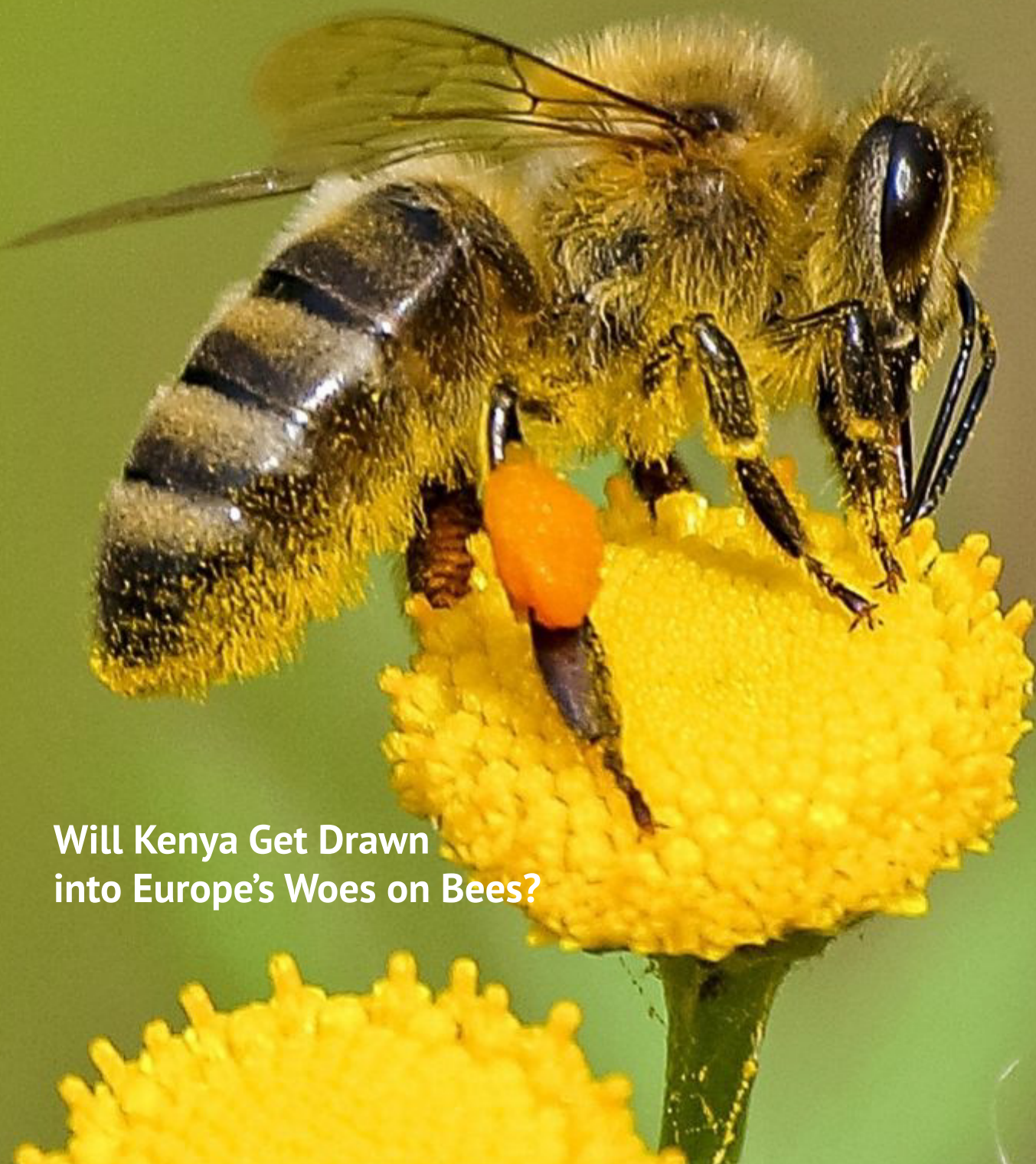


CEREALS

July - September 2024

Ksh.400 Tsh. 6,900 S.A Rands 50 USD 3

The leading journal for field crops



**Will Kenya Get Drawn
into Europe's Woes on Bees?**

India 1st Most

POWER+MILEAGE

Tractor Range

22 hp to 110 hp



INDO FARM
POWER+MILEAGE

Salient Features

- ▶ Powerful Engine
- ▶ 4 Wheel Drive
- ▶ Synchronmesh Gear Box with 12+12 Speeds
- ▶ Heavy 2600 Kg Lift
- ▶ Power Steering
- ▶ Oil Immersed Brakes
- ▶ Multi Speed PTO
- ▶ Dual DC Valve
- ▶ No. 1 in agriculture and commercial works



www.indofarm.in

Authorised Distributor :

Agricultural Tractor Spares Limited

33 Dar-Es-Salaam Road, Industrial Area, Nairobi
Mobile +254722 209642, +254733 600 593, Email : tractorsales@atslkenya.com



NO WEEDS MORE GAINS

Divixton 25 Neo EC™

HERBICIDE

A Post-emergence Herbicide

for the control of annual broad leaf weeds,
grasses and sedges on paddy rice.

Active Ingredient: Rinskor (Florpyrauxifen-benzyl) 25g/L

Application rate: 1.2L/Ha in 200L

120ml/20L knapsack sprayer

PHI: 60 Days

Corteva Agriscience™

Keystone Park, Block B, 3rd Floor, Riverside Drive

P.O. Box 53384 - 00200, Nairobi Kenya

Tel: + 254 709 142 000



Editorial	4	Main Story	20	Research & Technology	32
Cover Story	8	Free Lessons for Kenya from Mexico		New Technology to Cut Costs for Maize Farmers	
Will Kenya Get Drawn into Europe's Woes on Bees?		Feature	24	Crop Production	34
Soil Management	10	Curbing Counterfeit Agricultural Inputs		The Impact of Growing High-Yielding Hybrid Maize Varieties	
Sustained Yields Start With Healthy Soils And Roots		Crop Protection	26	Conferences	36
Q&A	18	Beating Fusarium for Quality and Yield		Insights from the African Fertilizer and Soil Health Summit 2024	
Go For Hybrid Rice Seeds		County Focus	29	Finance & Development	38
		The Agroecological Conversation		Championing for the African Development Fund	





Cereals

July - Sept 2024

Editor

MASILA KANYINGI

Sub-Editor

MARY MWENDE MBITHI

Editorial Assistant

CORNELIUS MUEKE

Contributors

Winnie Kamau

Ojepat Okisegere

Keziah Ndinda

E.Hernandez Lopez

aak Grow

David Jones

Photographer

ALEXANDER MAINGA

Graphics Designer

EVELYNE NDIEMA

Marketing

FLORINEWS LTD

Administration Assistant

CHRISTINE MUTHOKI

Editorial Board

NICHOLUS MBATHA - CORTEVA

JOSEPH KIOKO

DORIS KAWIRA- OMNIA

MARTIN MWOBODIA - CONSULTANT

STAY CONNECTED TO CEREALS

TEL: 020-2440908 ,0732-558172,

EMAIL: info@cereals.co.ke

Website: www.cereals.co.ke

Maximizing on Rice Production

It is important to note that rice farming in Kenya faces various challenges such as poor infrastructure, unreliable water supply, and competition from imported rice, which can affect profitability. Therefore, farmers need to conduct thorough market research, seek expert advice, and implement efficient farming practices to ensure profitability in rice farming.

Editorial



Keep going....

Lately, we have had to deal with a lot of changes happening in cereals sector. At first, describing them to my friends, I kept calling them endings, but afterwards I began to feel as if it was a process of renewal. There is a Chinese saying that goes 'if the old doesn't go, the new cannot come.' Keeping that in mind, I've begun to view these difficult events as a shedding of things for me to grow forward, and so I've come to call them 'changes' instead of 'endings.' Our industry has faced a lot for the last two years and it needs a motivational speaker. I'm never one but allow me to share wisdom from the Ninja village

As I grew up, I was a great fan of the popular Ninja Films. A powerful lesson that stuck in my head through the years was something I first read from The Grandmaster's Book of Ninja Training by our grandmaster, sōke Masaaki Hatsumi, and I quote: People create all their barriers for themselves. It's really such a foolish thing to do. We create our own obstacles and lose our own way in the search for truth. So it represents no barrier for me now. All that it's necessary to do when one faces a barrier is just keep walking, paying no attention. Just keep going, keep walking, and the obstacles disappear!

Which sounds surprisingly like what another master martial artist, Bruce Lee, said (from the book *The Warrior Within: The Philosophies of Bruce Lee*): It's just a case of learning to look at hardship as if today the rain is coming on strong, but tomorrow, baby, the sun is going to come out again. And in a letter Bruce sent to one of his closest friends while the latter was going through a profound hardship: Life is an ever-flowing process and somewhere on the path some unpleasant things will pop up - it might leave a scar - but then life is flowing on, and like running water, when it stops, it grows stale. Go bravely on, my friend, because each experience teaches us a lesson.

And this is my message to the industry I adore.

Keep going....

The Growth of Agricultural Insurance in Kenya



By Winnie Kamau

In the recent past Agricultural insurance has been seen as a crucial tool for farmers to protect themselves from natural disasters and uplift their livelihoods. However, despite its potential, agricultural insurance has faced challenges in gaining traction in Kenya, where agriculture plays a central role in the economy.

In Kenya, the history of agricultural insurance can be traced back to 1942 when the colonial

administration introduced the Guaranteed Minimum Return (GMR) program to cover specific crops. However, after years of disappointing performance and mounting financial losses, the GMR scheme was terminated in 1978. From the late 1970s until the mid-2000s, there was limited interest among

private commercial insurers in Kenya to offer crop and livestock insurance.

The private sector, traditionally seen as the vanguard of innovation and progress, has remained hesitant to fully embrace agricultural insurance. The specter of risk looms large, deterring many insurance providers from venturing into uncharted territory. Moreover, the uptake of insurance among farmers has been dismally low, a testament to the prevailing challenges that beset the sector.

According to the Ministry of Agriculture, Livestock, Fisheries and Cooperatives data shows between 2008 and 2011, Kenya faced a severe drought, resulting in significant economic losses totaling KSh. 968.6 billion. The livestock sector bore the brunt of this loss, accounting for 72% or KSh. 699.3 billion, with 9% of all livestock lost. To mitigate the impact, the Kenyan government is said to have allocated KSh. 4.2 billion for post-disaster interventions during this period.

Over the past five decades, Kenya has experienced 41 major floods, affecting approximately 6.9 million people. Additionally, 12 major drought events occurred during this period. Between

[TO PAGE 6](#)

FROM PAGE 5

2008 and 2017, the country witnessed an estimated KShs 699 billion in livestock losses and KShs 121 billion in crop losses. On average, the government has spent KShs 4.2 billion per year on disaster relief funding over the past 12 years. In 2017 alone, Ksh 16 billion was utilized, with Ksh 9 billion allocated to maize floor subsidy.

The data also shows Fisheries sub-sector has not been spared, between 1997 and 2000, Kenya faced challenges accessing the European Union market due to the loss of fish handling facilities, leading to the closure of 13 local fish processing factories.

In 2020, heavy rainfall caused flooding, resulting in the destruction of 149,600 ponds nationwide and the loss of seven million pieces of fish valued at KSh. 777 million. Farmers involved in cage culture in Lake Victoria alone suffered an estimated loss of KSh. 500 million.

Kenya, through the Ministry of Agriculture in April 2021 adopted the National Agricultural Insurance Policy (NAIP) that holds a promise for the agricultural insurance sector. This policy, if effectively implemented, could serve as a guiding framework for startups and industry players to develop innovative insurance products tailored to farmers' needs. Despite these formidable obstacles, glimmers of hope emerge on the

horizon. In recent years, there has been a burgeoning interest in agricultural insurance, fueled by a growing recognition of its importance in safeguarding the interests of farmers. Insurance providers have begun to offer an array of products tailored to the unique needs of the agricultural sector.

Insurance companies like APA Insurance through their Crop Cover product provides comprehensive crop insurance policies in Kenya, covering risks like drought, floods, pests, and diseases.

“Between 2008 and 2011, Kenya faced a severe drought, resulting in significant economic losses totaling KSh. 968.6 billion. The livestock sector bore the brunt of this loss, accounting for 72% or KSh. 699.3 billion, with 9% of all livestock lost. To mitigate the impact, the Kenyan government is said to have allocated KSh. 4.2 billion for post-disaster interventions during this period.”

These startups are embracing agricultural insurance to support farmers and enhance their resilience.

Pula, Acre Africa and Apollo Agriculture.

Pula, partners with insurers and suppliers to offer insurance to smallholder farmers using mobile technology. Acre Africa provides micro insurance solutions based on satellite data and weather information

while Apollo Agriculture incorporates insurance components into its platform along with loans and high-quality inputs.

But the road is not without challenges like low awareness and affordability remain formidable barriers to widespread adoption. According to the PWC report on the state of insurance sector, in Kenya there are 43 licensed

insurance companies competing for a limited market characterized by low penetration.

Kenyan's uptake of insurance cover, both at corporate and personal level, remains predominantly in the motor, fire industrial and personal accident (mainly group medical cover) classes. This illustrates a poor attitude towards personal insurance cover in general.

Other challenges captured by the report include low insurance penetration, a lack of savings culture, low disposable incomes, inadequate tax incentives, and a perceived credibility crisis. Legislative and taxation changes have also impacted the industry, including increased capital requirements, solvency margins, and penalties for late settled claims.

Additionally, many insurers are facing skills shortages and are struggling to invest in recruitment and training. Consolidation in the fragmented insurance sector is seen as a potential solution to address some of these challenges and create opportunities for growth.

Many farmers, particularly those in rural areas, are unaware of the benefits of agricultural insurance, while others struggle to afford the premiums. Legislative and regulatory obstacles, including shifting taxation policies and evolving capital requirements, impede the expansion of the agricultural insurance sector.

Agricultural insurance emerges as a potent force capable of nurturing a more resilient and prosperous future.

SOURCE: <https://www.talkafrica.co.ke/>

You can't
always be there
for your crop.



PROSARO®



Prosaro can.

