leave them with a meagre income.

"There usually is as large a number of brokers around as when there is supply of mangoes who act as middlemen between us and the customers. They then take advantage of everything; our naivety, lack of knowledge, lack of marketing options and the ever-looming post-harvest losses menace to exploit us. In the end we sell the mangoes at throwaway prices," pointed out Kabire who owns 800 mango trees on three acres of land, and bananas on half an acre.

Erick Ndwiga, another fruit farmer from the area, owns more than 500 mango trees of the Kent, Tommy Atkins and Van Dyke varieties has also had to contend with a similar situation. He has since realized that he was making more losses than profits from his fruits from selling his mangoes to brokers.

However, in recent times, Ndwiga began working with a group of farmers in the area, called Karurumo Horticultural Self Help Group where he is now a member. The group is in charge of fruit processing and value addition. This has helped him alleviate most of his postharvest losses and save him from brokers' exploitation.

Formed in 2003, the group which started with 53 members, that includes 15 people who are active while the rest are 'seasonal' members.

Alloys Mbogo is the chairperson of the Karurumo Horticultural Self Help Group. He says the group was established to help farmers improve their market for mangoes.

The farmers were so determined to overcome the market barriers that they established a tiny value addition plant for processing the fruits. The plant also acted as an aggregation center for the fruits.

The farmers' group initially worked from rudimentary installations in their establishment but have now steadily grown to be a force to reckon with.

"We have attained Kenya Bureau of Standards (KEBS) certification mark for our processed mango juices. We later moved from a rented premise and purchased three-quarter acre of land where we installed our structures," recalls Mbogo.

They have also acquired new modern processing facilities through the support of Rockefeller Foundation through the YieldWise Project in partnership with the University of Nairobi, Jomo Kenyatta University of Science and Technology (JKUAT), and TechnoServe.

An employee checks the mangoes in the brick cooler in the establishment.

Through this collaboration, the farmers were also taken through a rigorous postharvest management and value addition process to enable them effectively run the facility.

"We now plan to embark on making mango juice, jams and mango crisps. We also plan to work with the Export Promotion Council to explore possibilities of exporting dried fruits "said Mbogo.

The new facility consist of a cold storage room which acts as an aggregation centre, solar dryer and electricity powered fruit processing line. It also has 20 employees.

The facility has an Evaporative charcoal cooler, which uses charcoal and water to ensure the fruits remain fresh for up to five weeks after harvesting.

Alloys Mbogo, inside their processing plant, displaying some of the products they produce

"Cooling basically regulates the ripening of the mangoes and hence slows down their post-harvest losses," says Gerald Ndonye, a Masters student of Food Safety and Quality at University of Nairobi (UoN), who works with the programme.

The first cold storage room is a simple structure of charcoal encased in mesh to make up the walls, and drip lines running above them and can hold up to 10,000 mangoes at a time. The other room is called Zero Energy Brick Cooler (ZEBC), which is made up of bricks, sand and drip lines around the hollow structure. It similarly can preserve the mangoes for up to four weeks, according to George Mathenge, a technician working with the programme.

The plant also has an electric power cold store known as the CoolBot cooler, which can preserve fruits for more than 40 days. Other than cold storage system, the farmers also have a solar tunnel dryer, which extends the mango shelf lives through drying.

"Chopped mangoes are spread in the dryer and dried to make mango crisps, which have an extended shelf life and also tastier, due to concentration of their sugar content," notes Ndonye. He adds that under ideal conditions, the fruit chips take about a day and a half to fully dry for packaging.

Dr Willis Owino, who works with the Department of Food Science and Technology at JKUAT notes that the plant can pulp up to 250 kilos or more fruits per hour.

"With these upgrades, the establishment is set to destabilize the influence of brokers in the markets as it gives the farmers a sway in determining the prices for their mangoes," noted Prof Gitahi Kiama an expert from UoN. KFJ

Healthy Vegetables to Consider in 2019

By Emmaculate Mwikali

Happy new year and welcome back to the healthy living journey!

This year we are delighted to take you through the journey of amazing healthy vegetables good for you that are easy to grow even in your kitchen garden.

Vegetables are well-known to be healthy. They are high in vitamins, minerals, fiber and low in calories. Most vegetables have the ability to fight body inflammation or reduce the risk of disease.

In the subsequent editions we will include nutritional aspects and tips on how to grow the following vegetables:

Broccoli – a cruciferous vegetable that contains a compound that helps reduce the risk of chronic disease by protecting against oxidative stress.

