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- **1.** The 540 PTO Drive can run a 4 row 8 row Vacuum Planter with a Single Vacuum Fan (suggest use with 12V 120 litre oil cooler).
- **2.** The 1000 PTO Drive can run a 4 row 15 row Vacuum Planter with a Single Vacuum Fan (suggest use with 12V 120 litre oil cooler).

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3. OTHER APPLICATIONS / USES

- 3.1 Can be used as hydraulic motor drive for small augers and small conveyers for short periods of time – limited to use with oil cooler.
- 3.2 Double acting front end loaders requiring less than 20 litres hydraulic oil.

4. BENEFITS / ADVANTAGES

- 4.1 Oil volume 20 Litres.
- 4.2 All parts available as replacements parts to maintain the Jack-Pack.
- 4.3 Low maintenance.
- 4.4 Quick fit by means of a torque arm fitted on the Jack-Pack including locking attachment on the Tractor PTO Shaft.
- 4.5 Compact: Measurements 300 x 300 x 300mm.
- 5. Included in our standard product range is the 12V 120 litre oil cooler needed to support and protect the above systems functionality.

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From the Editor

I am tremendously happy to put forward the forthcoming issue of the AFRI AGRI Magazine. Unlike the general frequency of our previous issues, as the editor I have decided to modify the issue bearing in mind the flow of articles which have to touch base on crop science, animal biology, machinery, medical sciences, biotechnology as well as leading tech. As such, the publication aims at reaching agriculture experts, Botanists, farmers, and students of the field of agricultural sciences to approach, assess, learn and educate the newest present-day explorations, analysis and examinations conducted in the aforesaid fields.

I would like to thank our contributing writers, story tellers, researchers and all industry players for the role each played in these trying times we have been under in the past months. The agriculture sector plays the role of an economic engine in the development of African countries, the Growth of economies correlates positively with the growth of this sector. India, China, Brazil and European countries etc have achieved economic growth through agricultural investments. The subsector allows nations to take advantage of economies of scale.

In other words, the Agri-sector is very much linked and influences developments in other sectors of the economy. The COVID-19 pandemic has had an adverse impact on the global business environment on many levels; many lives have been lost due to the virus and many economies are under severe pressure. Industry has faced a huge slap however as we near breakthroughs of the Covid-19 vaccines, it is wise to revive engagement among the Industry decision makers and key players to pave the way for improved operations.

As Afri-Agri magazine we remain resolute in making sure our readership stays at the top of the game by being informed on the recent sectoral developments, trends and industry breakthroughs.

Thank you very much to our partners, advertisers and all the people who form part of the agricultural value chain for making this October/December issue a success.

Regards

Editor

Nicholas Mayo

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VST Tillers surges 9% on inking distributorship agreement with ETGL Africa



In last 16 trading days, the stock of VST Tillers has soared 52 per cent after the company reported strong set of numbers for the quarter ended June 2021

Shares of VST

tillers Tractors rallied 9 per cent to Rs 2,875.65 on the BSE in intraday trade on Tuesday, in an otherwise weak market, after the company launched the VST range of tractors and power tillers in Southern Africa. Meanwhile, the S&P BSE Sensex was down 0.40 per cent at 58,065 around 10.20 am.

"The company has entered into an agreement with ETG (Export Trading Group), for distribution of its tractors, power tillers, power reapers and diesel engines in the Southern African markets, including South Africa, Namibia, Botswana, Zimbabwe, Swaziland, and Zambia," VST Tillers Tractors said in a BSE filing. The company further said the objective behind the distribution model of VST Tillers Tractors in ETGL's portfolio is to expand its offering in the industry. The launch introduces the complete range of VST's tractors and power tillers into the Southern African market.

ETGL, a global conglomerate with expertise across various industries, operates an established automotive and farm equipment distribution business in the Southern African region.

VST Tillers is the largest Indian manufacturer of tillers, 4WD compact tractors and amongst the leading producers of the other category tractors, engines, transmission, power reaper and precision components. It has also entered into strategic alliances with Pubert from France for power weeders and zetor from the Czech Republic for tractors.

Since August 16, in the last 16 trading days, the stock of VST Tillers has soared 52 per cent after the company reported a strong set of numbers for the quarter ended June 2021 (Q1FY22). The company's profit after tax (PAT) rose 40.7 per cent year-on-year (YoY) at Rs 24.01 crore on the back of 32 per cent YoY jump in turnover at Rs 193.60 crore during the quarter. Earnings before interest, taxes, depreciation and amortization (Ebitda) margin increased to 18.11 per cent from 16.47 per cent in the previous year quarter.

"The agriculture and allied sector happens to be the silver lining to the pandemic that the country is grappling with. There is immense room for future growth in the domestic tractor and farm machinery industry market. Further, the government has also consistently prioritised this sector and announced several initiatives for rural development and farm mechanisation, which are likely to contribute to the increase of sales volume of tractors in the long run," VST Tillers said in the financial year 2020-21 annual report.

On the international front, the company plans to expand into newer geographies including Eastern Europe, Africa, Indonesia, and several others. In Europe, the company is growing its brand 'VST' through various social media campaigns that increase

media campaigns that increase reach in existing and new markets, it said.

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Bids for agricultural machinery open

THE Ministry of Agriculture, Water and Land Reform has called for tenders for the supply and delivery of 160 mahangu and

maize thrashers for the Agricultural Mechanisation Seed Improvement Project (Namsip). In one advertisement in the press this week, the ministry invited bids for 100 mahangu thrasher machines, while in the other it invited bids for the supply of 60 maize-thrasher machines.

According to ministry spokesperson Jona Musheko, the equipment is part of the mechanisation programme funded through an African Development Bank Ioan.

Namsip is implemented by the

ministry in support of the developmental objectives set out in Namibia's high-level plans and strategies.

These include Vision 2030, the Fifth National Development Plan (NDP5), the Harambee Prosperity Plans, the ministry's five-year strategic plan, and the Growthat-Home strategy.

The project is implemented over a period of five years from April 2018 to December 2022. According to Musheko, the beneficiaries under this project are individual farmers, cooperatives, farmers' associations, and private entities, including commercial farmers and seed processors. The ministry called for expressions of interest for individual farmers, cooperatives, and other entities in the 10 crop-growing regions to register as potential seed growers for mahangu, maize, sorghum and cowpea.

Farmers were selected based on set criteria for seed multiplication. All selected seed growers were trained on seed multiplication and seed selection.

The ministry provided and will continue to provide selected seed growers with foundation seed of major staple crops (mahangu, maize, sorghum and cowpea) at a cost of up to a maximum of 30 hectares.

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Mechanization Enhances Rice Farming In Mwea

Mechanization of rice farming at the Mwea Irrigation Scheme in Kirinyaga County is now a reality.

The mini combine harvesters introduced in the expansive scheme a year ago have completely revolutionized the traditional harvesting method of the crop, bringing in efficiency, time-saving and increased yields.

A farmer Peter Muchiri who owns one such combine harvester says the machine is able to harvest an acre of the grain within half an hour.

He said in a span of two hours, the machine has completed harvesting, threshing, winnowing, and packing of the crop into the bags from the four acres each farmer owns under the National Irrigation Board (NIB).

He said he decided to buy his own harvester from Japan at a cost of Sh.2.1 million which he leases to other growers at Sh5,000 per acre.