Looking after your crop. It takes an unbelievable amount of effort, so it's good to know Prosaro takes the weight off your shoulders. This trusted fungicide is proven worldwide to consistently deliver unrivalled disease control on *Septoria* and other leaf diseases, as well as *Fusarium* head blight. Nothing gives you better protection for stronger yields.

Bayer East Africa Limited,
CropScience Division,
Thika/Outer Ring Road, Ruaraka
P.O. Box 30321, 00100 GPO Nairobi, Kenya
Tel: (+254-20) 8600000
E-mail: info.ke@bayer.com
www.cropscience.bayer.co.ke



Bayer CropScience

Disclaimers: Always consult the product label for detailed information. The information and recommendations set out in this brochure are based on tests and data believed to be reliable at the time of publication. Results may vary, as the use and application of the products is beyond our control and may be subject to climatic, geographical or biological variables and/or development resistance. Any product referred to in this brochure must be used strictly as directed and in accordance with all instructions appearing on the label for that product and in other applicable reference materials. So far as it is lawfully able to do so, Bayer CropScience Kenya accepts no liability or responsibility for loss or damage arising from failure to follow such directions and instructions.

Will Kenya Get Drawn into Europe's Woes on Bees?



By Ojepat Okisegere

It is possible textbooks of the future will relay our current era's stories of a global decline in bees as an extraordinary example of the world's post-internet fake news. Yet, as our parliament is asked by campaigners, once again, to ban the world's most-used insecticides to save bees, it is misinformation that could still create agricultural havoc for Kenya.

For, while the myth of declining bee populations has fuelled and mobilised an entire sector 'protecting' them, the world's bee population is not declining: it is growing. And that matters, for the world's two main classes of bees, honey bees, which are cultivated commercially in hives, and wild bees, known in many regions as Bumble Bees, are critical to agriculture. They pollinate multiple crops, meaning farmers need to control crop and livestock-destroying pests, while preserving bees and other pollinators.

Which, as a matter of fact, they seem to be doing a pretty good job at, with the honeybee populations, which account for the majority of the world's bees, growing strongly.

As Forbes expressed it in a headline in April last year, 'Honeybees are not in decline', while the more scientific Nature magazine

standing bee virus, deformed wing virus. The virus can be deadly for bees. But not all bees are prone. Wild bees with the mite and virus do not appear to die, while southern hemisphere bees were seemingly less effected than northern hemisphere bees. However, the growth in honeybee populations nearly everywhere since



reported in drier tones in December 2022 that claims of a decline in bees were 'somewhat inaccurate'.

In fact, there was a 50-year decline in honeybee populations from the 1940s that only slowed from the 1970s, before turning back to growth some 25 years ago. Data from the US shows that it had 6 million beehives in 1947, but only 4 million by 1970, and 3m by 1990.

It was a fall that coincided with the spread of a mite that lives on bees, the Varroa destructor mite, which carries a long-

the mid- 1990s points to the possibility of an emerging resilience to the virus.

Indeed, the recovery has been so strong that Nature's December 2022 review of six decades of bee population data from the UN's Food and Agricultural Organisation found that the global population of honeybees had doubled by 2017 from 1961 levels, with the mid-20th century fall now recouped. Bee populations are now more productive, too, with honey output almost tripling, and beeswax

production more than doubling.

Yet, with figures from the US and the UK showing steady growth trends, the EU has chosen not to focus on bee population data. Individual EU countries, such as Poland, have reported sharp growth in honeybee populations. But for the EU, the rise, everywhere, of the honeybee, is extremely embarrassing. For, in 2013, it banned one of the world's newest and safest group of pesticides, neonicotinoids, to save bees from the 'decline in population' that it is still reporting as ongoing across all its platforms.

As a matter of fact, neonicotinoids didn't exist in the 1940s: the very first neonicotinoid was put on sale in 1999. Moreover, despite huge pressure from environmental groups, the US has consistently refused to ban the agrochemicals, because the agricultural costs would be enormous and there is little evidence that neonicotinoids kill bees.

Thus, with US honeybee colonies growing by 16 per cent in the last 7 years, even as neonicotinoids remain its most widely used insecticide, the EU has now pivoted its attention to wild, unmanaged bees, and here things have become very fractious. The EU does not parade any wild bee population data, but in the UK, surveys of wild bee density have found constant levels.

Yet, the EU is now declaredly determined to save wild bees, forcing the European Food Safety Agency (EFSA) to produce new guidance on

how to assess the risks to bees from pesticides, after refusing for a decade to accept the agency's last guidance.

In bridging both politics and science, the EFSA still states, mid-guidance, in seemingly forlorn tone, that "the studies available in the literature reporting effects of pesticides on bumble bees and solitary bees are scarce". Indeed, in a full review from 1980 to 2019, there is little to support any claim that neonicotinoids kill Bumble Bees, with scientists even finding that wild bees have enzymes which mean

"neonicotinoids didn't exist in the 1940s: the very first neonicotinoid was put on sale in 1999. Moreover, despite huge pressure from environmental groups, the US has consistently refused to ban the agrochemicals."

ban neonicotinoids – to save bees.

The cost to Kenya of such bans would be dramatic yield losses and mounting food insecurity. But the decider for the Kenyan authorities will be whether they give more credence to all the scientific studies in the world, or to the bloggers who start articles by referring to the 'well-established global decline in bees', no citations needed or given, under headlines like: "No bees, no food". For the International Union for Nature Conservation (IUCN),



that at least two neonicotinoids are simply not toxic for them.

The one factor that has been found to impact wild bee populations is the nearby presence of a honeybee hive. Yet, undeterred by this irritating finding, the European authorities are now adamant that Kenya, Africa and the rest of the world should also now

the answer is simple: its classification of levels of endangerment puts bees into its safest category of all, of 'least concern'.

The writer is a farmer & CEO of Fresh Produce Consortium of Kenya First Published in AAK Handbook

Sustained Yields

Start With Healthy Soils And Roots

By Keziah Ndinda

Most farmers and people in general do not give much thought as to what is under their feet – in most cases they see it as dirt and they would be right as the life has in many cases has gone from the living soil and what is left indeed is simply just dirt.

To many the difference between soil and dirt is not apparent but there is a fundamental difference – Dirt is void of actively living productive animals which covers a complex mix of microbes be it bacteria and fungi to more complex organisms such as protozoa and earthworms and so in essence is dead or at best in limbo waiting for regeneration by us the custodians of the earth. You will be asking yourself so why did soil become dirt and so what?

Well so a lot – nature is the most incredible ecosystem which has evolved over millions of years to a highly sophisticated balanced living planet where each and every material and living organism plays its small part

in the special place we call mother Earth – from the soil to the towering trees standing on it there is a science behind it where we must understand the basics of this science to explain the journey from soil to dirt and why we must reverse this as farmers/ humanity in order to safeguard our planet by sequestering/taking carbon back into soil but at the same time use



the resulting rejuvenated soil to be our partner to produce healthier foods and develop more productive regenerative cropping systems which will support nature and its critical all too often forgotten citizens from the busy bee to the engine of the soil the earthworm – as the famous Greek philosopher Aristotle stated the earthworms are the “intestines of the soil !”

So now to explain in a nut shell the what/why the regeneration of our living soil from dirt and the value to the farm and humanity.

Given the complex nature of the planet’s ecosystem for the purposes of this article we will focus on the aspect of the symbiotic relationship of plants/ animals/soil which includes farmers

crops and livestock. Plants/crops take Co₂ (carbon) from the atmosphere and through the process of photosynthesis make complex sugars which they use for growth/ production but they invest 30% or more of this sugar/ carbon back into the soil as exudates to the soil via their roots – the plant kingdom do this to feed their friends in

the living soil the microbes(bacteria/ fungi)who in turn gather nutrients for the plants as well as protect the plants from disease/pests – the bacteria/ fungi proliferate and in turn feed the other community workers in the soil the protozoas,earthworms etc who all go about their business turning the soil into the largest living and breathing organism that processes/recycles organic waste(manure/organic waste/

dead plants-animals) from above into carbon key to our planet but also key to sustain the living soil with the carbon cycle.

So we can see why the soil is key to mother earth and why it supports farmers by keeping their crops/livestock productive as the nutrients are made available to grow and produce healthy-productive crops/animals but why do we

have so much dirt and so little soil?

We have for generations abused our soils with mechanical intervention ploughing/turning our soils as well as spraying toxic chemicals which have depleted significantly the beneficial animals in the soil converting it in many cases from a productive active supportive ecosystem into dirt.

So what next – well the good news is there are now biological solutions where the leading Agrobusinesses are now switching to provide farmers with natural solutions/products to pests and diseases which encourage the rejuvenation of the living soil as well as introduced new systems to reduce tillage and incorporate animals/plants in an inclusive way to build soil health leading to better yields/quality outputs as well enhanced capture of carbon and more importantly the reverse of dirt back to the Living soil !

Crops just like human beings and indeed all animals needs a balance diet to thrive. Yet this truism has not been appreciated by some farmers, leaving the soils poor and unable to sustain crop and they in turn do not get enough reward for their investment.

Eco-T[®], RhizoVital[®] 42 & V¹² Initiate[®]
 for KEY nutrients plus soil
 microbe inoculants
 to grow HEALTHY
 STRONG seedlings

Maize Power Seed Dressing

Eco-T[®] contains beneficial fungus *Trichoderma asperellum*, actively grows on and colonizes roots, creating a protective barrier to fungal pathogens.

RhizoVital[®] 42 grows on and colonizes roots, supporting healthy root growth and improving availability of soil nutrients (e.g. phosphorous).

V¹² Initiate[®] Improves rate of seedlings emergence, seedling vigour and strength.

Eco-T[®] RhizoVital[®] 42 V¹² Initiate[®]

Seed dressing application rates per 1 kg

Eco-T [®]	1g
RhizoVital [®] 42	2ml
V ¹² Initiate [®]	5ml

Andermatt
 Tel: +254 020 210 0880
 Olkaria Route, Off Moi South Lake Road, Naivasha, Kenya
 info@andermatt.co.ke | www.andermattafrica.com

Healthy Food and Healthy Environment, for all

FROM PAGE 11



The Andermatt Root Health program contains different product such as Eco-T, Rhizovital, Agrisil K 50 and V12 Initiate.

Eco-T®

is a fungicide containing active spores of *Trichoderma asperellum* that controls root disease causing organism such as *Fusarium* spp, *Rhizoctonia* spp, *Pythium* spp and *Phytophthora* spp. It also promotes growth of healthy root systems.

The Andermatt Root Health program combines increased growth-promoting microbes with nutritional support to optimize root health and development, nutrient uptake, and disease tolerance. The Andermatt Root Health Program incorporates a suite of different products, used in combination to enhance soil, root and ultimately plant growth.

By establishing a strong foundation for a crop, the ability of those plants to use what is available, cope with abiotic and biotic stresses, reduce the impact of pests and disease, and importantly recover from these, a better crop and larger yield is more likely.

Healthy roots and soil are essential for the production of nutrient-dense food.

Plants grown with Andermatt Root Health Program are stronger, exhibiting increased pest and disease resistance. Ideally, treatment should start in the nursery and continue into the field, with repeat applications throughout the crop's lifetime. The Andermatt Root Health Program incorporates a suite of different products, used in combination to enhance soil, root and ultimately plant growth. The program is also successfully being implemented in Cereal crops e.g Maize and Sorghum.



Rhizovital®

Highly concentrated liquid formulation of the beneficial bacteria *Bacillus amyloliquefaciens* strain FZB42, that inoculates into the root zone, aiding with mobilization and absorption of nutrients such as notably phosphate, zinc and manganese for supporting healthy root growth.

Eco-T and Rhizovital can be used as a seed dresser during seed planting and applied even after seed germination to control root disease but also drive root mass, crop growth and insure strong uniform germination which is key in cereals for optimal production strategy. Treated root systems are denser, well developed, more intensive and larger roots ensure more efficient contact with nutrients.

V12 Initiate®

Specially formulated nutritional support for early growth phases and maintenance of healthy plants. Balanced nutrition, ideal for early growth stages, improves rate of seedling emergence and produces a more even crop stand. Nutrient platform with slow release of calcium and silica

Agrisil K 50®

Agrisil K 50 is a fully soluble and liquid formulation of Potassium Silicate for use as a foliar or drench in all crops. It contains high amount of Silica Supplement for nutritional support of plant immunity and boosts crop defense mechanism against biotic and abiotic stress.

Humics / Fulvic Acid

Humics, based soil conditioner for use a stand alone soil amendments or in conjunction with inorganic

fertilizer such as DAP. Natural microbial stimulant, especially



fungi and repeated applications improve soil structure, increase moisture & nutrient retention. Reduce leaching and lock up of applied nutrients ie. nitrogen and phosphorous

Fulvic Acid

A powerful natural chelator and plant growth regulator, improves absorption and utilization of available nutrients. Fulvic Acid can be used as an additive to foliar applications as a natural chelator and growth promotor. Fulvic Acid enhances cell division and elongation, improving root development, also breakdown and removes toxic elements hence acting as detoxifying agent.

On the other, Fulvic Acid when mixed with herbicides, it improves the efficacy of the herbicides by driving performance to such extent

the farmer can lower the rate of the herbicide by 30%.

Nutrients

such as Urea

can be applied directly to leaves at a much-reduced rate.

Mix Fulvic Acid in spray tanks with pesticides to improve efficacy but also buffer the crop against sprays as well acts as a biostimulant to crop at the same time.



Healthy yields start with healthy soil & roots.

At Andermatt in Africa, we believe a mind-set change in IPM programs is needed, if a farmer's goal is to maximize their crops' potential. Rather than focusing on the above-ground plant and pest control, growers should prioritise and understand the below-ground environment, to ensure root and plant health are maximized.

In terms of the 80:20 principle, 80% of 'farming' takes place underground

Our Contacts

Tel: +2540202100880

Email: info@andermatt.co.ke

Web: www.andermattafrica.com



Rice: Why You Must Calculate

Rice is currently the third important staple crop after maize and wheat in Kenya. It can be considered as an alternative cereal to supplement maize as it is preferred by households in ASAL regions.