Asparagus – a spring vegetable rich in several vitamins and minerals, making it an excellent addition to any diet. In ladies, it can prevent neural tube birth defects during pregnancy.

Brussels Sprouts – Best for detoxification and are very nutrient-dense. Each serving provides a good amount of many vitamins and minerals, including vitamin K, vitamin A, vitamin C, folate, manganese and potassium.

Red Cabbage – a cruciferous vegetable brimming with antioxidants and health-promoting properties. Able to prevent increases in blood cholesterol levels and protect against damage to the heart and liver.

From providing essential vitamins and minerals to fighting disease, it's clear that including vegetables in your diet is crucial for good health. Ensure that you're getting a good mix of vegetables in your diet to take advantage of their many diverse health and nutritional benefits.

Be on the lookout for the four other KFJ Editions to catch up with the various amazing healthy vegetables.

Agribusiness curbing youth unemployment

By Wesley Langat

A university graduate turned tomato farmer after lack of employment

With the rising youth unemployment in Kenya, many youths have opted for alternative measures to keep themselves busy and find something to do to earn a living.

Isaiah Kipruto a graduate from the University of Eldoret says that life after campus has not been easy for him from the time he graduated with a Bachelor's degree in Economics. He tried looking for a job in Nairobi but to no avail. Kipruto finally decided to move back to his parents' farm in Kesses, Uasin Gishu County and start tomato farming.

While tending to his tomatoes at one of the greenhouse's he says, "pests and diseases are one of the challenges tomato farmers are facing but they are controllable by use of fungicides. Tomato farming has really sustained my family needs for it is generating enough income, as I am able to educate my siblings who are still in school. I usually supply my tomatoes to traders in Eldoret town market and also different hotels within Eldoret town/"

During his first harvest he managed to get three crates of tomato but production has stabilized to 10 crates a week which normally earns him at least Ksh 2500 each."

Kipruto is not alone, according to a recent survey by the Kenya National Bureau of Statistics (KNBS), seven million Kenyans are unemployed, out of these 1.4 million are desperately looking for work. The rest have given up on job-hunting opting to do entrepreneurship, while others pursue further studies.

> ***Joseph Koch a lecturer at one of the universities in Eldoret says that, "… low pay in cities and poor job prospects are pushing thousands of unemployed youths to return home and engage in farming."***

Grace Kiptoo another graduate from Mogoiywet village, Kipsomba constituency, Eldoret north location, says she left Nairobi to return to her parents' home to farm. Grace a single mother of one daughter and now runs a poultry keeping business.

"I wanted to be a Human Resource Manager, but without a job or income, living in the city with no stable job was expensive coupled with raising my two year old daughter made life difficult. With poultry farming I'm assured of food and income," she says.

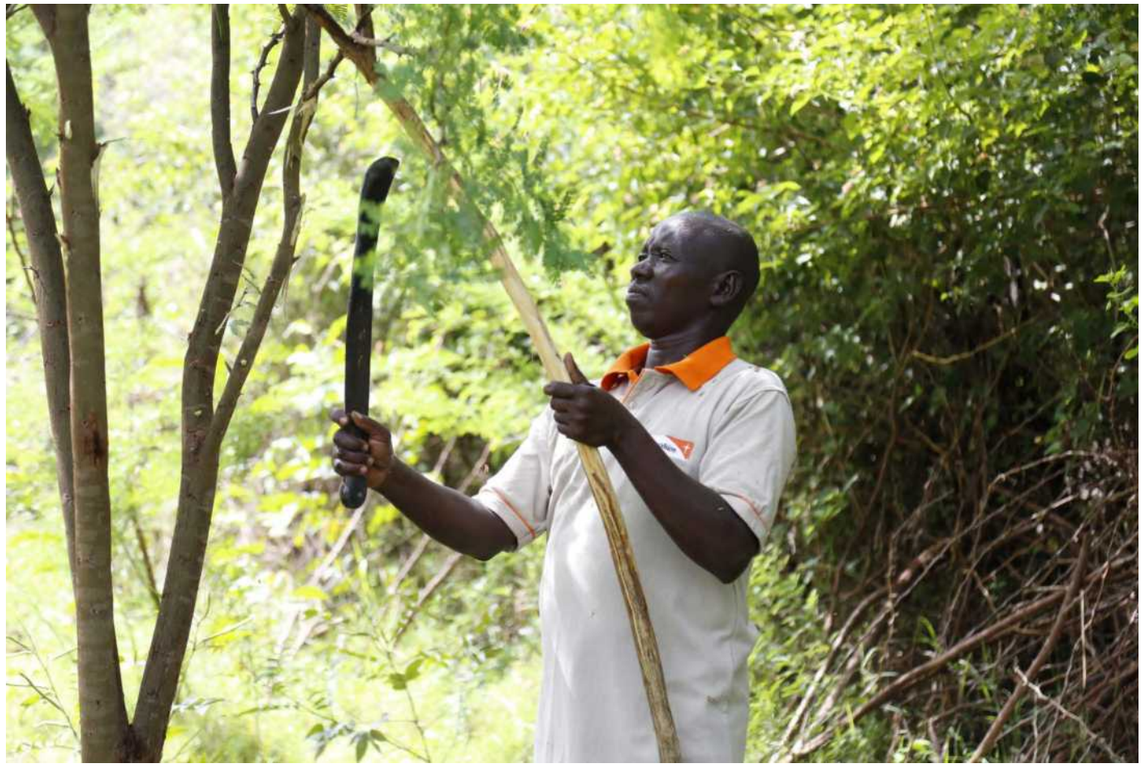
Poultry farming does not require a lot of space, what is key is that cleanliness is ensured so that the chicken do not contract diseases easily.