Another benefit the farmers get from the mechanized agriculture is the short time it takes to harvest an acre of paddy rice with only three people deployed to manage the machine.

"This translates to only 1.2 manhours to harvest the four acres using the combine harvester as opposed to 80 man-hours traditional manual harvest where eight people take 10 hours to harvest an acre," said an Area-Based Scientist Dr. Vincent Kega.

Kega said farmers have already accepted the changes and are also greatly minimizing on grain loss that occurred during the traditional harvesting, which stood at 15 per cent but currently only 3 per cent.

He however said in order for the scheme to claim full success in mechanization, rice seedling planters were urgently required.



A farmer at Thiba section where the machines are harvesting the latoon crop Joyce Wanjiru said technology has done good to the scheme.

"We used to take almost a whole month harvesting and usually left the threshed crop in our shambas at risks but today, you harvest and transport home the products within a short time, Wanjiru said.

Wanjiru like other farmers is now warming up to the day the planting machines will finally be available in the scheme to fully enjoy the mechanized rice production.

Farmers have also benefited from simple modern, efficient and cost-effective machines from a Japanese company MOL.

The machines according to the farmers are lighter as compared to others, which are stuck in clay soils while preparing the land.

A senior MOL officials speaking in Mwea during a demonstration Onitsha Oyama said his company had also produced a rice crop weeding machine which can be operated by one person.

MOLs Nairobi Head office incharge of Logistics Srikaanth Sreenivasan who was also present said users of the machinery were guaranteed of sales and aftersales services.

The company Managing Director for the Karasawa Agricultural Machinery Services that produce the MOL equipment Mr. Takeyuki Karasawa personally carried out the mini combine harvester demonstration at the fields to the applause by the farmers present.

He also said the company's technical division would be available to provide training to all the farmers who bought the modern machinery.

"The weeding machine for the rice fields is so simple to operate such that even young children can handle it with ease, as we move towards full mechanization of rice farming in our scheme," a farmer said.

The scheme which started in 1956 produces about 80,000 metric tons of paddy rice and this is scheduled to be doubled once the two crops per year program are introduced at the completion of the Thiba Mega-Dam. Mechanization of the scheme will also improve on production of the grain, according to Oyama.



Brazil & India To Provide Agric Machinery To Boost Ghana's Rice Production

The Ministry of Food and Agriculture (MoFA) has stated that the government would soon import machinery to boost rice production and other agricultural yields in the country.

These agriculture machines are expected to be purchased from Brazil and India.

This came to light when the Minister of Food and Agriculture, Dr Owusu Afriyie Akoto, visited the Global Africa Development Company (GADCO), a rice farm and processing factory at Fievie in Sogakope in the Volta Region on Sunday.

He is in the Volta Region for a two-day working visit—Sunday, September 26 to Monday, September 27, 2021.

The visit constitutes the phase two of his ministry's tour of farms and ongoing projects in the region. According to the minister, it was his expectation that by the year 2023-2024, Ghana will be agriculturally stable, especially in rice production.

He noted that comparing local rice to foreign rice, the former was nutritious and delicious than the latter.

"I am very excited at what I have seen at GADCO and the other places I have visited," he elatedly expressed.

He, therefore, gave the assurance that "as the Minister of Food and Agriculture I will ensure the general improvement of the agriculture sector."

The General Manager of GADCO, Mr Joel Tsatsu, speaking to the media said his company was of one the biggest when it comes to rice production in the country. "Our rice farm covers 1500 acres of land," he disclosed.

However, he said, oftentimes his company is faced with the problem of availability of fertilisers, thus describing the situation as worrying.

"Another problem is the lack of agriculture machinery to boost production," he said.

Mr Tsatsu used the opportunity to call for support from the agriculture industry and the government as a whole.

Earlier, the minister of food and agriculture visited the INVITRO Labs Free Zone Company, a Dutch company, and inspected a tissue culture facility and nursery also in Sogakope.

He later visited tomato and onion farms at Tegbi in Anloga and a warehouse in Dzodze where he inspected and held a meeting with the operators.



Digitisation Boosts Mechanised Farming Among Kenyan Farmers

When 33-year-old Kimani Mwaniki, an Irish potato farmer in Elburgon, Nakuru County in Kenya's Rift Valley, heard about a farmer's virtual school, he didn't hesitate to enrol. He was keen to learn how the programme will enable him to get higher crop yields for his market in the capital city Nairobi and elsewhere.

For years, the young farmer had been relying on the occasional visit of an agricultural extension officer for information about best practices on his five-acre land, but not anymore.

Now, armed with a smartphone, Mwaniki can connect with experts and farmers like him across the county for information about the right seeds, when to plant them and how to tend to his crops. It also tells him about the right machinery, where to find it and how to use it.

He says through the virtual school, he has been able to find the right machinery to prepare his land at a low cost.

The virtual school programme is supported by Nakuru Agri Call, an intervention of the County Government of Nakuru. It seeks to empower some 3,000 smallholder farmers in the area with information about competitive farming practices, including mechanisation, appropriate land preparation, seed sourcing, crop care and post-harvest management. Just by logging in to Facebook and Twitter on the Nakuru Agri Call page, farmers get tips about soil analysis, collecting soil samples for analysis, and sending their samples for analysis. Users can also find farming tips on the school's WhatsApp page.

The program's focus is on mechanisation. Officials say it is set to spur smallholder farmers like Kimani to engage in agribusiness and improve their livelihoods while shoring up rural economies dependent on agriculture.

In the effort to reduce the usually high cost of production, every planting season, Irish potato farmers can use the platform to request government-owned equipment for preparing their land at a nominal fee.

Kimani is among the farmers who have requested a tractor and a chisel plough through the virtual school to prepare his land to grow Irish potatoes.

He says with the help of the school, he has learnt that the plough is better than the traditional disc plough that he and other farmers in his neighbourhood have been using for many years.

The chisel plough, he says, makes the recommended raised seedbeds without damaging the soil structure like the conventional hoe and the disc plough, which turn the fragile soil in a manner that leads to rapid moisture loss and erosion during heavy rains leading to reduced productivity of the soil.

He says a chisel plough is an efficient tool for eliminating weeds, thus helpful to farmers looking to minimise labour and time on crop production from planting to maturity.

Mwaniki says with just Kenya Shillings (Ksh.2, 800), around USD 28, a farmer can request a tractor and the plough to prepare an acre compared to the Ksh 5,000 (around USD 50) used to hire a disc plough and a tractor for an acre. He hopes to increase his yield from the current 50 to 60 bags an acre.

He commends the Nakuru County government's Agriculture Mechanization Service (AMS) for easing the burden on farmers, saying with reduced costs of production, smallholder farmers can expand their margins of profit, create wealth and jobs.

The program has also enabled smallholder farmer's access hay, wheat harvesting equipment and maise shelling machines to minimise post-harvest losses, which farmers say eat into their returns.

The Agricultural Mechanization Service Manager, Stephen Waithaka, says the scheme encourages the adoption of technology and mechanised farming among smallholder farmers to improve production and quality of their produce. He says besides providing mechanisation services to smallholder farmers, the program aims to train farmers on the right choices of agricultural equipment and how to use them for better yield.

Waithaka says the County Government has bought equipment valued at KShs 25 million (USD 250 000) for distribution to small-scale farmer groups in the first phase of the Agriculture Mechanization Services project.