Rice is grown by small and medium scale farmers as a cash and about 80% of rice grown in Kenya is from irrigated ecologies established by the Government and communities, while the rest is produced under rain-fed conditions.

The Mwea Irrigation Scheme, which covers an area of about 30,000 hectares, is the largest rice farming area in Kenya. The scheme was established in the 1950s and has since grown to become a major contributor to the country's food security. The scheme is managed by the National Irrigation Board (NIB) and is mainly operated by smallholder farmers.

In addition to the Mwea Irrigation Scheme, rice is also grown in the Ahero Irrigation Scheme,

which covers an area of about 3,000 hectares, and the Bunyala Irrigation Scheme, which covers an area of about 1,800 hectares.

Rice farming in Kenya faces various challenges, including the high cost of inputs such as fertilizers, pesticides, and seeds, inadequate infrastructure for irrigation, and post-harvest losses due to poor storage facilities. However, efforts are being made by the government and other stakeholders to address these challenges and improve rice farming in the country. On average rice farm sizes range from 0.25-4.0 acres (0.1-1.6 Ha). These farmers are not well organized with low rice value addition at the farm level.

Overall, rice farming in Kenya is an important sector that contributes significantly to the country's food security and provides a source of income for many smallholder farmers.

Cost of production on rice farming in Kenya

The cost of rice production in Kenya can vary depending on various factors such as the region, size of the farm, method of cultivation, labour costs, and input costs. Here are some of the estimated costs involved in rice production in Kenya:

Land preparation: This involves clearing the land, ploughing, and harrowing. The cost can vary depending on the size of the land, type of machinery used, and the method of cultivation.

Seedlings: The cost of seedlings varies per acre depending on the type of rice variety.

Fertilizers: Fertilizers are essential for rice growth and yield. The cost of fertilizers can vary depending on the type of fertilizer used, the quantity, and the supplier.

Labour costs: labour costs can vary depending on the region and the method of cultivation. The cost of labour for land preparation includes, planting, weeding, and harvesting.

Water: Rice is a water-intensive crop, and the cost of water can be high, depending on the source of water and the method of irrigation.

Pesticides and herbicides: The cost of pesticides and herbicides can vary depending on the type of product used, the quantity, and the supplier.

Table 2: Rice CoP per acre in 2017

Item/activity	Scheme	Non Scheme
Yield (90 kg bags)	25	16
Price (90 kg bag)	5,400	3,600
Total revenue	135,000	57,600
Nursery costs	500	500
Land preparation	8,200	10,900
Planting	4,900	3,000
Planting fertilizer	4,740	0
Topdressing fertilizer	5,400	0
Seed	1,500	1,600
Weeding	6,250	3,500
Pesticides	600	350
Harvesting	7,000	7,200
Post-harvest	4,875	2,760
Bird scaring	9,000	3,000
Other labour*	250	1,000
Other intermediate	3,200	0
Working capital	3,949	2,367
Total production costs	60,364	36,177

Table 3: Cost shares in rice production

Activity	Scheme	Non scheme
Nursery costs	0.8	1.4
Land preparation	13.6	30.1
Planting costs	8.1	8.3
Fertilizer	16.8	0.0
Seed	2.5	4.4
Weeding costs	10.4	9.7
Pesticides	1.0	1.0
Harvesting	11.6	19.9
Post-harvest	8.1	7.6
Irrigation water	5.0	0.0
Bird scaring	14.9	8.3
Other labor	0.7	2.8
Working capital	6.5	6.5

Table 4: Margins in rice production

Scenario	Description	Scheme	Non Scheme
Revenue	Yields (90kg bags)	25	16
	Price (90kg bag)	5,400	3,600
	Revenue/acre	135,000	57,600
Scenario I	Costs/acre	60,364	36,177
	Cost/bag	2,415	2,261
	Profit/bag	2,985	1,339
	Breakeven yield	11	10
Scenario II	Land rent/season	50,000	10,000
	Cost/bag (+ LR)	4,415	2,886
	Profit/bag (+ LR)	985	714
	Breakeven yield	20	13

TO PAGE 16

FROM PAGE 15

Harvesting: The cost of harvesting can vary depending on the method used, the size of the farm, and the labour costs.

Overall, the estimated cost of rice production in Kenya can range from Ksh 45,000 to Ksh 70,000 per acre.

Profitability of Rice Farming In Kenya

The profitability of rice farming in Kenya can vary depending on various factors such as the size of the farm, the quality of the soil, the cost of inputs such as seeds, fertilizers, pesticides, and labour, as well as the prevailing market prices for rice.

Generally, rice farming in Kenya can be profitable, especially if the farmer uses modern farming techniques, high-yielding varieties, and efficient management practices. Additionally, government initiatives such as subsidized fertilizers and extension services can help to reduce the cost of inputs and increase productivity.

According to the Ministry of Agriculture in Kenya, the average yield per hectare for rice in the country is about 3,000 kg, and

the average selling price is around KES 80 per kilogram. Based on these estimates, a farmer who produces one hectare of rice can earn about KES 240,000 from selling their harvest.

However, it is important to note that rice farming in Kenya faces various challenges such as poor infrastructure, unreliable water supply, and competition from imported rice, which can affect profitability. Therefore, farmers need to conduct thorough market research, seek expert advice, and implement efficient farming practices to ensure profitability in rice farming.



Rice farming in Kenya faces various challenges, including the high cost of inputs such as fertilizers, pesticides, and seeds, inadequate infrastructure for irrigation, and post-harvest losses due to poor storage facilities. However, efforts are being made by the government and other stakeholders to address these challenges and improve rice farming in the country.”

Topshot 60 OD: A Relief for Rice Farmers

Rice farming started in Kenya in the year 1907 along the Coast region. Since then, the production and demand for rice has continued to increase. This is also due to the increase in population as well as urbanization.

Rice production in Kenya is far below the expected supply to satisfy its domestic demand. There are several factors which affect or decrease the production of rice:

- Use of uncertified seeds
- Lack of good rice farming practices and knowledge on rice cultivation
- Lack of Agricultural extension services
- Poor management of water resources
- Reluctance of farmers to embrace modern rice farming technologies like water saving rice culture (WSRC), system of rice intensification (SRI) and alternate wetting and drying of paddy field (AWD)
- Pest and diseases challenges

Weed management is the most challenging issue due to climatic changes as a result of global warming which has affected the growing seasons. Men are mainly involved in land preparation (Ploughing, Rotavating and Leveling) and transportation, whereas women are responsible for planting, weeding, bird scaring, harvesting, threshing, and drying.

In terms of cost of production, weed management ranks as number one, taking over 35% of the cost of production per acre, when done manually. Widely the practice of weed control has been manual weeding. This is both labour and capital intensive. It also takes a lot of the farmer's time thereby reducing their available time to participate in other socio-economic activities. Labour is largely assigned to women and children who spend the better part of the day under the scorching sun, manually removing the various types of weeds. In other cases, the farmer must hire farm hands to perform this duty. Hand weeding is done on a weekly basis at a fee thus increasing the production cost. The

weed problem combined with the above-mentioned factors lowers both the quality and quantity of the end product.

Topshot 60 OD

In a bid to assist farmers solve this big problem, Corteva Agriscience has brought a solution by specially designing **Topshot 60 OD**. This is a selective herbicide that effectively controls the three types of weeds found in irrigated /lowland paddy fields - broadleaved weeds, sedges and grass weeds. With the inception and adoption of the product from its launch in 2018 during, farmers have had the opportunity to sample and experience the product under the guidance and advice of Corteva Agriscience field staff through partnership with the stakeholders in the rice growing areas. Some of the stakeholders are Endless Africa Millers, National Irrigation Authority, Tana Millers, International Water Users Association, Mwea Rice Growers Multipurpose Co-op, Digifarm, Alluvial, and others.

Topshot 60 OD is only applied once in the rice growing season. This controls all the target weeds, and consequently the farmer is left with surplus time to engage in other agronomic practices in the fields. In addition to this, the production cost is cut by almost 40% which translates to more profits as well as an assured increase in both quality and quantity of the rice produced.

The product is safe to both the person spraying and to the crop; with good efficacy on target weed(s) without causing any crop injury (Phytotoxicity).

Go For Hybrid Rice Seeds

parental

lines). It gives farmers a yield advantage of up to three tonnes a hectare. The technology has the potential of creating a sustainable rice seed business and system.

Despite the hybrid

technology, local rice farmers still use saved seeds for the next planting season. African Agricultural Technology Foundation (AATF) Project Manager Kayode Sanni talks about how technology has revolutionized farming in Asia.

What advantages do hybrid rice seeds have over saved ones?

Hybrid rice technology focuses on yield advantage and desirable grain quality that comes about due to heterosis (combining the ability of the

The rise in yield by switching to hybrids is about 40 percent increased income. The technology can provide an avenue for African rice farmers to raise yields and profitability. It can play a central role in feeding the growing population. Hybrid rice seed production can be profitable. It is already attracting investments. It can thus be lucrative for seed companies and create employment. Hybrid rice developed in Africa is capable of tolerating most of the biotic and abiotic stresses.



Dr Kayode Sanni - African Agricultural Technology Foundation (AATF) Project Manager Rice, during an interview at Ahero Irrigation Scheme in Kisumu County.

The goal of most African countries is to be self-sufficient in rice production. Hybrid rice could help achieve this goal.

What are the challenges of using hybrid or saved seeds?

Like any other new initiative, it is not without challenges. Rice farmers are accustomed to saved seeds, leading to lack of interest in seed companies. There is need to create awareness on hybrid rice benefits. The hybrid seed has to be bought every time one plants. This could be constraining for starting smallholder farmers who may not have the money. Availability of seeds is also a challenge as many companies still work on order deliveries, hence farmers have to wait for long periods before getting what was ordered. Knowledge on hybrid technology is limited.

Rice demand in Kenya exceeds production. That calls for imports. What can we do to increase yields?

Rice self-sufficiency and food security cannot be a one-person show. There is a need for concerted efforts among stakeholders in the value chain. There is also need for political goodwill in endorsing and promoting rice production. More than 80 percent of consumption is imported, meaning the government needs to create an enabling market for local producers. We should maintain an import duty that will not demotivate local growers. We must also have a strong public-private partnership along the rice value chain. In addition, there is the need to streamline the market. The land under rice should also be expanded.

Tanzania seems to be heading in the self-sufficiency direction. What can we learn from our southern neighbour?

Tanzania has strong political will and commitment in terms of policies, strategies and institutions. This is one area our government struggle with, regardless of rice promotion programmes. Land under rice cultivation in Tanzania is state-owned. That means farmers do not have to lease land. Tanzania has huge growing areas for rice, even though the country's average production per unit area is still low compared to Kenya. Kenya needs to continue expanding rice-growing in untapped regions. Inputs must also be

subsidised.

Where can farmers get hybrid rice varieties?

Depending on the hybrid one wants, the seeds can be sourced from Afritech SeedCo, Bayer/Proceed, Advanta or through the Alliance for Hybrid Rice in Africa(AHyRA) being led by AATF in cases where the farmer cannot reach any of the companies. To prevent fakes and adulteration, the AATF encourages seed merchants/stockists interested in selling rice hybrids to register as members of AHyRA

Hybrid rice technology revolutionised rice production in Asia. Why isn't the technology not taking root in Africa?

For long, farmers have planted inbred rice, reusing grain as seed over and over. There is a perception in Africa that hybrid rice seeds are expensive. However, with the seeing-is-believing approach that AATF has used in growing hubs, farmers have hyped their interest in hybrids. They have realised up to two-fold yield advantage over inbreeds, resulting in increased demand for hybrid seeds.

Due to the self-pollinating nature of rice, there have been market dysfunctions and failures for companies in sell certified seed. In order to create a structured market for seed companies, AATF has brought together the players in rice systems through "Island of Trust", which relies on public- and private-sector partners to sponsor adaptation trials of hybrid products.

There is need for training among farmers and other stakeholders. One key cause of the rice hybrid market failure is lack of information. Information drives decision-making in marketing. When farmers know very little about quality, performance and general characteristics of rice hybrids, they don't buy the seeds. There is a need for development programmes to identify cases where the process of farmer training and market priming for rice hybrids has begun and to build upon the "islands of trust".

This article was originally published by the Daily Nation

“The rise in yield by switching to hybrids is about 40 percent increased income. The technology can provide an avenue for African rice farmers to raise yields and profitability. It can play a central role in feeding the growing population. Hybrid rice seed production can be profitable. It is already attracting investments. It can thus be lucrative for seed companies and create employment. Hybrid rice developed in Africa is capable of tolerating most of the biotic and abiotic stresses.”

Lessons For Kenya From Mexico

By E.Hernandez Lopez

Ngũgĩ wa Thiong’o wrote: “Stories, like food, lose their flavour if cooked in a hurry.” This is the case for maize. Our story cites the trade agreement with the US and expected impacts on ugali and githeri.

As Kenyan and American diplomats get to a sixth round of negotiations for the Strategic Trade and Investment Partnership (STIP) in Mombasa covering agriculture. Both sides are eager for a final text. Negotiations began in 2022. Imports from Kenya have increased 10 per cent annually for two decades. An economic



partner in East Africa looks good for American geopolitics. But trade is more than predictions and images.

Look at México, it agreed to US trade pacts twice. México’s experiences serve up valuable lessons on maize and trade for Kenya. Many Mexicans say tortillas, flatbread made from maize and rolled and stuffed to make tacos, have lost their flavour with free trade. This perspective comes from three decades of warnings on the



grain, called maíz in México and corn in the US.

The economic story begins with the North American Free Trade Agreement (NAFTA) in 1994. México eliminated tariffs on maize imports because low-priced high-volume US maize supplies were promised. Leaders assumed lower prices would alleviate rural challenges and urban food insecurity. This opposite happened, slowly and quickly. Displaced by maize and other agricultural imports, 4.9 million Mexican family farmers were displaced; a net loss of 1.9 million jobs by 2007. Trade predictions didn’t work out.