Grace owns over 150 indigenous chicken that supply her with eggs and sells the mature birds to hotels in Eldoret town.

According to Mr. Koech, the university lecturer, more investment is needed to make farming attractive to a wider range of young people. He further advises the youth not to despise farming as it creates a sustainable income to those who are committed.

Reaping from proper pasture management

By Leopold Obi



Baringo farmer prunning tree

Near Lake Baringo sits Marigat, an expansive pastoral village. Almost arid, rocky and nestled in among acacia trees and dryland shrubs, Marigat has in the past hit the headlines following Prosopis juliflora (mathenge),a drought tolerant yet noxious shrub which claimed tens of goats.

Invasion of homesteads by cattle rustlers who attack farmers before driving away with herds of animals have also been common in the expansive Baringo County. But amid threats of desertification, cattle rustling and invasive shrubs, one farmers is overcoming the odds by investing in dairy cows and mango farming.

David Korir, 51, owns four lactating dairy cows, all Guernsey breeds.

Like many areas of this village his land was characterized by rocky outcrops and bushy thickets.

"I had indigenous cattle breeds which grazed on the fields around, but when I decided to introduce the cross-breed dairy cows, my biggest worry was where to find fodder," said the farmer who owns 9 acre piece of land.

(Prosopis juliflora) mathenge plant in Marigat, Baringo

Shortage of livestock pasture in this countryside especially during drought have necessitated many farmers including Korir to grow acacia tree species known asacacia seyal whose back is pealed and fed to animals during drought.

Many farms in the areas are dotted with the tree, which farmers prune for height management. And while no research have proven the nutritional benefits of the bark of the tree, farmers in the area say that the bark these acacia tree is very good for livestock. Research institutions among them the International Centre of Insect Physiology and Ecology, icipe, are currently conducting research on the tree to ascertain the farmers' claims.

But for farmers who have hybrid dairy cows like Korir, relying on such rudimentary fodder cannot entirely feed the herds therefore he embarked on growing hay and clearing thickets on his farm to enhance grazing space.

Under a programme known as Farmer Managed Natural Regeneration project (FMNR), an initiative by the Kenya Forestry Research Institute (KEFRI) and World Vision, farmers in Baringo are being encouraged to promote restoration of pasture, forests, and indigenous trees for the good of their livestock.

"Part of my farm is considerably rocky, so I was trained through FMNR how to deal with the rocks, remove some trees while pruning the rest to allow regeneration of pasture,"Korir says.

Once he removes the rocks from the farm, he either arrange them in one long straight line across the farm to minimize erosion while he sells the rest to contractors who utilize them in building houses or roads.

The farmers also dug a borehole whose water he uses in irrigating mangoes and watering the animals.

Kosgei at their mango farm

He has 60 mango trees, paw paws and 12 cross-breed dairy cows, and a bull.

The mango fruits which are of Kent and apple mango varieties are sold to consumers at the nearby market.

For the farmer, having the fruit trees within his farm is one way of improving the productivity of his land by introducing trees which can provide food and source of income.

"All the four lactating cows give us 18 litres of milk in the morning and 14 litres in the evening," said Kosgei Korir, the farmer's son.