At a time when concerns about soil conservation are mounting, Waithaka is advising farmers to use the service for appropriate ploughing practices that protect the integrity of their soil.

He observes that with increased mechanisation, more youth are anticipated to practice agriculture and create jobs while ensuring the country's food and nutrition security agenda.

However, he says the equipment available is not adequate with the rising uptake of machinery among farmers. He says more equipment will enable the service to expand its coverage and enable more smallholder farmers to improve their yield and livelihoods by mechanisation.

Mwaniki, like other smallholder farmers, is hoping to leverage the programme for better livelihoods. He hopes that the programme, through publicprivate partnerships, will expand the internet coverage in agriculturally productive areas to enable more farmers to tap into it.

The role of digitisation in enhancing mechanisation is earning accolades from various stakeholders in Kenya's agriculture sector. According to Harriet Tergat, Digitization and Communications Lead, Farm to Market Alliance in Kenya (FtMA-Kenya), an alliance of Kenyan agri-focused organisations that supports mechanisation through digitisation, the technology is transforming agriculture. She says it has brought efficiency, decreased production and operations costs, optimisation, and transparency.

"The technology can be replicated elsewhere in Africa in boosting the agricultural sector, given the continent's very young population, fast spread of ICTs due to improved infrastructure such as high ownership smartphones and internet connectivity. Digitisation is an enabler, not an end of its own," she says.

Harriet adds that through digitisation, transformation in the agricultural sector has brought about increased access to mechanisation services, which has brought about an increase in productivity and a decrease in production costs.

Harriet explains that the Farm to Market Alliance works with partners using a mobile phone application to connect tractor owners to smallholder farmers in need of tractor services. "Hello Tractor is like the Uber for tractors. Through this partnership, necessary mechanisation services have been availed to 11,327 smallholder farmers and 3,800 acres serviced," she observes.

In addition to the benefits digitisation brings to smallholder farmers, notes Harriet, it also opens up new opportunities for self-employment for the youth who work as Hello Tractor agents and earn commissions for every transaction they facilitate through the application.

Indeed, a study by Food Sustainability Index, global research on nutrition, sustainable agriculture, and food waste, developed by the <u>Barilla Center for Food &</u> <u>Nutrition Foundation (BCFN)</u> and the Economist Intelligence Unit, indicates that digitisation is a boon to agriculture in Africa. According to the study, emerging digital tools contributes to efficiency and sustainability of better farm yields.

Dubbed 'Fixing Food 2018: Best Practices towards the Sustainable Development Goals, the study analysed social, economic and environmental aspects of food sustainability. It looked at the nexus between the key challenges like access to food, healthy and sustainable diets, and responsible food production and distribution.

The study collected data from 67 countries worldwide to highlight best practices and areas for improvement concerning food and the attainment of Sustainable Development Goals (SDGs). Rwanda ranks high in the use of sustainable practices like agricultural water because it utilises renewable sources.

Other than Rwanda and Kenya, the report states technology is contributing to sustainable agriculture in countries like Mozambique and Tanzania, for instance, via the <u>Connected</u> <u>Farmer Alliance—a</u> <u>TechnoServe</u> which is using mobile technology to connect farmers to multinational agribusinesses and facilitate payments, thus improving productivity, incomes, and resilience of small-scale farmers.

Still, in the case of Kenya, the level of uptake is set to grow fast. In February this year, at the launch of the five mechanisation hubs in Nakuru County, the County Executive Committee Member for Agriculture, Livestock, and Fisheries, Immaculate Maina, said through the program the County Government had supported five registered farmer groups to the tune of Kshs 20 million (USD 200 000).

For Mwaniki, planting season was often a headache. He was often caught alongside other farmers in a mad rush for equipment as they prepared their land for sowing, but this is no longer the case.

Demand for harrows, planters and other farm machinery was high, meaning that farmers had to wait longer, slowing down planting in time for the rains.

"When every person wanted to have their farm planted, it became hectic since we had to wait for days to get access to a plough and other farm machinery. The costs of hiring the machinery were also prohibitive," he says.

With the future of farming resting with the emerging small-scale and middle-class farmers, he says there is an urgent need to empower this group to ensure food security.

Mwaniki indicates that since he enrolled in the AMS program last year, his potato yields per acre had increased by over 50 percent. In contrast, costs of tilling and weeding through the use of modern machinery had dropped significantly.

"The equipment makes it possible for me to undertake more than one activity in the farm, thus saving the long-term costs and improving productivity," he observes.



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Agroecology movement is not against modern technologies – Peasant farmers

manite Teller

Though many agroecology promoters take a strict stance against the use of modern farming tools and technology, advocates in Ghana have signaled they're open to a more inclusive approach.

"There are some misconceptions about agroecology that I would want to correct," said Dr Charles Nyaaba, head of advocacy and programs at the Peasant Farmers Association of Ghana, one of the organizations promoting agroecology in the country.

"Usually, when we talk of agroecology, what comes to the mind of many people is that it does not involve the use of machinery, it doesn't involve the use of external inputs, it is necessarily mixed cropping [rather than monoculture] and it cannot be scaled. That is not the case. Agroecology, just like conventional farming, can be scaled.

If there was a definition — before we started promoting our own which includes not scaling up our farming activities or confusing agroecology with organic farming, then that is not what we are seeking to promote."

Nyaaba, who made his comments during an Alliance for Science (AfS) Live webinar, said that modern technological inventions, including synthetic fertilizers and pesticides, can be applied even in agroecological production, as long as the fundamental principle of protecting the environment is not violated.

"There is a clear distinction between agroecology farming and organic farming," explained Nyaaba, who is also an agribusiness lecturer at the University of Energy and Natural Resources in Ghana.

"When you are starting to do [an] agroecology farm and there is dead soil, in that case you want to bring that dead soil back to life. What we do is we support that soil with minimal inorganic fertilizer. We don't encourage the use of heavy machinery like tractors to overturn the soil and destroy soil structure, but we use rippers and other machineries for planting."

Differing definitions

CHARGE AND

His stance marks a departure from the approach promoted by the Food and Agricultural Organization (FAO), the Alliance for Food Sovereignty in Africa (AFSA) and international aid organizations like ActionAid and Oxfam, which have been promoting a narrower definition of agroecology as the future of agricultural production in Ethiopia, Uganda, Burkina Faso, Ghana, Senegal and other African countries.

The FAO defines agroecology as the application of ecological principles with the aim of protecting the environment. It ensures the sustainable renewal of the natural resources necessary for production like water, soil and biodiversity. And it makes sparing use of nonrenewable resources. By gradually eliminating the use of chemicals, it strives toward implementing organic farming, thus contributing to improving the health of farmers and consumers alike.

On its website, AFSA's list of agroecology principles include championing small African family farming/production systems based on agroecological and indigenous approaches, resisting industrialization of African agriculture, emphasizing African-driven solutions to African problems, and rejecting the genetic engineering and privatization of the genetic engineering and privatization of living organisms.

Some Western academics and NGOs, including Pesticide Action Network, the Community Alliance for Global Justice and Regeneration International, are also pushing Africa to adopt a narrow definition of agroecology, to the exclusion of other forms of production.

Bernard Guri, executive director of the Center for Indigenous Knowledge and Organizational Development in Ghana, noted during the AfS Live webinar that agroecology is not anti-science, as portrayed by some opponents. "The agroecology movement is not saying science is not important... Agroecology is looking at indigenous knowledge.