Next, a fast crisis brewed in 2006-2007. Maize prices skyrocketed due to increased global demand for ethanol, a maize-based energy source. International energy markets desperately sought alternatives to oil. Good for US farmers. Bad for Mexican buyers.

NAFTA created extreme vulnerabilities, since México depended on maize imports. During the country’s “tortilla crisis” consumers were forced to pay for spiking prices for daily staples. These aren’t good images for leaders.

In 2020, the story is about loss of control with the US-Mexico-Canada Agreement, NAFTA 2.0. The agreement



promised to not force genetically modified crops (GMOs). Its chapter on agriculture expressly states that it does “not” mandate any “authorisation” for agricultural biotechnology products. The food safety chapter adds that countries may adopt measures they determine appropriate for “protection of human . . . life or health.”

Things changed. The two neighbours are in epic legal battle over GMO maize, with trade tribunal proceedings in June and findings expected in November.

In a Decree from February 2023, México banned GMO maize for human consumption, specifically limited to tortillas and masa (dough) out of concern for human health, biodiversity, and food security. The Decree says GMO maize remains legal for animal feed. Most American maize is GMO and for animal feed. México still imports this and other GMOs like cotton and canola. In fact, maize imports from the US have risen to record levels.

But, the US sticks to its guns in its legal filings, claiming the Decree violates trade obligations. It ignored Mexican claims that GMOs pose a cancer risk because these farms need glyphosate, a herbicide that’s likely carcinogenic.

Kenya beware. A similar story is being cooked. In a March report, US trade officials detailed their gripes on the “most important foreign barriers affecting US exports.” Kenya makes the list. The complaints are specific. They echo what was said about México. The report is critical about limits on aflatoxin for maize, as Kenyan controls are lower than what US regulators find

safe. These measures are presented as inconsistent with international food standards. Not mentioned is that these standards are not binding.

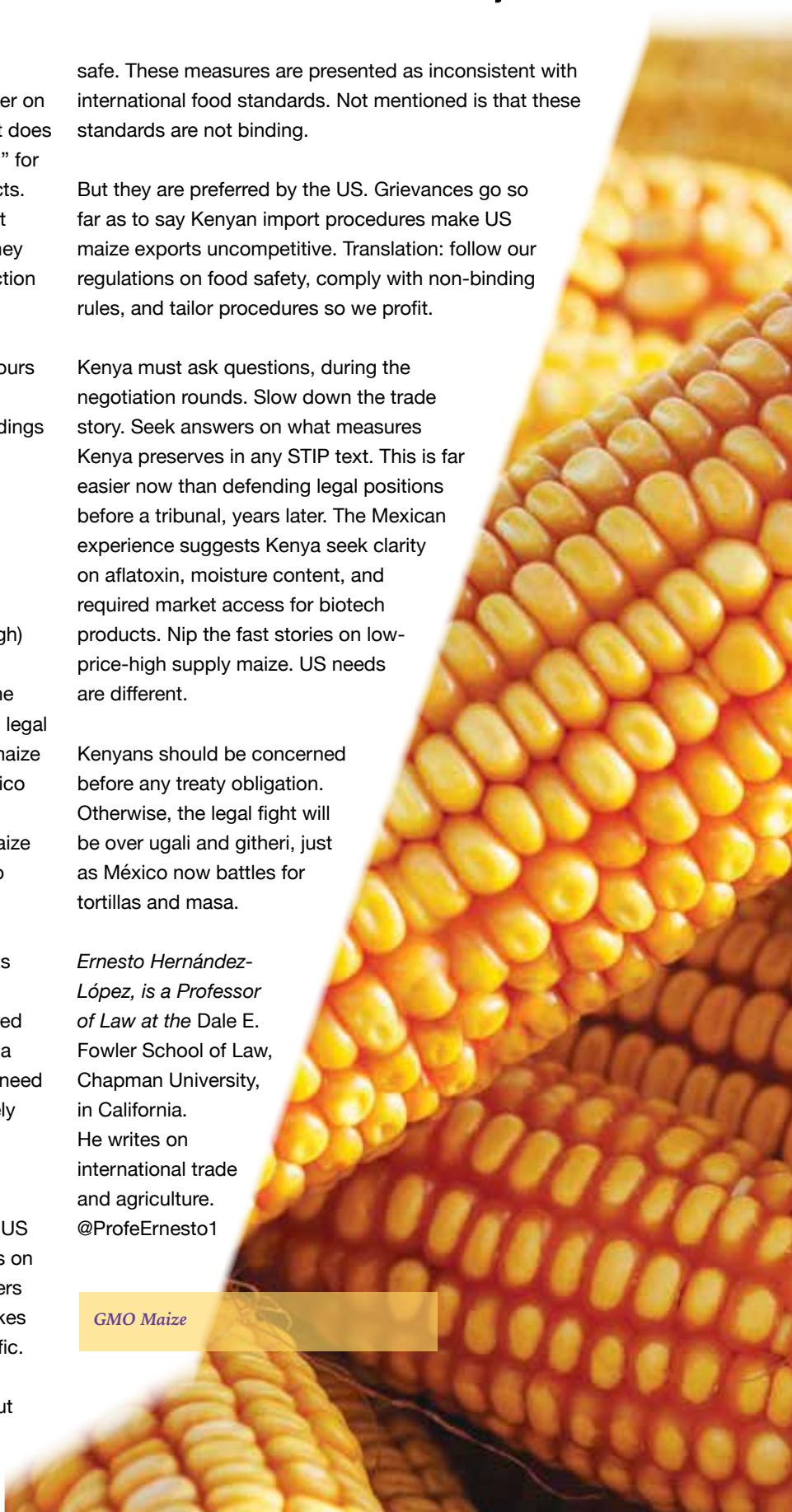
But they are preferred by the US. Grievances go so far as to say Kenyan import procedures make US maize exports uncompetitive. Translation: follow our regulations on food safety, comply with non-binding rules, and tailor procedures so we profit.

Kenya must ask questions, during the negotiation rounds. Slow down the trade story. Seek answers on what measures Kenya preserves in any STIP text. This is far easier now than defending legal positions before a tribunal, years later. The Mexican experience suggests Kenya seek clarity on aflatoxin, moisture content, and required market access for biotech products. Nip the fast stories on low-price-high supply maize. US needs are different.

Kenyans should be concerned before any treaty obligation. Otherwise, the legal fight will be over ugali and githeri, just as México now battles for tortillas and masa.

Ernesto Hernández-López, is a Professor of Law at the Dale E. Fowler School of Law, Chapman University, in California. He writes on international trade and agriculture. @ProfeErnesto1

GMO Maize



FRAC Recommendations for

Fungicide resistance management strategies must combine the long-term conservation of fungicide effectiveness with relevant use patterns that are sufficient to satisfy the needs of the farmer.

Thus to have a chance of success, any strategy must be reached by agreement and depend upon a commitment to implementation from all supply companies involved. Also, it must be understandable and acceptable to the farmer.

FRAC provides background information as well as annually updated Fungicide Resistance Management Recommendations for fungicides of the major modes of action:

Importance of multisite fungicides in managing pathogen resistance

The Fungicide Resistance Action Committee (FRAC) is a Specialist Technical Group of CropLife International. The purpose of FRAC is to provide fungicide resistance management guidelines to prolong the effectiveness of “at risk” fungicides and to limit crop losses should resistance occur.

FRAC Guidelines for resistance management are produced by the individual FRAC Working Groups and Expert Fora. These Guidelines provide information on how to use specific areas of fungicide chemistry for control of plant diseases on various crops while maintaining a good anti-resistance strategy.

One of the key recommendations is to make use of multisite fungicides (see FRAC Group M) in spray programs,

especially in crops with multiple sprays such as fruits and vegetables, or certain arable crops. Due to their mode of action, multisite fungicides are considered as a low resistance risk group. Therefore, they offer the possibility for use as mixing partners or alternating with single site and other medium to high resistance risk fungicides. Over the past decades, no cases of field resistance against multisites have been reported.

There are clear benefits to recommending multi-site fungicides in spray programs:

- Multisite fungicides display a low risk to develop resistance and are effective mixing/alternating partners for medium to high risk fungicides.
- Beyond protecting and prolonging the lifespan of highly effective medium to high resistance risk fungicides, multisite fungicides provide added levels and spectrum of disease control. With this they can also support the single sites to be even more efficient.
- Multisite fungicides are considered a valuable tool to manage resistance by preventing or delaying its development to many pathogens in many crops.
- In some crops, multisites play an increasing role in spray programs to sustain effective disease control and resistance management, e.g. for *Zymoseptoria tritici* in wheat, *Ramularia collo-cygni* in barley and for *Phakopsora pachyrhizi* in soybeans.

Restricting the use of multisite fungicides from use in important crops could result in faster development of

resistance to single site mode of action fungicides. This in turn could lead to epidemic disease development, serious crop losses, and finally the loss of highly effective fungicides for a sustainable disease management.

Fungicide Resistance Management with / of Multi-Site Fungicides, Biological Control Agents, and Plant Defence Inducers

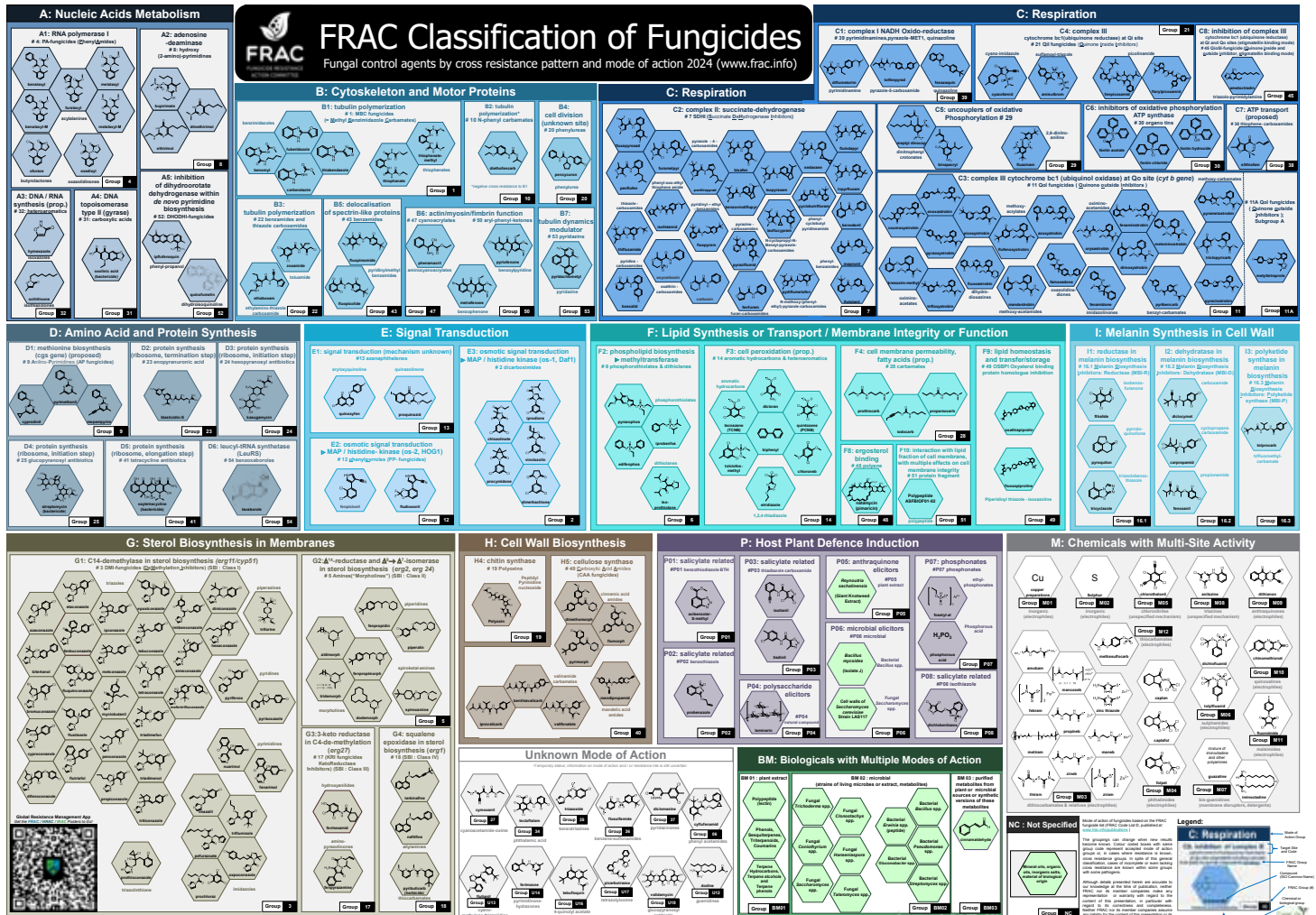
The application of fungicides with different modes of action in mixtures (both ready-formulations and tank mixtures) and the alternation between non-cross-resistant fungicide classes are both suitable approaches to minimize the risk of resistance development alongside good agronomic practices. These strategies are particularly valuable for sustaining the effectiveness of site-specific fungicides by preventing upcome or further spread of pathogens with decreased sensitivity towards those fungicides with site-specific mode of action, if already present in farmers' field.

Multi-site fungicides, Biological Control Agents (“Biologicals”) and Plant Defence Inducers (“PDIs”) are important tools for disease control programs and resistance management, considering that Biologicals belonging to FRAC classes with code BM01 / BM02 can also show a multi-site or multiple mode of action type of pathogen control, bearing a low or even very low resistance risk like multi-sites. PDIs contribute to resistance management strategies by reducing the entire inoculum potential.

Some general statements apply to all fungicides and products applied for disease control:

- For a mixture of non-cross-

Resistance Management



resistant partners to be effective in a resistance management strategy the rate of each component must be sufficient to provide satisfactory control when used alone at the same rate.

- The recommended label rate of each mixture component should be respected.

Use guidelines for Multi-sites

- Multi-site fungicides belonging to FRAC classes with code M1-M12 can be used solo or in mixtures with partners at manufacturer's recommended effective rates.
- There are no limitations or restrictions concerning the

number of applications, the timing, or the sequence as long as they are within the limits of the manufacturer's labels and local regulatory requirements.