They sell the milk locally at Sh30 a litre.

Kosgei, 25, is pursuing a diploma in general agriculture at a local institution to help improve his father's venture in the future.

"I have learnt a lot from my dad's venture and so far I'm impressed that is why I picked a course in agriculture so that I help my father build on what he started,"Kosgei explained.

In the morning, he helps his dad milk the cows after which they are given hay, watered, left to graze on their own.

To ensure that they have ready supply of hay, they have put up a hay store which has been constructed of wood walls and iron sheet roof.

"Sometimes we buy hay from our neighbour but most of it are what we harvest form our farm" he explained, adding that their farm is hardly affected by droughts.

With their improved farming technique the Kosgei and his dad are the envy of their villagers who visit their farm for lessons.

Unlike modern day dairy farmers who prefer inseminating their cows with semen from pedigree bulls, the farmer services his cows the conventional way using cross-breed bulls.

"Most of our cows are small bodied, therefore they cannot carry AI semen,"Kosgei said, adding that once a bull has served the cows it is later sold to avoid in-breeding.

Felix Opinya, a livestock expert at Egerton University, explains that weights of cows is quite critical while breeding since it helps in avoiding dam-sire mismatch.

"This means that heifers or cows being served with semen from bulls that matches their weight and sizes to avoid cases of dystocia –overweight or of oversize calves – during calving" say Mr Opinya. KFJ

The Role of Agricultural *Biotechnology towards* the 'Big Four' Agenda in Kenya

By Murenga Mwimali and Florida Maritim

Kenya Agricultural and Livestock Research Organization (KALRO) is the premier national research organization comprisedof 16 research institutes, 53 centres, several sub-centres and field stations/ testing sites spread throughout the country. KALRO ismandated to undertake, streamline, coordinate and regulate all aspects of research in agriculture and livestock development, and to promote the application of research findings, technologies and innovations. The Institutes/Centres undertake research programmes in food, horticultural and industrial crops, livestock and range management, land and water management, biotechnology, agricultural mechanization, genetic resources and socio-economics. Agricultural Biotechnology research is a broad area of biology that involves living systems and organisms by inserting DNA into the genetic make up to develop products that use biological systems, living organisms or their derivatives for specific uses. Biotechnology is divided into three main categories; plant biotechnology, industrial biotechnology and medical biotechnology. KALRO Biotechnology research includesTissue culture, genetically engineered crops, Animal biotechnology and other upcoming agricultural biotechnology research.

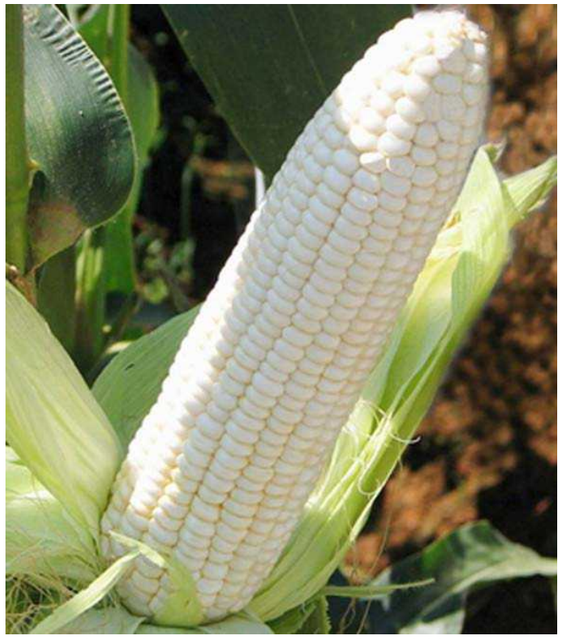
Plant biotechnology: Genetically Modified (GM) crops are agricultural plants whose DNA has been modified using genetic engineering methods to introduce a new trait (s) that does not occur naturally in that crop species. The application of tissue culture techniques in Kenya has become popular. Currently, the technique is on various crops namely; coffee, tea, sugarcane, bananas, coconut, aloe vera, sisal, pyrethrum, and others to produce disease free seedlings that can be distributed to farmers. In so doing, the technique has a direct effect on the food security and nutrition pillar.