But also looking at good scientific practices that we can bring into it, he said. "So, for example, we say we don't accept pesticides but if we are in a pandemic situation, you should be able to use some specific pesticides to knock down [the pests]. But not to take it as a practice and then supply and use volumes of pesticides every day."

Agroecology is evolving Nyaaba added: "Just as conventional agriculture is evolving, we keep getting new technology in agroecology, too. Personally, my position on agroecology is not ideological. It is flexible. But what I recognize is that we need to protect our biodiversity and agroecosystems. So, any practices that do not compromise the agrobiodiversity and agroecosystem, I personally do not have any problem with that."

Dr. Irene Egyir, an associate professor in the University of Ghana's Agricultural Economics Department who has been a strong critic of agroecology, said the redefinition of the concept makes it worth embracing.

"When we did agroecology farming, when we said agroecology, we didn't want to plough and use improved seeds. It was the frontier and conservation model. But if now the scope is changing and the typology is changing, then it is good. That is what I call climate smart agriculture," she observed.

Nassib Mugwanya, a Ugandan agricultural communications specialist who previously worked with the National Crops Resources Research Institute, believes the wholistic definition of agroecology creates an opportunity to embrace emerging technologies, such as genetically modified (GM) seeds.

"For example, what agroecology cares about today is to minimize damage to the environment," Mugwanya said. "What if I tell you about the GM crop that has been engineered to reduce pesticide application? If what agroecology cares about is farmers choosing what works for them, what if I told you there is a farmer in Uganda who is interested in the virus-resistant cassava variety which is genetically engineered? That is the conversation I want to hear, which is rooted in the contextual realties of what farming is in Africa."

Agroecology and agricultural biotechnology To date, anti-GMO activism has

been at the core of agroecology movements in Africa. But the Ghana advocates indicated some receptivity to the improved seeds.

"In terms of GMOs, agroecology is talking about the ecology," Nyaaba explained. "So, we don't put more emphasis on GMOs or plant species. We think that modern methods of farming are encouraging GMOs to increase productivity because with our current land if you use indigenous seed, you won't get the yield you are looking for.

But with agroecology, whether with GMOs or the indigenous seeds, without the fertilizer, you are still going to increase your

yields. So, there is no need for you to spend money and try to bring seeds from elsewhere. That's why our emphasis is not on GMOs."

Guri has a more open position. "If that biotechnology is not working against nature and producing artificial things, it's acceptable. But most of the biotechnology like GMO is about playing with genes and creating something. And we don't know the long-term effects of those GMOs.

Those kinds of things are not accepted in agroecology. But if it's about a natural process, and using biotech to improve a natural process, that is acceptable in agroecology... anything that reduces the use of artificial inputs is acceptable... Agroecology is not anti-technology. It is the way the technology is developed.'





Spatial variation in climate impacts on maize yields in Cameroon

In Cameroon, as in other countries of sub-Saharan Africa (SSA), maize is an important staple crop and is consumed in different forms: as fermented dough, roasted, as corn porridge, or converted into ''corn-beer''. Maize is produced primarily (~90%) by small-scale farmers. The spatial pattern of vulnerability of maize yields to variations in growing season precipitation in Cameroon is important; growth conditions change as we transition from the south to the north of the country, trends that this write-up seeks to explore.

Vulnerability is the extent to which a system is susceptible and unable to cope with the negative effects of climate change and extreme weather episodes. In the context of maize yields, vulnerability is the extent to which maize can cope with multiple stressors and shocks. Vulnerability is a function of 1) the level of exposure; 2) the sensitivity, and 3) the adaptive capacity. Exposure



Fig 1: Latitudinal trends in sub-national maize vulnerability, adaptive capacity and normalized maize growing season precipitation in Cameroon. Source: Epule et al. (2021).

is defined by the actual precipitation, as affected by changes in climate. Sensitivity is the measurable decline in maize yields due to climate shocks and extreme events. In other words, sensitivity is the impact of climate change, climate variability, and extreme events on maize yields. Adaptive capacity is the ability of a production system to adjust to or cope with multiple shocks including climate change, climate variability, and extreme events. The effects of droughts on maize yields can be mitigated by the adaptive capacity of farmers to manage the droughts. Adaptive capacity is often measured through socioeconomic proxies such as literacy and poverty rates. Exposure and sensitivity tend to have a direct relationship with vulnerability and an inverse relationship with adaptive capacity. In other words, farmers who are less likely to adapt due to low adaptive capacity are more likely to suffer from the effects of declining precipitation and yields.

The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) projected temperature increases in SSA of between 1.5-2.5° C up to 2050 based on the RCP 4.5 scenario. Meanwhile, over the last three and a half decades, SSA has experienced a 0.2-2.0° C increase in annual surface air temperatures. Alongside these temperature changes, unreliable and insufficient growing season precipitation has become a major issue, leading to an increase in the vulnerability of current agricultural systems. In Cameroon, agriculture is essentially rainfed and changes in precipitation strongly affect the cultivation of crops. Due to persistent droughts, the mean crop growing season precipitation for maize in Cameroon is around 200 mm.

However, across Cameroon, there is significant spatial variation. For example, the southwestern part of the country records about 3000 mm of precipitation annually, the southeast records about 1600 mm annually, the western highlands records 2000 mm annually and northwards it drops to about 500 mm annually. In the northern Sahelian parts of the country, droughts are recurrent and occur on a yearly basis thus placing a lot of stress on maize production. Droughts are a recurrent problem in Cameroon, but a particularly significant between 2012-2015, when maize seedlings experienced very high mortality. The challenge of changing growing season precipitation patterns is made even more difficult as the interacting drivers of food system vulnerability in Cameroon go beyond climatic variables and include factors such as soils, slopes, crop pests, and fertilizer availability.

Based on the changes in maize growing season precipitation as well as the influence of other non-climatic forcing, southern Cameroonian maize has a lower vulnerability and a higher adaptive capacity. Meanwhile in the north the vulnerability of maize is higher while the



adaptive capacity is lower (Fig. 1). Sensitivity and exposure are also lower in the south and higher in the north. In addition to variations in precipitation distribution during the maize growing season, other drivers of these variations are soil quality, and the socio-economic status of the farmers involved in cultivation.

The key observations here are that the vulnerability, sensitivity, exposure, and adaptive capacity of maize varies as we transition from the lower latitudes in Cameroon to the higher latitudes in the north. The low vulnerability and high adaptive capacity in the context of southern maize are consistent with higher growing season precipitation in the south. The reverse is true in the north. To get a better picture of the vulnerability of cropping systems to droughts, it will be necessary to investigate further the climatic and non-climatic variables involved, and proxies of adaptive capacity such as literacy and poverty rates.

It is important for research to be carried out on the vulnerability of

other crops and on expected crop yield gaps in Cameroon under projected climate change. The inclusion of more sites in sub-national scale analysis should also be prioritised. Adaptations to alleviate the plight of the farmers dealing with yield declines should focus on both climatic and non-climatic drivers of yield. Evidence-based research and climate monitoring will provide farmers with more accurate information on changes in planting dates and future planting dates and totole projections so that farmers can adjust and make more informed planting decisions. On the non-climatic side, further work is needed on other pertinent drivers of crop yield such as fertilizer use, varietal selection and crop pests and diseases. It will be important for stakeholders to consider adaptation opportunities offered by technological developments, indigenous knowledge, economic innovations, and social support.