Use guidelines for Biologicals

- Biologicals belonging to FRAC classes with code BM01 and BM02 can be used solo or in mixtures with partners at manufacturer's recommended effective rates.
- There are no limitations or restrictions concerning the number of applications, the timing, or the sequence as long as they are within the limits of the

manufacturer's labels and local regulatory requirements.

Use guidelines for Plant Defence Inducer

- Plant Defence Inducer belonging to FRAC classes with code P1-P08 can be used solo or in mixtures with partners at manufacturer's recommended effective rates.
- There are no limitations or restrictions concerning the number of applications, the timing, or the sequence as long as they are within the limits of the manufacturer's labels and local regulatory requirements.

Curbing Counterfeit Agricultural Inputs

The Agrochemicals Association of Kenya, the Pest Control Products Board (PCPB) and the Anti-Counterfeit Authority, among other relevant agencies, continue to address the menace of counterfeits.

Agriculture remains an important component of Kenya's economy. Enhanced agrochemicals and farm inputs account for the improvement of agricultural productivity in the region, yet the sector continues to face the threat of counterfeit agricultural inputs.



Mr. Patrick Ngugi, Chairman
Anti-counterfeit EWG

This justifies the need for relevant agencies in the region and Kenya to establish mechanisms for fighting and eliminating counterfeits of agricultural inputs. Recent research findings by the Agrochemicals Association of Kenya show that counterfeits account for about 20% of the total agricultural inputs in Kenya, implying that farmers, consumers and the environment are greatly endangered.

According to the East African Community, East Africa's population is approximately 284 million with more than 30% of this population living in urban areas. The high population of the region and a significant section of it being urban dwellers signify an increased demand for agricultural products.

East Africa's agricultural productivity depends on the ease of access to high-quality agricultural inputs including agrochemicals, seeds and fertilizers. The Agrochemical Association of Kenya (AAK) is the agency responsible for the management of stakeholders of agricultural inputs and, among other things, ensuring the production and improvement of genuine inputs in Kenya. The production of quality agricultural inputs contributes to

increased agricultural production, improved food security, livelihoods and environmental protection.

Despite the improvement in production and access to quality agricultural inputs, unscrupulous manufacturers and businessmen continue to infiltrate the market with counterfeit seeds, fertilizers and agrochemicals. This menace poses grave challenges to agricultural productivity by negatively affecting yields, causing destruction and contamination of land and other natural resources and affecting the health of living organisms.

“Despite rigorous measures by KEBS, Pest Control and Products Board and the Anti-Counterfeit Authority, counterfeiters exploit farmers by selling and distributing fake products with labels that make them look genuine.”

Additionally, statistics show that the economy loses more than Sh.120 billion to unscrupulous and unregistered manufacturers dealing in counterfeits. These counterfeit dealers take advantage of the high poverty levels and ignorance of a majority of farmers who cannot afford the high costs of such inputs despite high demand nor differentiate between counterfeits and genuine products.

The Agrochemicals Association of Kenya, the Pest Control Products Board (PCPB) and the Anti-Counterfeit Authority, among other relevant agencies, continue to address the menace with the intent of curbing

and ridding the agricultural inputs market of counterfeits. To this end, the Agrochemicals Association of Kenya established the Anti-Counterfeit Steering Committee which brings together various players in the agricultural input industry and law enforcers to tackle the counterfeiting of agricultural inputs and promote the production, distribution and utilization of safe inputs.

Among the measures that the Anti-Counterfeit Steering Committee has touted include allowing sector players to self-regulate by arresting and prosecuting crooked counterfeiters. Self-regulation is effective because it enables genuine players who are keen on improving the manufacture and sale of quality inputs to identify and weed out the rogue ones. The Committee also supports the licensing of all dealers in agricultural inputs, thereby criminalizing unlicensed entities and those dealing in seeds, fertilizers and agrochemicals but are not members of the Agrochemicals Association of Kenya.

Despite rigorous measures by KEBS, Pest Control and Products Board and the Anti-Counterfeit Authority, counterfeiters exploit farmers by selling and distributing fake products with labels that make them look genuine. Coupled with the persuasive marketing strategies employed by the fake dealers—some of who sell the products from mobile trucks or vehicles without proper identification—the unsuspecting farmers easily fall for the counterfeit agricultural inputs.

AAK, through the Anti-Counterfeit Steering Committee, has partnered with other regulatory agencies including the Pest Control and

Products Board to continuously inspect, test and ascertain the quality and efficacy of agricultural inputs before their classification and licensing. Such strict standardization enables easy identification and elimination of fake agricultural inputs from the market thus saving farmers from the potential dangers of using them.

Lack of awareness is one of the biggest hindrances to curbing anti-counterfeit agricultural inputs. To address this, AAK in partnership with other players has consistently held



training sessions to create awareness among customs officers in charge of entry points, and farmers on the detection of counterfeits. Awareness creation among customs officers is effective in curbing crossborder counterfeiting of agricultural inputs thus reducing the infiltration of fake inputs into the Kenyan market from neighbouring countries.

AAK also conducts anti-counterfeit training and outreaches to stakeholders in various counties. For instance, AAK in collaboration with agencies such as the Anti-Counterfeit Authority, Kenya National

Farmers Federation, Kenya Bureau of Standards and the Kenya Plant Health Inspectorate Service among others conducted an anti-counterfeit outreach in Uasin Gishu and Transzoia counties where at least 490 farmers were sensitized on how to prevent counterfeits.

Other anti-counterfeit activities include the observance and celebration of World Anti-Counterfeit Day Celebrations which is used to sensitize agrochemicals and farmers on the need to be vigilant to avoid the buying and utilization of counterfeit inputs

from unlicensed and uncredited manufacturers and suppliers.

The Recordation Regulations (2021) introduced by the Anti-Counterfeits Authority require owners of intellectual property rights to register their intellectual property rights issued in their countries of origin or Kenya with the Authority at a fee. This requirement—although punitive as it adds to the cost of agricultural inputs and of business—goes a long way in nabbing manufacturers dealing in counterfeits.

Original Article was written in the AAK Grow Hand Book.

Beating Fusarium for Quality and Yield



David Jones

By David Jones

Growing a big crop that looks really promising... in a season with good rainfall... until those tell-tale white bleached ears appear when you are on the home straight. There is nothing more soul-destroying than seeing a great crop become heavily infected with Fusarium. Yield alone will be damaged, but add in the quality and the bushel weight problems, and this is a problem to avoid.

So in a promising season like this where moisture is excellent and crops are full of promise, what can we do to protect the potential? The good news is that Fusarium can be managed and the risk assessed in advance so farmers can plan and prioritise crops for appropriate action with an ear fungicide.

Assessing the likely risk begins with the previous crop. Fusarium survives on previous cereal crop residues and

is particularly bad after maize. Wheat crops that had high levels of infection also represent a high risk to following crops. So if you grew maize or Kasuku wheat previous year, you should be immediately cautious.

Weather conditions around flowering are very important, as rain and humidity drastically increases infection risk. Many farmers forget however that a dry start also actually increases risk, as there is less early breakdown of residue and the release of the conidia spores is delayed.

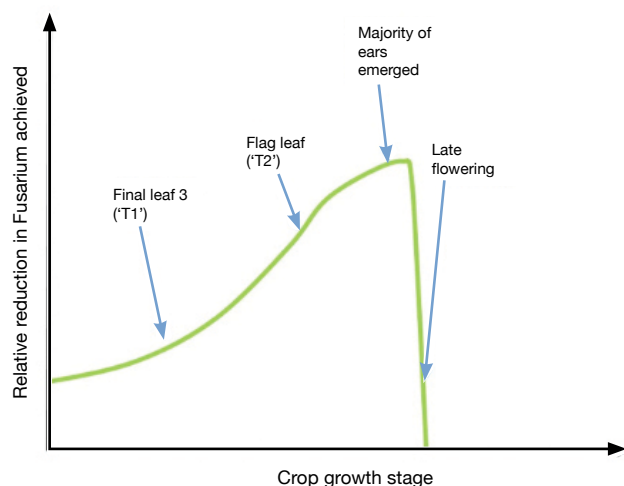
Variety should be a key part of any risk assessment around the ear spray. There is a lot of Kasuku grown at present which is highly susceptible to Fusarium – worse in fact than Tai. Korongo is also very weak, but Hyrax is better and Jacana and Hawk have very good resistance.

For the highest risk situation, for example, Kasuku grown after maize in a humid environment, there is only one

“To be effective the ear spray must be applied at early flowering, when the majority of ears have emerged and the glumes are opening. By mid-flowering the first glumes have already closed up, trapping any infection inside which the fungicide cannot reach. Ignore the old 21 day rule since the last fungicide, and go on crop growth stage instead.”

real option for the ear spray which is a fungicide containing prothioconazole. It would also be wise to apply a flag leaf spray containing prothioconazole or tebuconazole on these crops too, as this reduces the level of Fusarium in the upper canopy in advance of the ear emerging. Important if you are delayed with the ear spray for whatever reason.

Relative reduction in Fusarium control from different timings



Reduction in Fusarium achieved from different timings through the crop. Once the crop reaches late flowering, it is too late and no control will be achieved.

Timing is critical – do not put yourself at risk by growing a susceptible variety on wet heavy soil. Kasuku is not a variety which achieves its best in hotter areas with Black Cotton soils anyway, and if it is too wet to spray then the consequences can be severe (for a precise application on the ear, do not rely on drones or aeroplanes. There is too much at stake).

To be effective the ear spray must be applied at early flowering, when the majority of ears have emerged and the glumes are opening. By mid-flowering the first glumes have already closed up, trapping any infection inside which the fungicide cannot reach. Ignore the old 21 day rule since the last fungicide, and go on crop growth stage instead.

For medium risk situations, a high dose of tebuconazole (>200g/ha) is often enough – for example, Hyrax in a shamba that was wheat previous year. But if in doubt, money spent on prothioconazole is money well spent.

For lower-risk crops, 125g/ha of tebuconazole is sufficient. This is adequate for most crops following canola, even in hot and humid areas and it keeps the cost down considerably.

Variety resistance is one thing, but what breeders and pathologists rarely talk about is uniformity of ear emergence. Because the timing of the ear spray is so important and the window of opportunity is narrow,

Fusarium is much easier to control in practice in a variety with even ear emergence. NOT Kwale which produces lots of late tillers!

What can we do in terms of cultural control to minimise chemical use? Firstly, crop rotation. Canola more than anything else reduces Fusarium significantly throughout the rotation. Secondly, choose more resistant varieties such as Jacana or Hawk in high-risk situations. Thirdly, control volunteers in the fallow. Even wheat volunteers allowed to get to flag leaf stage will build up and carry over the disease.

If you experience high levels of Fusarium regularly, you could consider adjusting planting date to coincide with drier weather conditions during flowering but this will compromise yields.

	High risk ***	Medium risk **	Low risk *
Variety	Kasuku, Tai, Korongo	Impala, Hyrax	Robin, Hawk, Jacana, Mwera
Previous crop	Maize	Wheat or barley	Canola
Rain at flowering	Every day		Totally dry
Temperature at flowering	Above 25°C	20-25°C	Below 20°C
Cultivation method	No-till	Disc plough or harrow	Mouldboard plough, full inversion

- 12 stars and above – prothioconazole on the ear is a must
- 8-11 stars – high rate of tebuconazole
- 7 stars or fewer – low risk, so a low rate of tebuconazole or no ear spray required

Give yourself three stars for each high-risk category, two for a medium risk and one for a low-risk box. For example, if you are growing Kasuku (high risk, 3 stars), after canola (low risk, 1 star), with some rain (medium risk, 2 stars), in a hot area (3 stars) in no-till (3 stars).

David is an independent agronomist in Kenya and a member of the Association of Independent Crop Consultants. David gives independent advice based on scientific trials and experience. Currently works with the Centre of Excellence for Crop Rotation.

Courtesy: Think Agronomy

Think Agronomy is brought to you by Cropnuts and the Centre of Excellence for Crop Rotation.



Greenlife
CROP PROTECTION AFRICA



GOVERNOR[®] 580 SE

Pre-emergence and post-emergence herbicide. It is used to control broad-leaved weeds and annual grasses in non cropped areas.

Area: Non-cropped areas
Weeds: Broad-leaved weeds
Grass weeds

Rate: 2.5L/ha in 1000L of water.
(50ml in 20L of water)

Mombasa Road, Opposite Signature Mall,
Athi 55 Ltd Complex, Warehouse No. 6.
P.O. Box 24942-00100, Nairobi, Kenya
+254 722 563 698 | +254 735 544 544

The Agroecological Conversation

Could a future-forward climate adaptation strategy exist without leadership from the youth?

As the global population grows, it becomes increasingly important to empower young people to lead in mitigating climate change and strengthening food systems. The agroecological conversation in Kenya is driving this critical topic that will pave the way for sustainable and equitable agriculture.

Fridah Wanjiku Irungu, a 26-year-old agroecology champion, has enthusiastically taken up this responsibility. She is not your average young person in Gathinja Village, Kiharu Constituency Murang'a County. When Fridah speaks, the entire community listens. She is one of the young agroecology champions working with Greener Greens, a three-year project funded by The Biovision Foundation and

implemented by SNV Kenya and The World Vegetables Centre.

Fridah has created a trustworthy base that buys into her vision of a fully organic, vegetable-producing, consuming community. Her love for nature has turned into a flourishing and sustainable livelihood, an important component of the project. 'The demand for organically grown vegetables is at an all-time high in Kiharu, Hapa hakuna mtu anataka mboga imepigwa dawa, nobody wants to eat vegetables pumped with chemicals,' she says emphatically.

The project's overall objective is to increase the adoption of agroecological vegetable production at the systems level, contributing to long-term improvements in incomes, food security, and farmer resilience. This is done by building an evidence base for smallholder vegetable production systems based on agroecological approaches.