Bt- cotton at KALRO Mwea NPT site Photo | Stephen Odipo

The applications of plant biotechnology aim to achieve better crop yield especially under challenging environmental conditions. For example, the adoption of Bt cotton in Kenya will result in a 30-80% increase in yield from the Bt cotton compared with non-Bt cotton, thisincrease is attributed to marked improvement in the Bt cotton plants ability to overcome bollworm infestation. In Kenya, Bt cotton is grown across seven counties on approximately 200,000Ha. The conventional cotton seeds produce about 2,500kg per acre,

while Bt Cotton yields are double. Its improved yields will enable Kenya to meet its feed and fibre needs, therefore, contribute towards the Big Four Agenda in Kenya through the creation of about 500,000 new employment opportunities in the textile and apparel industry.

Kenya Agricultural and Livestock Research and Organization (KALRO), has conducted studies on Bt maize or the stacked GM maize with more than one trait in Kiboko in Makueni County and Kitale in Trans Nzoia County for over 4 years. The study findings have demonstrated consistently that the use of GM maize showed a yield advantage of 40% when compared with non-GM maize. In addition the Bt maize was able to control upto 100% the stem borers which are a major challenge in the maize growing areas. These pests cause annual total losses in Kenya thus estimated at 13.5% (valued at between US$25 and US$ 59.8 million), ranging from 11% in the highlands to 21% in the dry areas. The adoption of Bt maize technology will contribute immensely towards alleviating the losses, and improved food security, therefore directly add value towards the Big Four Agenda.



TELA maize variety at KALRO Kitale Confined Field trials site

Furthermore, through plant biotechnology, maize tolerant to parasitic weeds such as striga can be developed. It is known that over 1.4 million ha of East Africa's farmland is affected by striga, with over 340,000 ha of farmland affected in Kenya alone. The Imazapyr Resistance (IR) technology can be used to reduce these losses. Maize Lethal Necrosis (MLN) disease caused losses of upto 100% in maize growing areas in Kenya. Recent findings have shown that with Kenya MLN causes a loss of Ksh4.1 billion ($41 million). Viruses cause losses in cassava with an average 30-40% (1524 million tonnes; $6-25 billion/year) reported in Africa. The use of GM technology using gene silencing is able to reverse the losses, thus contribute towards the Big Four Agenda in Kenya on achievement of food and nutritional security.

In the improvement of nutritional quality, genetic tools have been used to alter the carbohydrate, fat, fibre and vitamin content of food. For example, a gene from amaranth was transferred into a potato. The potato showed an increase not only in its protein content, but also in its size. Genes from protein-rich cereals can be transferred to low-protein cereal crops. Bio fortification with microelements of iron, zinc, and vitamins such as vitamin A, genetic tools have been applied to produce orange fleshed sweet potatoes and cassava. Furthermore, transformation has been applied to fruits and vegetables to improve their flavour and texture by manipulating their maturing process. For instance, tomato was genetically manipulated to slow down its ripening, and has a longer shelf-life.The above plant biotechnology applications will thus contribute towards the food security and nutrition in Kenya.

Key areas currently being undertaken is to develop varieties which are drought resistant and insect-pest resistant.

Drought-tolerance: Twelve years ago, Scientist discovered a transgene that confers additional drought tolerance to maize, incorporating it into scores of maize hybrids and testing them widely.

Insect-pest resistance: The transgene provided good insect-pest protection, protecting yields and reducing the need for pesticide spraying. Under conditions of artificial infestation by Busseolafusca and Chilopartellus, the Bt maize provides excellent insect-pest protection and in some cases has demonstrated over 50% yield advantage compared with the conventional non-transgenic version (isogenic hybrids). This technology received general approval for environmental release in Kenya in 2016 with conditions that are pending final approvals for commercialization. It is ready for deregulation (environmental release) and deployment in the different WEMA countries.

The Stacks: Seeing the advantages conferred by both traits (DT and Bt), WEMA combined or "stack" the traits in adapted hybrids. The stacked products are currently undergoing field trials in South Africa, Kenya, Uganda, Mozambique, and soon to commence in Tanzania and Ethiopia. The stacked maize hybrids – branded "TELA™" by the Project – are now the primary focus of the TELA™ Maize Project that will also explore the development of triple stacks – DT-Bt-RR with smallholder farmers paying a development-fee for the herbicide tolerance (RR) trait. The proposed TELA™ Maize Project will build on the trusted relationships established among the WEMA partner organizations, the key successes achieved and lessons learned for over nine years that were recently assessed and documented by ALINe, 2017.

Livestock researchers to produce a vaccine against the East Coast Fever (ECF) disease at a cost of KShs.15 million.