Attracting and Retaining Talent is at the Heart of Transforming Agriculture in Africa

Background

Agriculture is an important sector of many countries in Africa and a great source employment. Currently, the agricultural sector in Africa employs 48% of economically active population. With the population of Africa set to grow from 1.3 billion to 2 billion by 2040 and the rate of urbanization set to reach 45% by 2035, the agricultural sector will also play a major role as a source of nutrition and food security.

Despite its importance, the agricultural sector in Africa remains beset by many challenges, including lack of access to finance by emerging farmers, poor infrastructure, climate change, policy uncertainty and skills shortages. Mindful of these challenges that face the African agricultural sector, the attraction and retention of skills is central to transforming the sector to create jobs and meet the demand for food.

Measures to Develop, Attract and Retain Skills

In order to attract the high level of skills needed to transform the agricultural sector, vocational institutions, universities, businesses and governments can play a critical role in ensuring that the sector is responsive to the needs of the society. In the case of the education sector, there is a need to attract educators with high levels of skills to propel the sector in the fourth industrial revolution. A starting point is for educational institutions to partner with employer organizations to develop programs to address the challenges that face the African agricultural sector. Secondly, there is a need for the business sector-especially financial institutions-to develop products that can enable emerging farmers to access the necessary funds. Additionally, the business sector can ensure that emerging farmers are accommodated in their value chains.

It is also through the development of evidence-



Johannes Tiba, Fragomen, Senior Manager

based immigration policies that respond to the needs of country that crucial skills can be attracted and retained. For instance, a country's immigration policy can place emphasis on attraction and retention of high-level skills through specially designed work permit or investor schemes, provision of permanent residence status and even early naturalization for those whose skills are sorely needed by the country.

Examples of Best Practices

In Africa, countries like Rwanda and Mauritius continue to lead the way in developing immigration schemes aimed at targeting high-level skills needed by the countries. For instance, Rwanda has a specific work permit route that caters to investors and entrepreneurs in the agricultural sector. Additionally, the country has a list of skills that are in demand which include, among others, agricultural scientists and engineers. In Mauritius, a threeyear Young Professional Occupation Permit for those who graduated locally is another creative approach taken by the authorities to attract and retain skills.

Conclusion

It is important to note that Africa is replete with good examples of countries successfully attracting and retaining critical skills, and other governments can learn, benchmark and share best practices for the success of our continent.

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Rwanda: World Bank to Inject \$300m in Agriculture Sector

The Rwandan economy is projected to grow by 5.1 per cent in 2021 after its first recession since 1994. However, experts say that the path to growth and recovery is not an easy one especially taking into account challenges in access to vaccines, measures to curb the pandemic as well as purchasing power of the public among others.

The New Times' Collins Mwai spoke to Rolande Pryce, the World Bank Group Country Manager for Rwanda on preconditions for recovery, challenges being experienced and their investments to drive recovery.

Excerpts below:

As the World Bank, what do you think of Rwanda's pursuit towards economic recovery following the recession? While we do have a projection of growth of 5.1 per cent, it is dependent on a number of things. I believe the government would want to see mass vaccination as it sort of provides a degree of defense for the population.

The fact of the matter is that vaccines have been slow in coming not due to the government's fault but largely due to challenges in accessing vaccines in developing countries. That is something that the bank cares about and continues to push for.

Beyond vaccine access, what are the key stress points that you have identified in the Rwandan ecosystem that have an effect of recovery?

We think that the path to recovery is quite daunting for Rwanda like many countries. Apart from vaccines, you need to reactivate demand and supply and people need to have jobs among other things.

But where do we find ourselves, in businesses the clients have reduced purchasing power, social distancing is still present which has also seen people spend what is essential.

There are also still challenges in terms of supply chains, shipment, and number of containers among others. There are some constraints on export where some traditional clients in the international market are not demanding as much.

On the supply side, there are challenges in supply systems as a result of the pandemic. There has also been a challenge in getting credit as banks are more reluctant when lending. Some of the goods that some firms use as inputs, might also have been disrupted in the supply chain, some more expensive or not readily available.

On the upside, even with the lockdown that we experienced early this year, there was a 3.5 per cent increase in the first quarter, which is very positive.

On the challenge part, we feel that we are not facing a challenge because of the number of delta cases that we are seeing. I think the government is managing it well. It however leaves a bit of uncertainty especially in that the vaccination is not as significant.

What are your plans for investment to support the recovery?

We know that the way out of this is growth, stimulating the economy, getting people to have jobs, getting people back to economic activity.

One of the interventions has been access to finance for recovery and resilience projects, a loan of about \$150M which was supported by a loan from the Asian Infrastructure Investment bank with about \$100M. The \$250M is going towards capitalizing the Economic Recovery Fund. This economic recovery fund is the place where I believe the government is trying to address a number of issues.

Access to finance or money for investment is usually very expensive, the interest rate is often quite high. Getting funds through the economic recovery funds means that it is less expensive and the term of the financing is also more ideal. That is one of the key contributions to stimulate economic activity.

The government has been outstanding in increasing social protection coverage and benefit, this has helped to reduce poverty.

The World Bank is also going to support a new agriculture operation before the end of the year in the amount of almost \$300M in the agriculture sector which will be critical in the recovery process and a majority of people in the country depend on agriculture for their livelihood. We have to make sure that agriculture works for people.

You have mentioned vaccines as a key factor in economic recovery, in your partnership with the government, what have you seen with regard to vaccine acquisition processes which Rwanda and other African countries have cited as a challenge?

The longer it takes to get the vaccines, the longer it sort of takes to start resuming economic reopening. When the vaccination agenda started out, we felt that money was going to be the issue which is not what turned out to be.

The bank in April 2020 made money available for Covid-19 testing, Personal Protective Equipment and setting protocols among others. At the time, the government took a loan-grant split of about \$14.5M and an additional \$1M through another widow to support the process. It was one of the first set of resources that the government secured to respond to the pandemic.

Around November last year when the vaccine agenda became live, the government started to make preparations. Rwanda was among the first countries to get its documentation to COVAX in order to get the initial 20 per cent. We worked together providing technical assistance to develop a vaccination plan, deployment of



vaccines, and acquisition of vaccines among other aspects.

In April this year, we were able to approve an additional \$30M loan and grant mix, which would focus on vaccine acquisition and deployment and health systems strengthening.

It later emerged that money was not the issue, the government has paid for vaccines from a number of sources but has not been able to access the vaccines largely because the manufacturers have not been able to deliver on their contracts.

You will recall that for vaccines manufactured in India, India had asked for a moratorium on exports because they were having a surge in cases. Pfizer has had a great demand and they are not producing enough to manage the demand.

The real issue is that manufacturing companies are not able to respond to the demand. Through COVAX there has also not been supply as was expected. Rwanda has had other aspects under control and has been awaiting accessing the vaccines. We are also supporting through advocacy at the highest levels.

So safe to say that we are now riding on hope?

I think the approach is to be prepared and the Rwandan government has been prepared on multiple aspects including deployment plans, being part of mechanisms such as COVAX. The government also went ahead and negotiated contracts to secure more doses.