Fridah joined the project in March 2022. At the time, she was particularly interested in

organic crop production, a farming technique that prioritises ecological balance and limits the use of chemical inputs. Like other farmers in Kiharu Constituency, she would use conventional farming practices such as fertilisers for increased yields and pesticides to control pests and diseases. 'I was very happy to see dead insects as a result of the knock-down effect of insecticides; little did I know that the same effects trickle down to beneficial microorganisms affecting soil biodiversity.' This knowledge was eye-opening for her and reinforced her resolve to adopt eco-friendly farming practices.

Fridah has received training from the Greener Greens Project and can now use locally available and environmentally friendly materials in and around her farm. She uses techniques such as compost, farmyard manure, vermicompost and bokashi to improve soil fertility and health, resulting in increased yields. Additionally, she has started using plant extracts such as *Tithonia diversifolia*, neem plant, and Mexican Marigold to control pests and diseases, alongside integrated pest management practices like the use of sticky and pheromone traps. She practices water conservation techniques such as Zai pits, sunken beds, and dry and living mulching.

These methods have significantly

TO PAGE 30



FROM PAGE 29

reduced production costs while preserving and improving biological and ecological processes in agricultural production. Most importantly, they have created a conducive environment for soil microorganisms to thrive.

‘Looking at this soil, you will notice an abundance of microbial communities such as earthworms, a phenomenon you will not come across in many farms in our area,’ Fridah affirms.

Changing times

Consumers are becoming increasingly aware of the impact of their food choices and are choosing organic food more often due to its positive effects on human health and the environment. This trend is driving better agricultural practices that prioritise quality over quantity. At the same time, there is now more awareness for farmers in vulnerable regions to adopt more sustainable methods to protect their livelihoods. Agroecological practices will significantly influence the future of agriculture as the global demand for healthy and sustainable food continues to rise.

Policy level engagement

Soil health is the foundation of our food systems and provides several vital ecosystem services, including land productivity, flood regulation, nutrient cycling, and carbon sequestration. To improve soil health, we must address critical implementation, monitoring, policy, and investment barriers that constrain farmers from adopting and scaling healthy soil practices.

The Government of Kenya (GOK) is highly committed to improving the

food systems in the country. The main objective is to ensure that people have access to safe and nutritious food. However, the issues within the food systems, particularly in production, pose a significant challenge to Kenya’s efforts to promote sustainable food and land-use systems and other social and economic advancements. Therefore, more partnerships and collaborations are needed across all levels of the government to realise this agenda.

The project has been working closely with the Department of Agriculture of Murang’a County Government. The main aim of this collaboration is to develop an Agroecological Policy that will promote the adoption of agroecological production in county planning and financing. This will help to integrate this farming approach into Kenya’s agricultural system, ensuring a sustainable and safe food system for the people of Kenya.

‘We launched the Murang’a County Agro-Ecological Policy in 2023. The policy addresses food security, food safety, and nutrition. We are in the process of gradually rolling out implementation through various extension services and support from partners like the ‘Greener Greens project.’ As a county, we have committed to ensuring that the food our people consume and what we put out to the market is very safe - to the producer and consumer, to the environment, and to the soil. We wish

to see Murang’a County labelled as a heaven for safe food’, declares Hon. Kiringai Wa Kamau, County Executive Committee Member, Agriculture, Livestock and Fisheries, Murang’a County.

‘We have had two counties already that have come from Vihiga and Kiambu, benchmarking with us. Fifteen more counties will come to learn from us on how we have formulated our policies’, Hon. Kiringai Wa Kamau adds.

Addressing difficulties in organic farming
Agroecology, just like

conventional farming practices, has its challenges. It requires meticulous planning, hard work, and innovative problem-solving. However, the difficulties and constraints of organic farming are being addressed by improvements in organic practices, precision farming methods, and cutting-edge technology, making it a more practical and scalable choice. Organic farming is more than simply the food we eat; it’s about caring for the world and encouraging a peaceful interaction between humans and nature.

Adhering to agroecological principles contributes to healthier ecosystems, greater nutrition, and a more resilient agricultural system. Farmers like Fridah present a role model example to other farmers that achieving sustainable farming practises, healthy soil, and, most importantly, food for a healthy community is possible.

Source: <https://www.snv.org>

“Soil health is the foundation of our food systems and provides several vital ecosystem services, including land productivity, flood regulation, nutrient cycling, and carbon sequestration. To improve soil health, we must address critical implementation, monitoring, policy, and investment barriers that constrain farmers from adopting and scaling healthy soil practices.”

Improve crop yields
NATURALLY!




Organix Limited
The Farmer's Environmental Friend



an organic seaweed
extract to reduce
transplanting shock &
improve root systems

- Deeper Vigorous Root systems
- Greener Foliage
- Increased tillers & stronger stems
- Uniform heads & grains
- Improved bushel weight
- Helps moisture stress
- Foliar spray at 2ml per Litre of water at 3-5 leaf stage

EARTHLEE®
humus for improving
soil structure

- Frees locked nutrients
- Coating onto granular fertiliser reduces loss of nutrients (leaching) & stronger stems
- Helps in introducing humates into the soil
- Coat 50Kg granular fertilizer with 1Kg Earthlee

P.O. Box 14494
Nairobi 00800 Kenya
Fax: +254 20 3742605

Tel: +254 20 3741482 / 3566241/2
Cell: +254 735 712090 / 720 937535

eco@organix-agro.com www.organix-agro.com

New Technology to Cut Costs for Maize Farmers

Key Points:

New Hybrids Released:

Three hybrids—one early maturing (CHKE21W001) and two medium maturing (CHKM21W002 and CHKM21W003)—have been recommended for release by the Kenya Plant Health Inspectorate Service (Kephis).

Testing Ongoing:

Two additional hybrids (CHKM21W001 and CKDHH15008FNP) are in their second year of National Performance Trials and are expected to be released later this year.

Impressive Performance: These hybrids exhibit excellent emergence, efficient nitrogen use, and high yields of 25-30 bags per acre, with stable performance in early and medium altitude agro-ecological zones. For years, rising costs of hybrid maize seeds have been a burden for farmers. However, a new technology developed by the Kenya Agriculture Research and Livestock Organisation (KALRO) now offers cheaper hybrid maize seeds. This technology, called 'Seed Production Technology for Africa' (SPTA), eliminates the labor-intensive process of manual detasseling, which traditionally increases hybrid seed costs by 40 to 60 percent. The

result is improved yields and reduced costs for farmers.

Understanding Detasseling:

Detasseling involves manually removing the tassel (pollen-producing flower) from the maize plant to prevent self-pollination. This process is typically costly and time-consuming, leading to higher seed prices for farmers.

The Innovation: Dr. Masinde Wanyama, the principal lead researcher, explains that the new technology uses a dominant non-pollen producing maize gene, Ms44, which creates female parent plants that do not produce pollen. Consequently, these plants do not require detasseling. This gene ensures that the silk of female plants is fertilized only by the desired male plant variety. This innovation is offered to local seed companies royalty-free, reducing production costs by 40 to 60 percent depending on the maize variety.

Impact on Seed Production: KALRO Director General Eliud Kireger highlights that this technology enables small and medium seed companies to produce high-

quality hybrid maize more efficiently. By eliminating the need for manual detasseling, which requires six people per hectare working daily for about three weeks (costing approximately Sh58,800 per hectare), the overall production cost is significantly reduced. Additionally, farmers benefit from high-quality seeds and higher yields. The new hybrids also demonstrate a five percent increase in yields under low soil fertility conditions, excellent standability, good plant aspects, and closed husk cover, among other attributes. The commercialization of these hybrids will ensure that farmers have access to affordable, high-quality seeds.

Research and Trials: From 2016 to 2020, research validating this technology was conducted at KALRO sites in Kitale, Embu, and Kakamega, with farm trials in Kakamega, Bungoma, Busia, Embu, and Kirinyaga. The recent launch of KALRO Mkulima shops across the country ensures that farmers can access these superior seed varieties and other technologies.

KALRO Seeds is actively involved in producing various improved varieties across 15 centers. Specifically, AMRI Katumani will produce the early maturing variety, while NRI Kakamega and FCRC Embu will produce the medium maturing varieties, and FCRI Kitale will focus on late maturing varieties.

Benefits: SPTA hybrids have shown higher yields in on-farm trials in various agro-ecological zones, including dryland transition (Katumani), medium altitude (Embu), and medium altitude transition (Kakamega). KALRO aims to lead in producing climate-smart, high-quality hybrids at reduced production and retail prices, benefiting more farmers in these regions.

July - August 2024

THE LEADING FLORICULTURAL JOURNAL IN THE REGION

FLORICULTURE

Kshs. 400

Tshs. 7,970

S.A Rands 57

USD 3

**Get a Copy of the
Current Floriculture Magazine
Call 020 2440908**

**Managing the Menace of
False Codling Moth**

The Impact of Growing High-Yielding Hybrid Maize Varieties



A team from AATF celebrated this year's International Women's Day with more than 200 women farmers at an event hosted by the County Government of Kakamega in Western Kenya. They interacted with the farmers on the benefits of growing DroughtTEGO hybrids being promoted by AATF through the Technologies for African Agricultural Transformation (TAAT) Maize project. The celebrations provided an opportunity for the women farmers to share their experiences on good agricultural practices to improve maize productivity on their farms.

Margaret Shitandi is the Sub-country Coordinator for Butere in Kakamega County, Western Kenya, under the WEREFANET organization. WEREFANET is a community-based organization that works with AATF to promote drought-tolerant maize

Margaret Shitandi (extreme left) with fellow women farmers during the 2024 International Women's Day Celebrations in Kakamega County Kenya (PHOTO: COURTESY, AATF)

varieties through the TAAT Maize Project.

In addition to her coordination responsibilities, which involve raising awareness and recruiting farmers to grow climate-smart DroughtTego varieties under TAAT, Margaret is also an accomplished maize farmer. She not only preaches the benefits of growing drought-tolerant maize, but also practices it herself, and has seen a positive transformation in her farming endeavors. She recently shared her success story about cultivating these varieties and how they have improved

her farming fortunes.

She began her farming journey over 30 years ago in 1990. Her engagement with AATF started in 2008 when she was introduced to Striga-resistant maize varieties that were critical in ridding their farms of Striga (commonly known as witchweed in Western Kenya) that destroyed their crops every season. Striga poses a significant threat to maize production, affecting up to 50 million hectares of cropland and negatively impacting the livelihoods of millions of smallholder farmers across the continent.

When AATF entered the region with climate-smart varieties WE4141 under the then Water Efficient Maize for Africa (WEMA) project in 2020, she was quickly sold to the idea and was among the first women to try out the new technology. This was due to the increasing incidence of drought, which left them without a harvest and therefore without food. Maize is a staple not only in the area but also in the entire country.

Margaret is full of praise for the WEMA drought-tolerant varieties, as she has witnessed a significant difference compared to the previous varieties she used to grow. Currently, the climate-smart varieties only take three months to mature, while the others take much longer. This extended duration until harvest burdens smallholder farmers and their families to prolonged periods of food scarcity and hunger. During

the waiting period, most of them end up harvesting the maize while it is still green. Consequently, by the end of the season, they have little, which leaves them without a sustainable food supply until the next harvest.

The yields from the WEMA varieties are also higher compared to other varieties. An acre of WE4141 yields about 28 bags, whereas the other varieties yield only 10 bags. This number decreases further if most of the maize has been harvested and consumed while still green. With the increased yields, she has been able to trade some of the bags to pay for school fees for her seven children, who are in different stages of schooling. This arrangement allows her to deliver the maize to school, where it is then valued and used to cover the fees. She also sells some of the maize to pay for labor on her farm and meet other family needs.

As a result of her farming success, she hosts field days at her farm to encourage other farmers to embrace growing WEMA varieties. During these events, farmers are also taught good agronomic practices. To ensure the success of her maize crop, she prepares her farm early, allowing the sun to scorch the weeds before burning them. Additionally, she uses farm manure and fertiliser during planting, and performs the first and second weeding and top dressing.

One of the challenges that farmers, including her, face in maize production is the infestation of fall army worms, which is prevalent. In her parting shot, she encourages fellow farmers to witness firsthand the benefits of growing DroughtTEGO varieties, using her own example and that of other farmers who have embraced climate smart maize technology.

Scientists Engineer Plant Microbiome for the First Time to Protect Crops Against Disease

Plants host a huge variety of bacteria, fungi, viruses and other microorganisms that live in their roots, stems and leaves. For the past decade, scientists have been intensively researching plant microbiomes to understand how they affect a plant's health and its vulnerability to disease.

“For the first time, we’ve been able to change the makeup of a plant’s microbiome in a targeted way, boosting the numbers of beneficial bacteria that can protect the plant from other, harmful bacteria,” says Dr. Tomislav Cernava, co-author of the paper and associate professor in plant-microbe interactions at the UK’s University of Southampton. “This breakthrough could reduce reliance on pesticides, which are harmful to the environment. We’ve achieved this in rice crops, but the framework we’ve created could be applied to other plants and unlock other opportunities to improve their microbiome. For example, microbes that increase nutrient provision to crops could reduce the need for synthetic fertilizers.”

The international research team discovered that one specific gene found in the lignin biosynthesis cluster of the rice plant is involved in shaping its microbiome. Lignin is a complex polymer found in the cell walls of plants – the biomass of some plant species consists of more than 30 per cent lignin.

First, the researchers observed that when this gene was deactivated, there was a decrease in the population of certain beneficial bacteria, confirming its importance in the makeup of the microbiome community. The researchers then did the opposite, over-expressing the gene so it produced more of one specific type of metabolite – a small molecule produced by the host plant during its metabolic processes. This increased the proportion of beneficial bacteria in the plant microbiome.

When these engineered plants were exposed to *Xanthomonas oryzae* – a pathogen that causes bacterial blight in rice crops, they were substantially more resistant to it than wild-type rice. Bacterial blight is common in Asia and can lead to substantial loss of rice yields. It’s usually controlled by deploying polluting pesticides, so producing a crop with a protective microbiome could help bolster food security and help the environment. The research team are now exploring how they can influence the presence of other beneficial microbes to unlock various plant health benefits.