Erick Mugube, Director, Kenya Agricultural Livestock and Research Organization-Veterinary Research Institute in Muguga said this is the second batch of half a million doses of the ECF vaccines that are being produced since 1995 against the disease that has a 100 percent mortality rate in cattle.

"The vaccine that is currently being used was produced in 1995 and over half a million doses have been sold. The institute is producing another batch of half million doses again due to a high demand. This will cost between KShs.10 to KShs.15 million," said Mugabe.

He explained that ECF is caused by a single parasite, Theileria parva, which is transmitted by brown ear tick. The disease often kills a cow every 30, seconds worldwide, and it is a threat to more than 25 million cattle in Africa.

The disease is mainly found in Kenya, Uganda, Tanzania, Rwanda, Burundi, South Sudan, Malawi, Zambia, Zimbabwe, Mozambique and Democratic Republic of Congo (DRC) and has had an adverse impact on Africa economies with losses exceeded KShs.30 billion cows annually.

"If this disease is not controlled through treatment using drugs or vaccination, death may occur within one month of being bitten by a tick and dairy farmers are the most affected by the ECF in the country," he said.

Symptoms of the disease include loss of appetite for the animals, swelling of lymph nodes and for the dairy animals, milk production goes down by a huge margin.

Moses Alu, a research scientist at KALRO said they are producing another 120,000 to 150, 000 doses to help farmers fight the disease.

"It will take us about two years to produce the vaccine which is only sustainable under cold conditions, it is stored in liquid nitrogen," he said.

Alu said that the dose costs KShs.200 and to ensure the vaccine is effective, the institute retrains the service providers who administer the vaccine.

"The occurrence of ticks in the Eastern, Central and Southern Africa is one of the major limiting factors of livestock production in this region. The fatality rate for untreated ECF which is a disease of cattle and buffalo can be as high as 100 percent in cattle," he further observed. KFJ

Avocado and Macadamia

Five Million Seedlings Nursery Underway

By Fred Omondi

From next year the government is set to launch a nursery initiative for five million macadamia and avocado seedlings.

Agriculture Cabinet Secretary (CS) Mwangi Kiunjuri has said that farmers will receive seedlings for these fruits which have ready market in South Africa and China.

"The President has directed the ministry to plant five million seedlings and so far, the nurseries have been established and planted," he said.

Hon. Kiunjuri said the move is aimed at ensuring food and nutrition security since there is already a market for the commodities especially avocados in South Africa. China has also been identified as a market for such fruits and vegetables.

"This is a huge market and Embu County bound to benefit immensely owing to its high production of macadamia and avocados. These are some of the measures that we are taking as a government towards food and nutrition security in different areas," he said while speaking to farmers in Embu County.

The demand for macadamia farming in Kenya has been sparked by the high price of the commodity with a kilo of macadamia going for as high as KSh 200. This high price has led to some incidences of theft of the nut at the farm level.

Charles Muigai from the Nut Processors Association of Kenya said production of the nut has increased from 11,000 metric tonnes in 2009 to the current over 30,000 metric tonnes, annually. This, he said, is attributed to more farmers shifting from growing the usual crops to macadamia nuts which has also increased the number of processors in the country to about 30.

Production

According to the Agriculture and Food Authority (AFA), Kenya is the third largest macadamia producer with approximately 41,000MT in 2017 with Australia and South Africa taking first and second places, respectively. The country earned about Sh7.49 billion from the export of macadamia nuts last year.

The nuts are largely produced in Embu, Meru, Kirinyaga, Murang'a and Kiambu Counties. Macadamia is mainly an export crop after it is processed the major markets of the macadamia kernel are China, Middle East, USA and India.

There are improved macadamia varieties in Kenya namely Murang'a 20, Kiambu 3, Embu 1 and Kirinyaga 15. A macadamia seedling averagely costs KSh 400 and takes four to five years to attain economical production level.

AFA states that prices for unshelled nuts have risen to as high as KSh200 per kilo from about KSh70 in 2016.

Ban

In October 2018, AFA issued a ban on harvesting of raw nuts stating that harvesting of immature nuts was leading to poor quality of nuts being exported. In 2009, the Ministry of Agriculture banned the export of the nuts in order to protect local industry.