Rwanda has kept itself open to legitimate arrangements that can help in acquisition of vaccines to protect the population.

The Covid-19 pandemic and measures to curb it have seen reduced domestic taxes collection as economic activity is affected with uncertainty on how long the turbulence will last. What are your thoughts on revenue collection going forward?

Rwanda is among the countries on the continent that has good trends in domestic revenue mobilization, around 16 per cent.

But the fact is that economic activity has decreased and will impact the amount of revenue that the government is able to collect. Additionally, some of the measures that have been set up to encourage business, have been tax measures which further means less collections. There is no magic here to be frank, at some point, we hope that covid-19 will lift somewhat and at some point, the measures of foregoing tax revenue are going to be removed. One of the other things will be the adoption of measures of spending control. There are some things that the government has to spend on, those things will continue. There might be other things that expenditure could be trimmed.

Another thing is efficient use of available resources for instance ensuring that there are no delays in projects. Every delay means more cost.

We also need to tap into the private sector more to finance some infrastructure projects that were previously solely financed by the government. We need to find ways we can bring in the private sector.

It has also emerged that small scale enterprises' survival chances have been somewhat limited as most of the interventions were targeted at established companies and businesses. As a stakeholder in economic recovery, any way interventions are being failored to be more relevant to SMEs?

One of our big interventions was the initiative of Access to Finance and Recovery where there is a set of resources that will be going to BDF that look at risk sharing and financing for companies when they are vulnerable and providing bridge financing. This is targeted at SMEs which were not able to take advantage of other financing opportunities. We are ensuring that there is money for the institutions and that there is technical expertise for the institutions.

In the first round of the economic recovery fund, it was essentially subsidies to companies that were able to prove that they were affected by the pandemic. One of the findings later was that some companies were not able to show the impact. Some did not have robust book keeping or projections. We recognize that it is essential to help the SMEs build their capacities for better planning, records, response among others. So that whenever there are challenges, they can understand and show the trend of impact.

We also noticed that where companies did well during the pandemic, these were companies that were able to go digital to be able to reach their customers through a digital platform. Here I see opportunities for businesses to think about how one can facilitate how to get products out internationally or regionally.





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Namibia: UN Summit Focuses On Namibia's Food Systems

DESPITE producing cereals, legumes and fruit, some of which are exported, Namibia still imports about 60% of the food it needs.

This is one of the observations of the National Food Systems Dialogue which was presented at the third Sustainable Development Dialogue Series (SDDS) by World Food Programme head of programmes Elvis Odeke on Friday.

According to the Namibia Statistics Agency, in November 2020, Namibia imported N\$87 million worth of maize after the Namibia Agronomic Board reopened the borders to allow imports, after its closure in May 2020 due to Covid-19.

The dialogue series forms part of the United Nations Decade of Action which was convened by the Ministry of Agriculture, Water and Land Reform.



Odeke said Namibia is a renowned livestock country with the sector making up to 40% of the country's agricultural production.

"Livestock is one of the key export items which have given Namibia a strong global footprint. Small livestock and fish are also available and are competitive on the export market," he added. The SDDS, under the theme: 'Unlocking Resources for Sustainable Development: Follow Up to the National Food Systems Summit Dialogues', was held at a local hotel and streamed virtually.

Odeke said food systems encompass a holistic range of activities from production to consumption.

The series is an initiative of UN Namibia to foster the multisectoral exchange of information influencing the achievement of sustainable development goals.

Odoke said climate change, poor soil, weather and a lack of inputs were limiting crop production.

"In addition, 24% of food calories we grow is lost at farm level, meaning we have high postharvest losses," he said.

According to statistics, Namibia has between 400 000 and 500 000

food insecure people who depend on the safety net provided by the Office of the Prime Minister. This food insecurity affects their diets and nutrition, Odoke said in his presentation.

Odeke said despite the country having strong policies like the fifth National Development Plan which can be used to close the gap in the food system, Namibia still has 24 to 27% stunted growth in children.

"This results in irreversible physical and mental impairment in these children," he said.

He said they had observed that the drivers of food insecurity in the country include climate change, lack of market access for smallholder farmers, cheap food imports, infertile soil, pests and diseases, poverty and unemployment as well as a lack of meaningful private and government investment in the smallholder sector.

He said the food summit had recommended that government creates an enabling environment while giving the private sector space to operate in the farming industry. Other recommendations were the development of enabling structures like irrigation facilities, human capital, introducing rural transformation to sustain a rural economy, making access to capital easier and investing in technology.

The recommendations from the summit will be presented at the United Nations Food Systems Summit to be held this month.

Also making a presentation at the SDDS, was World Health Organisation country representative Charles Sagoe-Moses who said the UN Partnership Assistance Framework (Unpaf) was working with the Namibian government to achieve the SDGs, each of which relies to some extent on healthier, more sustainable and equitable food systems.

Sagoe-Moses said the Unpaf pillars which included social transformation aimed at eradicating hunger and inequality, were in sync with the pillars in the government's NDP5. He said the UN had budgeted US\$160 million over five years for the SDG programme with US\$60 million already available and the rest to be mobilised from international financial institutions.

The summit was opened by the executive director of the National Planning Commission, Wilhencia / Uiras. Among those attending the SDDS were Neeraj Vij of the African Development Bank, Bekele Debele from the World Bank, Philipp Baumgartner, Namibia country director for the International Fund for Agricultural Development, Sen Pang, resident coordinator for UN Namibia and Percy Misika, executive director for agriculture.





Uganda: Denmark to Boost Uganda's Agriculture Sector

Denmark has promised to work with local farmers to boost agriculture in Uganda given the countries' continued trade.

According to data from the United Nations Comtrade database on international trade, the country's biggest exports to Denmark last year were oil seed, oleagic, fruits, grain, seeds, coffee, tea, mate and spices, fish, crustaceans, molluscs and aquatic invertebrates.

This information was revealed by Mr Nicolaj A. Hejberg, the Danish ambassador to Uganda, while introducing a Danish food and agriculture investor's delegation in Kampala yesterday.

"Our goal is to promote increased trade between Uganda and Denmark especially in agricultural value chain where Danish companies sign partnership agreements with local companies to improve production and quality," he said. He said the Danish companies partnering with local ones come with state of art modern equipment that will greatly improve production.

Mr Helberg pledged his government's support in availing information to potential Danish investors about Uganda so that trade between the two countries grows stronger.

He added that trade between Uganda and Denmark is growing despite the slowdown of global business and investments caused by the outbreak of Covid-19.

Uganda's exports to Denmark was worth \$978,000 (Shs3,4b) in 2020, according to the United Nations Comtrade database on international trade.

Uganda imported agricultural or poultry-keeping machinery from Denmark, worth \$12,000 (Shs42.3b) in 2020.

Mr Tom Mugenga, the director of Rosebud flowers, said Denmark has a very long and strong agriculture tradition making them one of the leading countries in the world with modern agricultural production so partnering with them will boost local companies.

"There are so many opportunities that this country offers in terms of its agriculture production so the Danish with their modern technology will greatly change us from subsistence agriculture production to modern one," he said.

Mr Mugenga called on Denmark to lobby other European Union countries to import and reduce taxes on Ugandan agriculture products since most of them are organic.