Insights from the African Fertilizer and Soil Health Summit 2024

As the global population continues to expand, so does the imperative to ensure food security for all Africa a continent where millions grapple with food and nutrition insecurity, addressing the challenges of agricultural productivity becomes paramount. Against this backdrop, the African Fertilizer and Soil Health Summit convened in Nairobi, Kenya, bringing together key stakeholders from across the continent to address the pressing issues of fertilizer use and soil health. The summit, which spanned three days, witnessed robust discussions, insightful deliberations, and the formulation of strategic commitments aimed at driving sustainable agricultural growth and combating food insecurity in Africa.

Opening the summit, H.E. Dr. Musalia Mudavadi, Prime Cabinet Secretary and Cabinet Secretary for Foreign and Diaspora Affairs of the Republic of

Kenya, set the tone by acknowledging the challenges faced by millions of Africans grappling with food and nutrition insecurity. He emphasized the importance of long-term, sustainable strategies to feed the continent's growing population. Dr. Mudavadi underscored the significance of key declarations and commitments made by African leaders, including the Maputo Declaration, Abuja Declaration, Malabo Declaration, and the Soil Initiative for Africa, as foundational pillars guiding agricultural transformation efforts.

Throughout the summit, participants reflected on the progress made in implementing these commitments while also identifying emerging challenges. They recognized the need for integrated soil management and underscored the critical role of prudent agricultural inputs, environmental conservation, and technological innovation in

enhancing productivity and ensuring food security. Dr. Mudavadi highlighted the importance of monitoring implementation and proposed innovative solutions to address evolving challenges, stressing the imperative of leaving behind a sustainable environment for future generations.

However, Dr. Mudavadi cautioned that while fertilizers play a significant role in boosting crop yields, they are not a panacea. He emphasized the need for integrated soil management, pointing to the stagnation of maize yields in some regions despite increased fertilizer use. This sentiment was echoed by Hon. Mithika Linturi, Cabinet Secretary for Agriculture and Livestock Development of Kenya, who emphasized the importance of soil health in sustaining agricultural productivity.

In his remarks, Hon. Mithika Linturi, underscored the importance of soil health in ensuring food security and sustainable agricultural practices. He highlighted Kenya's efforts to address soil fertility depletion and land degradation through initiatives such as the Integrated Soil Fertility Management (ISFM) practices and the Agricultural Soil Management Policy. CS Linturi emphasized the need for precise soil



testing and targeted agronomic recommendations to ensure increased, sustainable, and profitable crop production.

Linturi further outlined various sub-themes addressed during the summit, including advances in monitoring soil health, developing country plans for fertilizer and soil health, integrated landscape soil and water management, and financing Africa's fertilizer value chains.

Building upon this foundation, H.E. William Samoei Ruto, President and Commander-in-Chief of the Kenya Defence Forces, delivered closing remarks that encapsulated the summit's outcomes and commitments. President Ruto commended the dedication and commitment of all participants and announced key outcomes, including the endorsement of the Nairobi Declaration and the Fertilizer and Soil Health Action Plan. These documents, he noted, would serve as guiding

frameworks for

harnessing multi-stakeholder partnerships and investments to drive policies, finance, research and development, markets, and capacity building for fertilizer and sustainable soil health management in Africa.

President Ruto outlined specific commitments made during the summit, including tripling domestic production and distribution of both organic and inorganic fertilizers, enhancing

Agency-NEPAD (AUDA-NEPAD) to support member states in implementing the commitments outlined in the Nairobi Declaration. Additionally, he appealed to the private sector and development partners to increase investments in Africa's fertilizer industry and promote sustainable soil management practices.

In conclusion, the African Fertilizer and



access to and affordability of fertilizers for smallholder farmers, and reversing land degradation to restore soil health on degraded soil by 2033. Moreover, he emphasized the importance of fully operationalizing the Africa Fertilizer Financing Mechanism to improve production, procurement, and distribution of fertilizers and soil health interventions.

Recognizing the financial constraints faced by many African governments, President Ruto called for the creation of an enabling environment to attract private sector investments in agriculture. He urged the African Union Commission and African Union Development

Soil Health Summit 2024 marked a significant milestone in Africa's quest for agricultural transformation and food security. With renewed commitments, strategic partnerships, and innovative solutions, Africa is set to tap on the potential of its agricultural sector to drive sustainable growth, alleviate poverty, and ensure a prosperous future for its people. As the continent moves forward, united in purpose and resolve, the vision of a nourished and thriving Africa is within reach. By coming together and taking collective action, Africa can overcome its challenges and realize its full potential as a global agricultural powerhouse, ensuring food security and prosperity for generations to come.



Championing for the African Development Fund

President William Ruto has been a staunch advocate for the renewal of the African Development Fund (ADF), highlighting its crucial role in supporting development initiatives in Kenya and across the African continent. During a high-profile meeting in Nairobi with Akinwumi Adesina, President of the African Development Bank (AfDB), Ruto emphasized the transformative impact of the fund on the nation's growth and infrastructure projects.

In his address at the World Bank's International Development Association (IDA) meeting held in Nairobi the previous month, President Ruto called for a substantial \$25 billion replenishment for the ADF's 17th cycle. This fund currently supports 37 low-income countries across Africa, providing essential resources for their development needs.

"I will continue to make a strong case for the 17th replenishment of the African

Development Fund. Kenya has benefitted immensely from the resources provided by the Fund," Ruto stated emphatically. He highlighted the success of the Last Mile Connectivity project, which has significantly increased the number of households connected to the national electricity grid from 2.5 million in 2013/14 to over 10 million today.

Ruto underscored the need for public awareness about the sources of funding for such transformative projects. "Kenyans know it is a government project, but they need to know it was financed by the African Development Fund. It is making a difference in people's lives, and we want to invest more to add momentum," he added.

The President also praised the AfDB for its support in other critical areas, such

as the Kenya Towns Sustainable Water Supply and Sanitation program. This initiative aims to ensure the provision of clean water to urban areas across Kenya, addressing one of the most pressing public health and infrastructure challenges. The current 16th replenishment of the ADF, which achieved a historic \$8.9 billion in December 2022, is set to conclude next year. This replenishment cycle has been instrumental in funding various projects that have had a tangible impact on the ground, setting a solid foundation for future initiatives.

Akinwumi Adesina, who was in Nairobi to oversee preparations for the AfDB's 59th Annual Meetings at the Kenyatta International Convention Centre, echoed President Ruto's sentiments. Adesina reaffirmed the

Akinwumi Adesina,
President of the African Development Bank (AfDB)



Bank's commitment to collaborating with the Kenyan government, particularly in de-risking lending to agriculture through partial risk guarantees and credit guarantees.

Adesina pointed out Kenya's potential to follow Ethiopia's footsteps in achieving self-sufficiency and becoming a net exporter of wheat. This success in Ethiopia was facilitated by the Bank's flagship program, Technologies for African Agricultural Transformation (TAAT). "We have used partial credit guarantees to support the issuance of a \$500 million Panda bond by Egypt. We also used this tool to de-risk a EUR 350 million sustainable development loan for Benin. Similarly, we supported Côte d'Ivoire in mobilizing EUR 533 million for strategic environmental, social, and governance projects," said Adesina.

Ethiopia's deployment of TAAT enabled the country to expand its cultivated wheat area from less than 5,000 hectares in 2018 to approximately 2 million hectares in 2024. This remarkable achievement showcases the potential of agricultural transformation through targeted investment and support.

In addition to discussing the successes and ongoing projects, the two leaders explored ways to increase investments in other crucial sectors, particularly agriculture. Agriculture remains a top priority for the Kenyan government due to its potential for rapid economic transformation and its role in ensuring food security and rural development. The commitment to enhancing agricultural productivity through innovative programs and financial support mechanisms is part of a broader strategy to drive economic growth and development in Kenya.

The collaboration between the Kenyan government and the AfDB aims to create an enabling environment for agricultural transformation, leveraging advanced technologies and sustainable practices to boost yields and improve livelihoods. President Ruto's advocacy for the ADF's renewal and his efforts to secure substantial funding for development projects reflect his administration's dedication to

addressing the country's developmental challenges. By harnessing the resources and expertise of the AfDB and other international partners, Kenya aims to accelerate its progress towards sustainable development goals and economic resilience.

The high-level engagement between President Ruto and Akinwumi Adesina underscores the strategic importance of international cooperation in achieving developmental objectives. The African Development Fund, with its focus on supporting low-income countries, plays a pivotal role in enabling nations like Kenya to undertake large-scale projects that drive social and economic change.

The positive outcomes from previous cycles of the ADF, such as the Last Mile Connectivity project and the Kenya Towns Sustainable Water Supply and Sanitation program, serve as compelling examples of how targeted funding can lead to significant improvements in infrastructure and quality of life. These successes provide a strong foundation for advocating further investments and support from the international community.

In conclusion, President Ruto's rallying for the renewal of the African Development Fund highlights the critical role of international financial institutions in supporting Africa's development agenda. The collaborative efforts between the Kenyan government and the AfDB demonstrate a shared commitment to advancing economic growth, infrastructure development, and social progress. By securing substantial funding for future projects, Kenya and other beneficiary countries can continue their journey towards sustainable development and prosperity.

Efforts Towards Achieving a Gender Inclusive Society

***'The quest for gender equality is woven from the threads of collective action, embracing the voices of all who advocate for the fundamental rights of humanity.'* – Chimamanda Ngozi Adichie, an internationally acclaimed Nigerian writer.**

In today's fast-changing world, it is only through the power of the collective that we can meet the many challenges we face. But Chimamanda Ngozi Adichie's emphasis on the 'voices of all' is what gives us true inspiration because, as history has shown us, the collective is not a homogenous unit. The 'collective' is often entrenched in power dynamics and long-held mindsets and beliefs, which can lead to multiple forms of exclusion.

Collective power is embedded in many communities and identities.

Fridah Wanjiku Irungu, a 26-year-old agroecology champion from Kenya, has enthusiastically taken up the responsibility of mobilising farmers in her community to adopt sustainable farming approaches. Despite being young, she has become a leading voice in Gathinja Village, Kiharu Constituency, Murang'a County—a position not typically held by someone her age.

Fridah is among the county's Greener Greens project-trained young agroecology champions helping promote organic crop production. She has created a trustworthy base of both men and women who buy into her vision of a fully organic, vegetable-producing, consuming community. 'Nobody wants to eat vegetables pumped with chemicals,' she said emphatically. Her love for nature has turned into a flourishing and sustainable livelihood and a significant movement for the farmers in her community to prioritise ecological balance and limit the use of chemical inputs. Fridah is not only changing the farming landscape in her community but also giving young people a visible voice in climate action.

Collective power is a 'sharing' one that lifts others to reach their full potential.

Dechen Peldon, a resident of the village of Lhamoizingkha in Bhutan, was among several women who attended a training course on managing a climate-resilient water supply system.

Dechen had never considered taking a training course before. Often, important information did not reach her, or she was too busy attending to her day-to-day responsibilities. Following the Tshogpa's (elected sub-district leader) call for women to participate, Dechen's exercise of her agency – i.e., the decision to participate – was not an easy process due to the many physical and imagined barriers to her participation.

'Lifting others' was manifested through the course organisers' strategy of eliminating participation roadblocks, e.g., offering free meals, transport, and per diems. Dechen's partner encouraged her participation and volunteered to take up household chores himself. After the course, Dechen felt more determined than ever to encourage more women to participate in skills-building training. She used her new skills to fix her water pipeline and taught her sister to maintain her water system.

Collective (and more representative) power is boosted by instituting inclusive measures.

In a patriarchal society, women-headed businesses may face barriers to access electricity in comparison with those not headed by women.

The Gender Equality Seal in Mozambique, a collaboration between the SNV-implemented BRILHO programme and CESET was approved in 2023 and seeks to bridge this access gap. Developing the first GESI seal for the energy sector provides a practical approach and tools to incentivise, monitor and recognise the inclusion and empowerment of women as employees in technical and leadership positions.

It is a minimum standard for mini-grid operators, establishing a set of criteria and commitments for them to receive

certification. It requires the integration of gender equality within operators' employee ranks, the establishment of conditions for equal opportunity employment, and the creation of a local technical facilitation unit by operators to accelerate sustainable energy connections for households led by females. The seal is turning into a powerful instrument in creating a more equitable and inclusive energy sector in Mozambique.

The seal has Supported energy companies to integrate GESI into their business models through Gender Action Plans and safeguarding policies. And leadership training for a selected group of women working in the public and private energy sector to become influencers towards a more inclusive future within their institutions and the off-grid energy market.

In our journey towards achieving gender equality, the experiences of Fridah Wanjiku Irungu and Dechen Peldon underscore the importance of investing in women and empowering individuals and entire communities. The Gender Equality Seal in Mozambique is an excellent example of how inclusive measures can promote a more equitable and representative society.

As we continue to move forward, let us advocate for the voices of all as a key strategy to advance. #InspiringInclusion to securing inclusion.

The Power of Data Ecosystems in Agriculture

In today's data-driven world, understanding and leveraging data ecosystems is paramount for organizations aiming to achieve impactful outcomes. This is exemplified by work being carried out through the CABI-led project 'Enabling FAIR data sharing and responsible data use.' The project, funded by

the Bill & Melinda Gates Foundation, recognizes that collecting, using, generating and storing data is costly and takes time. When data is not FAIR (findable, accessible, interoperable, and reusable), the effort of collecting data is often duplicated, or data is lost or overlooked, meaning its value can be lost.