The ban was lifted early this month and the Macadamia Growers Association has since set the current high price. The Nut Traders Association of Kenya however want the ban to be extended in order to allow adequate time for the nuts to mature completely so that the farmers can fetch good prices for the nuts. KFJ

North Rift Needs a Lift

By Fred Gori

Kenya experiences food shortages of various degrees among different segments of the population. The most conspicuous form of food shortage is witnessed in arid and semi-arid districts resulting primarily from perennial prolonged droughts. Almost every other year, Kenyans from all walks of life have responded to calls for emergency assistance by various relief agencies often raising hundreds of millions of shillings (in cash and kind) each time for emergency assistance.

The North Rift, whose economic and commercial capital is Eldoret, has been variously described as Kenya's breadbasket and the land of large scale maize growing. The region enjoys above average rainfall, is blessed with rich soils and is populated by a hospitable and hardworking people. It contributes a substantial portion to Kenya's food reserves.

This reputation, however, conceals recent challenges affecting grain business in the area which has left many ordinary farmers with a sour taste in their mouth. Kenya cannot afford to let grain farmers in the North Rift get out of business. Agriculture has been and remains a key part of Kenya's economy.

Indeed, the sector remains the mainstay of Kenya's economy, directly contributing 24 per cent to the Gross Domestic Product (GDP) and 27 per cent of GDP indirectly through linkages with manufacturing, distribution and other service related sectors.

The sector is responsible for an estimated 45 per cent of Government revenue. Additionally, the sector contributes over 75 per cent of industrial raw materials and more than 50 per cent of export earnings. The sector is also the largest employer accounting for 60 per cent of the total employment. That is a huge segment of the population. It is estimated that over 80 per cent of the population, especially those living in rural areas, depend on agriculture and related activities for their livelihoods.

Evidently, this is the goose that lays the proverbial golden egg and it ought to receive commensurate budgetary allocations every year.

County governments, relevant national government agencies and various civil society organisations must start working with farmers, especially young farmers, helping them to shift from traditional agricultural practices to agribusiness. In other words, farmers should start looking at agriculture from a business standpoint because that is what it is, business. Every agricultural activity should be geared not only towards making profit but also embracing the other two Ps -people and planet - for agriculture cannot be sustainable if we don't include the people and protect the planet on which it depends.

For agriculture to be consistent with the three Ps, we need to know the true price of what we produce so that we get the correct return. The return should not only pay the financial cost but also compensate for loss of biodiversity and soil fertility. But that's not all. We need to bring on board the future of agriculture that is young people, especially the thousands who are struggling in urban slums. To attract them, we need to rebrand agriculture and position it as both fashionable and profitable. In agribusiness, there is opportunity to innovate, value add and grow the value chain to include cottage industries and new markets.

In 2019, it is the entire nation's hope that we won't experience the same challenges that North Rift farmers experienced the previous year. When North Rift farmers are in trouble, the whole nation is in trouble. We must work intelligently, developing partnerships, building rural cooperative societies, lobbying for favourable policies and championing the 3Ps in agriculture. KFJ

Rice farmers reaping profits from modern farming

By Leopold Obi

Rolling planes of well-manicured green fields stretching across the rustic township of Wang'uru, in Mwea, offers a painstaking view to behold. Its unmistakable fresh air full of pishori aroma brings to fore a rice cultivation culture that spans over 30 years.

Approximately 200Km from Nairobi, Wanguru village is distinguishable from other rice growing villages of Mwea Irrigation Scheme, for its use of exotic technology in cultivating the grain.

Three years ago, Wanguru farmers were accustomed to the conventional paddy cultivation ways of random planting, manual extensive labour, which was less remunerative in the long run. However, since they left the traditional farming methods for a cheaper technology from Japan, their farms are recording improved yields and more income.

New Technologies

David Waweru, chairman of the Mwea Rice Farmers Sacco narrates how modern technologies in paddy farming has made the venture more lucrative to their members.

"Use of farm machineries such as combined harvesters is a big relief to our farmers. It is quite affordable. A combined harvester only needs an hour to harvest an acre which is much faster compared to back then when we hired 10 people who worked on the same farm for a whole day," Waweru explained.

Peter Mwaura, a rice farmer in Mwea, says it now costs him Ksh 5,000 to harvest rice from his one-acre farm using a combined harvester, which is half the cost of hiring manual laborers for the same job.

Mwea's traditional rice farming practices met a revolution in 2013 when the Japanese International Corporation through a programme called Rice-based and Market-oriented Agriculture Promotion project (Rice MAPP) introduced the local farmers to new farming ideas that have successfully been used by rice farmers in Japan.

In the Rice MAPP project, farmers were trained on line planting, mechanical weeding and mechanical harvesting. The project has 18 combined harvesters and 25 tractors, which farmers hire at affordable prices.