Women's wealth in agriculture remains a stumbling block

Agriculture minister Calle Schlettwein on Monday warned that a lack of wealth for women involved in the agriculture sector needs to be addressed. The minister stated that Namibia must devise policies to ensure women acquire wealth if it wants to realistically empower them in the sector.

"If you want to talk of the role of women in agriculture, don't talk about how many are employed, but how many are owning the means of production for their wealth generation," said Schlettwein during a Covid-19 panel discussion on women in the agricultural sector.

He noted that wealth creation should be equally shared in the sector while arable land is a scarce resource, and furthermore advised agriproducers to acquire the wealth they need to enter the export market by providing the bestquality surplus.

The minister said while Namibia has been practising extensive agricultural systems for the past decades, he is worried the country has not intensified agricultural production. This, he warned, needs to happen, along with bringing urban agriculture into focus.

"We have to produce more on smaller pieces of land. Agriculture is more than farming. We have to look at the entire value chain from production to consumption and all the links inbetween," reasoned Schlettwein.

Demographically, 51.4% of agricultural producers in Namibia are women, and the ministry has resettled 37% of females in non-group schemes. It is particularly here where the agriculture ministry believes the country is underperforming.

"Most women employed in the agriculture sector are for own consumption or at subsistence levels. The problem is that women are not owning the means of production, nor do they own the production itself. They are involved as labourers,



sometimes under very bad conditions," he stressed.

During the same panel discussion, Presidential advisor for youth matters Daisry Mathias said there is a need to address capacity-building in general for women in the sector.

She said over the last 30 years, investments in the sector had averaged about 6%. In 2019 alone, out of some N\$30 billion of domestic capital inflows, only N\$1.9 billion went into agriculture. Furthermore, the loan books of local commercial development funding institutions indicate agricultural sectoral investments of only N\$7.8 billion, which is about 7% of total domestic loans.

"We need to create a stimulus and optimise production before we also talk about offtake and market access. There is much need to leverage technology and help farmers become climate-resilient," Mathias emphasised.

Meanwhile, Food and Agriculture Organisation (FAO) representative to Namibia, Farayi Zimudzi, noted that there is a clear recognition from within Namibian society that without supporting youth and women, the country will have no hope of efficient food systems. These systems need to be inclusive to lead the country into achieving zero hunger as a key Sustainable Development Goal (SDG). Zimudzi also believes that there is enormous potential in women in Namibia along the value chain to turn around livelihoods in the country.

Helvi Shindume, founder of Women In Agriculture Namibia (WIAN), revealed during the discussion that women account for about 59% of both skilled and subsistence agricultural work, although the sector is dominated by a male workforce.

"Overall, women dominate subsistence and communal farming activities, but their performance in the sector is on a lower scale, which is not sufficient for our country. There is an opportunity to grow these women onto a much more commercial level to earn income and contribute to the gross domestic product (GDP)," she outlined.

WIAN ensures women have access to relevant information with the aim to improve and encourage more female participation in the sector. Shindume then pointed out that land ownership remains the biggest challenge for women in Namibia.

Kenya To Step-Up Farming Towards Food Security

The government is geared to scale up commercial farming by at least Sh400 billion as part of its strategy to achieve food security under the Big Four Agenda, State department for Livestock Principal Secretary Harry Kimtai has said.

He said part of the plan was to increase agro processing Gross Domestic Production by about Sh 130 million through six processing hubs and highvolume standardized inputs from large-scale farms.

Speaking ahead of the upcoming virtual joint International Grassland and Rangeland congress to be held at the Kenya Agricultural Livestock Research Organisation (KALRO) in Nairobi, the PS said key interventions was to unlock 50 large-scale private farms to bridge the production deficit of priority value chains, which includes fodder production.

Kimtai however said the opportunities can only be complimented if prevailing challenges of grassland and rangeland resources were addressed.

"Many changes are limiting the contribution of grasses to the productivity of livestock and these include dependence on few grasses species and, overgrazing", he said.

The PS acknowledged that the impact of the droughts on the population have been increasing exponentially from 1970s to date threatening the sustainability of rangeland resources and creating economic and environmental challenges that need urgent attention to safeguard the wellbeing of the communities especially the pastoralists.

He explained that productivity of rangelands has been greatly affected by the frequent droughts and floods that characterize the impacts of climate change and variability.

"Kenyan rangelands, especially the ASALs, are susceptible to these changes of weather and are characterized by high incidences of poverty and malnutrition requiring frequent relief assistance," he said.

The situation, he added has been worsened by increasing human population and consequent shrinkage of the rangeland resource base and rural urban migration in search of alternative livelihoods.

Urgent measures and interventions, he noted are therefore required to protect the rangeland resources and enhance their sustainable utilization and livelihoods.

"Investments in the rangelands monitoring, rehabilitation and improvement will greatly contribute to the attainment of food and nutritional security as envisaged in the Constitution of Kenya and the Vision 2030, and in line with worlds' sustainable development goals (SDGs)," he said.

The PS said that the upcoming grassland and rangeland congress to be for the first time in Africa in Nairobi will promote the interchange of scientific, and non-scientific information on all aspects of grasslands and rangelands

"This first-ever joint congress in Africa is significant, as this region offers diverse and unique tropical savanna ecosystems, which are home to some of the most economically important grasses in the world," the PS said.

Kimtai noted that the conference comes at a time when the government this year launched 'Rangeland Management and Pastoralism Strategy, 2021-2031 that looks at both reduction of degradation in the rangelands, increase in land productivity, development and adoption of technologies and supporting enterprises in these areas.

KALRO Director General Dr. Eliud Kireger said the institute was working towards the introduction of more adapted and productive grasses and improved livestock such as the Boran and Sahiwal cattle. He added that in order to deal with the perennial feed shortages, KALRO has also introduced, through its Arid and Rangelands Research Institute (ALRI), re-seeding program, where grasses, mainly indigenous and adopted, are re-grown in the rangelands.

"We have secured registration of four range grass varieties by KEPHIS that will facilitate commercialization of these varieties and make the seeds readily available to farmers for establishment of new pasture fields and restoration of degraded rangelands," the DG said

Dr. Kireger further said that KALRO has laid the foundation for pasture breeding work in Kenya by collecting and conserving (in situ and in the gene bank) over 300 grass accessions from the larger northern and southern Kenya rangeland.

The DG also confirmed that in the coastal lowlands and highlands which are currently experiencing droughts and in other parts of the country, Brachiaria grass varieties released by KALRO have been introduced to support the livestock sector. The upcoming Congress which will be held virtually from 25th to 29th October has been organized under seven-thematic areas of arassland and rangeland research and development with a balance between the people/ social/policy and on the more traditional tópics. The conference will be under the theme "Sustainable Use of Grassland and Rangeland Resources for Improved Livelihoods"

In Kenya, rangelands occupy 80 per cent of land and home to about 10 million people. They support about 70 per cent of the national livestock population and 90 per cent of wildlife that is key to the tourism industry.



The ministry of agriculture : Congo wants to import large quantities of grains from Romania

The Republic of Congo manifested its interest in importing from Romania large quantities of grains, announced on Monday the ministry of agriculture and rural development. Minister Adrian Oros met in Bucharest on Monday, at the ministry headquarters with his counterpart from the Democratic Republic of Congo, M'zinga Birihanze Desire.