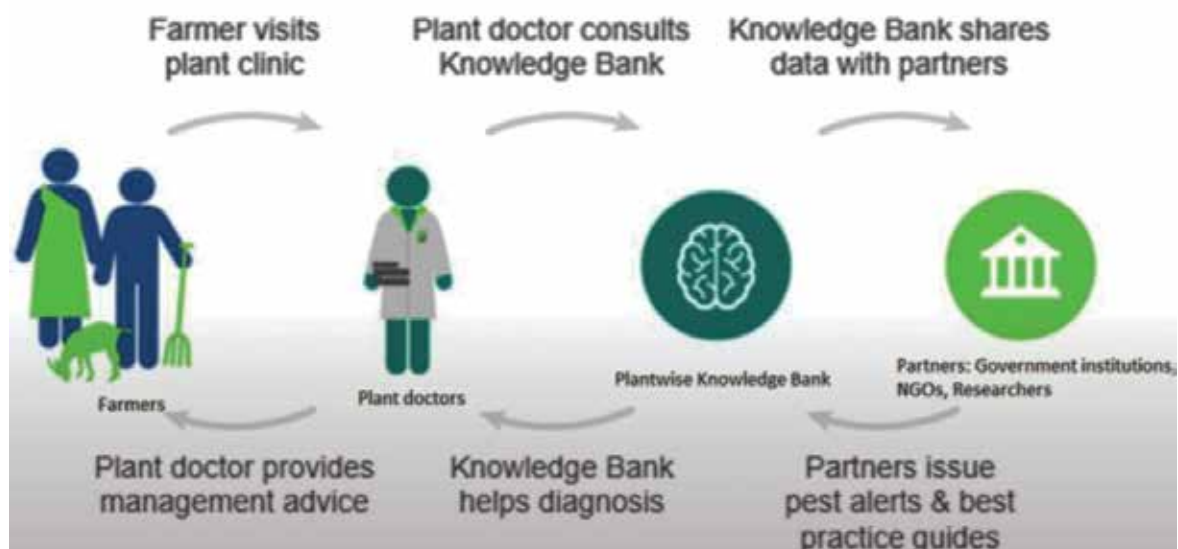
By fostering data accessibility, promoting collaboration, driving evidence-based decision-making, supporting sustainable development, and building trust, data ecosystems offer immense value. Investing in and

nurturing robust data ecosystems is key to unlocking the full potential of data for societal and organizational benefit.

Data ecosystem mapping to understand the enabling environment

As part of the project, CABI's data policy and practice theme has been using data ecosystem mapping to understand the enabling environment in a project engaging stakeholders and enhancing feedback loops for better system insights.

TO PAGE 42



FROM PAGE 41

By sharing these visual maps, stakeholders co-create comprehensive views of ecosystems, fostering understanding and collaboration. CABI has been using Kumu – an innovative tool to create data ecosystem maps – designed to simplify the process of organizing and visualizing complex data.

Through Kumu, tackling complex problems becomes more manageable, enabling us to develop solutions that are both effective and sustainable. By transforming intricate information into dynamic relationship maps, Kumu helps users make sense of systems, people, and concepts.

Informative maps that facilitate better decision-making

Kumu offers intuitive visualizations that enhance understanding and

communication for various aspects like stakeholder mapping, system mapping, or any other type of relational analysis.

CABI’s data policy and practice theme has been working in this space since 2018 to understand the complex systems under the enabling data access project, engaging stakeholders and enhancing feedback loops for better system insights.

The second step (Understanding enabling environment) of the six steps of the FAIR process framework focusses on the external conditions critical for fostering FAIR data practices throughout a project life cycle.

By sharing these visual maps, stakeholders co-create comprehensive views of ecosystems, fostering

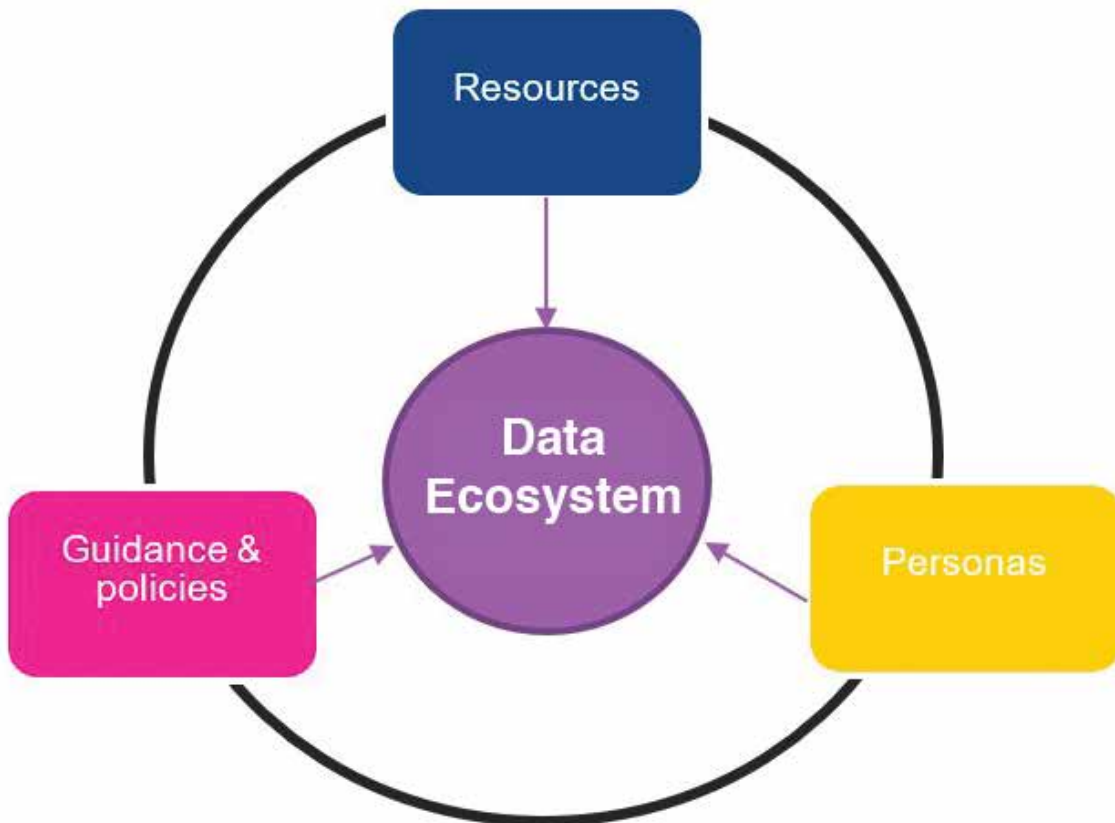
understanding and collaboration. CABI has been using Kumu tool to create data ecosystem maps.

Recently, Kumu recognised and acknowledged CABI’s efforts on their LinkedIn page, highlighting how we use their tool to advance our mission in agricultural and environmental issues in the developing world.

A clear snapshot of how the ecosystem functions

As an example, CABI convened a workshop on PlantwisePlus where these Kumu visualizations were shared, and they co-created a clear snapshot of how the ecosystem functions.

PlantwisePlus is a global CABI-led programme which aims to reach 75 million smallholder farmers in 27 countries, providing them with access



to the knowledge and skills they need to improve their production practices.

Gathering evidence-based feedback in this way allows stakeholders such as regulators, researchers, agro-input manufactures and dealers, policy makers, and plant doctors to see and communicate their critical role in the ecosystem, as well as what steps are involved for impacting the ecosystem positively.

Another Ecosystem map developed by CABI, and featured by Kumu, visualizes the current state and future vision of a geospatial platform. This was part of an investment on climate-smart landscapes for promoting sustainability of Pacific Island agricultural systems.

The Kumu team interviewed Mr Arun Jadhav, Senior data Architect (Data policy and practice), who is leading the related work at CABI. Arun shared how Kumu impresses stakeholders with its dynamic, easy-to-understand visualizations that foster discussions.

Beyond the initial “wow” factor, it facilitates ongoing engagement. The maps created helps gather feedback, and progress based on new insights and perspectives as the users can quickly understand the systems.

Through Kumu, tackling complex problems becomes more manageable, enabling us to develop solutions that are both effective and sustainable.

The platform supports seamless data importation, allowing users to create stunning and informative maps that facilitate better decision-making and foster collaborative insights.

What is a data ecosystem?

“A data ecosystem map enables broader engagement within the community, going beyond donors and project implementors. It provides a better understanding of the types of personas that exist within the ecosystem and the challenges they face thus fostering a more inclusive and collaborative environment for data sharing and utilization.”

A data ecosystem is a visual method for mapping the actors, relationships, and data flows in a project or service, highlighting key value exchanges, and identifying pain points and needed strategies.

Components include resources (data assets including the standards and technologies used to collect, curate, and provide access to those data assets), guidance and policies (informing data use and management) and personas.

Examples include Innovators, Lead Organization Representatives, Researchers, Project Partners/Consultants, Private Sector Liaisons, Third Party Publishers, and Project Officers, etc., and value exchanges (data, insights, reports, funding, etc.).

Why is a Data Ecosystem Important? Identifying and Anticipating Factors Influencing FAIR Data Practices

Creating a Data Ecosystem Map helps in identifying and anticipating those factors that influence FAIR (Findable, Accessible, Interoperable, Reusable) data practices. It allows organizations to recognize the actors that influence data creation and its flow and

understand the existing relationships within the community and how data will or already flows.

Enabling Broader Community Engagement

A data ecosystem map enables broader engagement within the community, going beyond donors and project implementors. It provides a better understanding of the types of personas that exist within the ecosystem and the challenges they face thus fostering a more inclusive and collaborative environment for data sharing and utilization.

Facilitating Effective Data Management

A well-structured data ecosystem supports effective data management by preparing teams to create an enabling environment for FAIRification. By understanding the factors that will impact the data intervention, organizations can make informed decisions on data collection, processing, and sharing.

Promoting transparency and trust

Transparency and trust are crucial for the success of data-driven initiatives. A data ecosystem map clarifies digital solutions’ roles, promotes open and FAIR data practices, and builds trust among stakeholders. This trust is essential for fostering long-term collaborations and encouraging more entities to participate in the ecosystem.

Project page

Find out more about how CABI is working to address constraints in realizing the value of data as part of the project ‘Enabling FAIR data sharing and responsible data use.’

Ndengu (Green Gram) and Coconut Curry



Here's a simple but tasty Indian style recipe to help you enjoy your Ndengu
This curry is mildly spiced and flavorful.

Ingredients

- ½ cup boiled whole green gram
- 1 small onion
- ¾ tsp sliced garlic cloves
- ½ cup grated coconut
- 1/4 tsp turmeric powder
- ½ tsp mustard seeds
- ¾ tsp cumin seeds
- 2 dry red chillies (optional)
- A few curry leaves
- 2 tsp oil
- Salt to taste

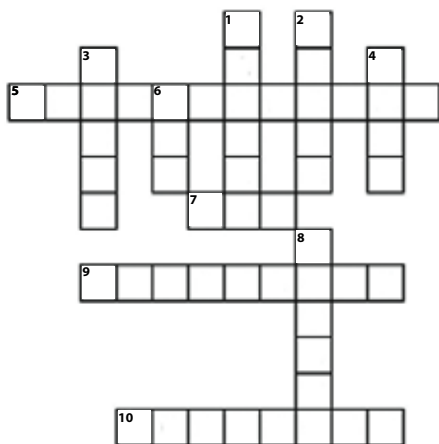
Instructions

1. Blend the grated coconut, cumin seeds and dry red chillies to a fine paste by adding little water and set aside
2. Finely chop the onion and slice the peeled garlic cloves.
3. Heat oil in a pan.
4. Add mustard seeds and once they splutter, add finely chopped onions, sliced garlic and curry leaves
5. Sautee' till the edges of the onion turn brown in color.
6. Add the ground coconut paste along with ¾ cup water. Once the gravy comes to a boil
7. Add the cooked green grams along with turmeric powder and salt.
8. Let this simmer on low heat for 4-5 minutes and remove from heat

Serve with rice or chapatti and enjoy!

Green Grams or ndengu as commonly referred to are a high source of nutrients including: manganese, potassium, magnesium, folate, copper, zinc and various B vitamins. They are also a very filling food, high in protein, resistant starch and dietary fiber.

Cross Word puzzle



Across

5. Somebody trained and qualified in the medical treatment of animals
7. Grass or other plants that are cut, dried and then often used as fodder
9. The main constituent of the cell walls of plants and algae
10. The science of soil management, land cultivation and crop production

Down

1. A rapeseed that yields oil with high nutritional quality
2. A type of wheat that produces the type of flour used to make pasta and couscous
3. A male of the cattle family, especially a young bull, that has been castrated before maturity and is kept for beef
4. An adult female of a species closely related to the horse such as the zebra
5. A male sheep
6. A rounded white tuber cooked in a variety of ways as a vegetables

TWIGA CHEMICAL INDUSTRIES LTD

Cereal Farming at its best!

Tripton TC

Biostimulant for Seed Treatment

To produce a high-yielding crop of uniform maturity the seeds must all germinate and emerge together to allow each individual plant to express its full genetic potential

BENEFITS OF TRIPTON TC

Stimulates germination (Uniform Emergence)

Positive germination effects (Healthy strong roots)

Increases maximum coleoptile length

Improved seedling emergence and stand



The idea is to give a supplement of nutrients and stimulant to maximize germination rate

Tripton TC maximizes germination rate, stimulates root development and seed emergence



SEEDGUARD 400FS[®]

(Carboxin 200g/L + Thiram 200g/L)

'Seed is valuable and needs to be protected'

'Mbegu ni muhimu na inahitaji kulindwa'

SEEDGUARD 400FS is an advanced flowable formulation, designed for the farmer's convenience for effective disease control, better crop emergence, enhanced root growth, improved crop vigour and uniform crop.



Good quality seed

Strong seedling at emergence

Strong healthy root system

Larger number uniform tillers

Increased production in the season

Maximum yield potential realized



Seedguard - unlock the potential within each seed



Reliability & Value

TWIGA CHEMICAL INDUSTRIES LTD.
P.O. Box 30172, NAIROBI-KENYA,
Tel: 020-3942000, Fax: 020-3942405
Email:- info@twiga-chem.com Website:-
www.twigachemicals.com



0742 967 573

QUAKE[®] 112.5 EC

Inatreq[™] active

FUNGICIDE

PROTECT YOUR WHEAT FOR BOUNTY HARVEST

An innovative NEW cereal protectant and curative fungicide for the control of Stem rust and Septoria in wheat.

Active Ingredient:

Inatreq[™] (Fenpicoxamid) 50g/L + Pyraclostrobin 62.5g/L

Application Rate: 1.5L/Ha, 150ml/20L Knapsack

PHI: 50 Days



NEW
FUNGICIDE