"There was a lot of training especially on land preparation, whereby after ploughing farmers, use a leveler on the planting plot before using a marker to demarcate the correct spacing for planting," says Ibrahim Murioki, the Rice Mapp Agribusiness Development Manager.

After ploughing, the field is flooded before being leveled using a hand held tool, which is dragged on the surface of the farm so that it is uniformly leveled. This is followed by marking of plant spacing, which should measure 30 cm x 15cm.

Mwaura explains that the leveler can be made using pieces of timber.

"One needs pieces of wood which are joined to form a T-shaped tool. Nails are hammered onto the lower side of the timber so that it resembles a rake. Two people do the line marking, as one drags the rake-like tool across the farm the other drags along the farm. This exercise leaves the farm marked by small boxes," he further expounded.

Murioki says that use of the technologies have increased their farmers yields by about 30 per cent. The rice farmers also are connected to the buyers who buy unmilled paddy from the farm at Ksh 60 to Ksh 75 per kilo. Some farmers also mill their paddy at Nice Miller Ltd -which mills 60 per cent of all the rice produce in Mwea-at Ksh 3 a kilo and sells it at Ksh 105.

With the new technologies, Rice MAPP experts noted that their farmers harvest up to 5 tons of rice per hectare.

Dr. Akio Goto, Rice MAPP technical operation manager, says that they do field trials for new seed varieties before recommending it to farmers.

"We are now working with 500 farmers but hope to double it by next year. We have demonstration plots where we try seeds from different companies and recommend it to farmers for instance which seeds to grow for commercial and for their own consumption and the output to expect when harvesting." KFJ

Technology transforming Tea Farming

They say any time is tea time and certainly so for Kenya.

By Fred Gori

The Kenya Tea Development Agency (KTDA) through its 54 tea factory companies and 14 satellite factories is the largest tea producer in Kenya, accounting for up to 60 percent of total tea production.

Globally, it is famous not only for its high quality teas which have traditional been used to give others teas a distinctive taste, but also for the unique business model which makes it possible for small scale tea farmers to have a strong voice and a competitive advantage in global trade.

KTDA, however, faces multiple challenges which remain an ever present threat to the very survival of the small scale tea sector. These include the high cost of production, especially the high cost of energy, continued subdivision of land resulting in limited economies of scale, climate change, unstable prices, fluctuating exchange rate and political interference in the business, among others.

Since 2000, when it became a private company owned by tea farmers through their factories, KTDA has done many things to secure the future of the business and increase the earnings of farmers. One of those milestones is the significant investment in technology. The business came from a past when everything was manual. This slowed down the business, increased cost of doing business and created loopholes for unnecessary inefficiencies along the value chain. For instance, the manual weighing system was prone to falsification by crafty clerks. The clerks recorded the information on paper, a scenario, which, in some instances, was played around with such what was weighed was not what was recorded in the factory's books. There are cases where records were lost with farmers having no other reference for what they actually delivered. This challenge is now a thing of the past, thanks to Electronic Weighing Solution (EWS).

With Phase 1 of EWS, electronic scales fitted with GSM /data capabilities were introduced that were linked to KTDA servers. Data transmission became real-time and stored securely. Farmers receive instant receipts and generally the system increased the integrity of the weighing system.

Phase 2 of EWS comes with smart cards and real time texts to farmers indicating the kilograms of leaf weighed. In summary the weighing system has become secure and the integrity of weights has increased. The aim is to eliminate falsifications. Data collection and storage is also made easier. The farmer is sure that what was weighed is what he is being paid for.

Other technological advancements include:

- The organization has fibre connectivity to all the factories.
- Each factory has a virtual Private Network (VPN) with Safaricom that has a route to the main KTDA Group VPN
- Every factory has an internally developed system suite (CHAIPRO) for managing the tea processing
- There is also a mobile weighing solution that is used for leaf buying, collection and delivery.
- Information/Data flows automatically from the field, to the factory and eventually to KTDA HQ where the core system is hosted.
- The KTDA systems feed the auction systems located at our subsidiary in Mombasa through the same infrastructure.
- The payment transactions are relayed back the same way through the VPN to the individual factories.

For demonstrating high integration of ICT in its business, KTDA recently won the award for The Best Company adopting ICT in business in Kenya during annual Computer Society of Kenya Awards ceremony.

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Benefits

- Supporting Food Security
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- Financing installation of quality biogas digester

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