Minister Adrian Oros received on Monday, 20th September 2021, at the headquarters of the ministry of agriculture and rural development M'zinga Birihanze Desire, the minister of agriculture in the Democratic Republic of Congo. The delegation also included Leopold Abibo Lomalisa, Business attaché of the Embassy of the Democratic Republic of Congo to Bucharest.

'Minister Oros assured his counterpart of his desire to collaborate for the benefit of the farmers in both countries, focusing on the importance of traditional friendship and collaboration relations between Romania and Congo which have lasted since 1966, as well

as their consolidation, according to the new trends and challenges. The main produce exported by Romania to the Democratic Republic of Congo in the past are represented by wheat and meat. In this context, there were presented produce with potential for export, as the Congolese party manifested its interest in importing from Romania large quantities of grain, but the main purpose of the visit is the identification of food produce which could be found on the Congolese market' the ministry of agriculture says. The Minister of agriculture in Congo makes efforts for the development of an agricultural policy addressed to all involved actors, under any form, from production to consumption, by possing through processing, ecological certification, research and trading. Equally, the Congolese party wants to make a development strategy for commercial exchanges, identification of markets and suppliers, the Romanian minister of agriculture shows.

Minister Adrian Oros said that the strategic priorities of the ministry of agriculture in Congo overlap partially the priorities of the Romanian agriculture: creation of value chains, short chains of food, water management. A collaboration in this sense, at level of exchange of good practice in agriculture would be a real use for both countries.

At the end of the discussions, the two ministers signed a protocol for collaboration in the phytosanitary domain, taking into consideration the interest manifested on the Congolese part for grain import from Romania. Following the signing of the protocol, the two countries will have exchanges of good practice and expertise, as well as cooperation and research in the domain of plant protection and phytosanitary quarantine.

Besides the minister there were also the state secretaries Aurel Simion, Marius Mihia Micu, Gheorghe Stefan, general managers in MADR, Tatiana Preda and Roxana Zarman, the general manager of the National Phytosanitary Authority, as well as other managers and experts in the institution.

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Namibia implements dry land crop production program

Namibia has started implementing the Dry Land Crop Production Program in ten cropgrowing regions of the country to improve productivity, a senior government official said Monday.

Ministry of Agriculture, Water and Land Reform spokesperson Jona Musheko said the program is aimed at enhancing crop production and boosting yields amid a number of natural disasters.

"To date, an average of 40,000 farming households benefited from subsidized plowing, planting and weeding services, as well as agricultural inputs such as improved seed varieties, fertilizers on annual basis through this program," he said.

Musheko said the program is deliberately targeting youths to improve their participation in the sector and aims to mitigate against low and variable rainfall, thereby creating climate resilience to farmers.





Government urged to maintain subsidy on agriculture inputs

Aside wrong land use and 'galamsey' activities in the Municipality, the few youth in agriculture were relinquishing the task to farm due to inadequate finances, he said.

Nana Acquah said this in an interview with the Ghana News Agency during the Western Regional Joint Sector Review Programme in Agriculture to assess performance and make policy recommendations to government for improvement.

He called for active policy on land acquisition and usage to

make more lands available for farming purposes.

He said the subsidy on seeds, fertilizer and feed for poultry and livestock, among other things, had been helpful in alleviating poverty, hence the need to sustain it for maximum benefits.

Nana Aquah said about 2,700 youth had been trained in best practices under the Modernising Agriculture in Ghana Project, adding: "We are happy that some of the youth are still in the practice". Many farmers had also been linked to suppliers to ensure ready market for their produce, he said.

"We are fighting to secure and make agriculture attractive but land is also becoming a great challenge and we need to move from small holder farmingThe subsidy must also be maintained a little longer," he said.

Most participants blamed the low crop cultivation on the late supply of fertilizers.



Ten tips for successful grain storage

Two storage experts discuss how to preserve cereal crop quality in the bin

Grain farmers can breathe a sigh of relief once harvesting is done, but the job isn't over until the crop is out of the bin and in the hands of buyers. That's why preserving the quality and, therefore, the value of stored grain is so important.

We asked two storage experts — Ken Hellevang, extension agricultural engineer with North Dakota State University and GSI grain conditioning specialist Gary Woodruff — for tips on how farmers can keep cereal crops like wheat and barley in the best condition throughout the storage season.

1. Keep grain cool: Insect infestations and mould growth are the primary culprits when it comes to grain quality degradation. Colder temperatures allow cereal grains to generally store well on the Prairies in the winter months, but insects and mould become a much greater threat when things warm up.

Woodruff says there's more than one way to combat insect and mould problems in the bin, but keeping it cool is one of those key tools in storing grain safely.

Hellevang says insect activity is greatest at temperatures between 70 and 90 F (21 and 32 C), so farmers should strive to keep stored grain out of that range if they can. Also, during months with higher temperatures, insects can increase from being barely noticeable to major infestations in just three to four weeks.

Hellevang says at temperatures below 70 F (21 C) insects become less active. When temperatures are less than 60 F (15.6 C) they will reproduce less and below 50 F (10 C) most of the insects will go into dormancy.

"The longer we can keep the temperature in the 50-degree range or colder, the less likely we're going to have insect activity in our grain bins," he says.

2. Keep grain dry: Hellevang acknowledges it's more difficult to control temperature in the bin when the weather heats up, but says farmers can prevent mould growth by ensuring the grain is at an appropriate moisture content. The maximum moisture content for wheat during the warmerseason months shouldn't exceed 13 per cent and for barley 12.5 per cent, says Hellevang. However, a slightly higher moisture content is usually OK during winter, he adds.

Woodruff says cereals slated to move quickly can also be stored at a little higher moisture values. However, if it's going to be in the bin for longer periods, the grain needs to be drier, he adds.

"When you get down to 12 per cent, cereal grains are pretty well safe for a long time. You really don't want to store them over 13," he says. Also, grain with higher moistures levels will encourage insect activity as well as mould growth.

An oilseed crop like canola requires an even lower moisture content, says Woodruff. "With canola, you're going to need to be at eight per cent if you're going to store it for any period of time at all."

3. Look for trends: The condition of stored grain should be monitored closely to detect any storage problems early. Hellevang says this means not only measuring grain temperature and moisture content but keeping track of the readings.

"I think the recording of the information is a key aspect," he explains. "I get calls periodically from people wondering at what point is the temperature getting high enough that it indicates we have a storage problem?"

Hellevang says it isn't a specific temperature indicating trouble, but rather a trend that's occurring. For instance, a substantial increase in temperature from one reading to the next will tell you something is amiss in the bin.

"Either there's insect activity or some type of spoilage or other things taking place that is producing the heat and warming the grain," he says. "We really want to be monitoring and looking for trends. Hopefully we can pick up on trends and take corrective action before it becomes a problem."

Hellevang says it's also important for farmers to inspect the grain regularly for signs of insect activity. They can do this by taking a grain sample from the top of the bin, where most insect infestations will show up, and examining it closely.

4. Look for crusting: Woodruff says another thing to look for is crusting on top of the pile, which can occur when grain has a high moisture content or is mouldy or in poor condition. "When grain starts going bad ... in that bin, it begins drawing moisture and creating heat and that's what creates that crust," he says. "If there is any kind of crusting on top of that grain, you've got a problem."

5: Check grain frequently: Woodruff says while most storage experts recommend checking your grain at least every two weeks, he suggests it be done weekly. "I'm probably a little bit more conservative than most. Maybe it's because I am the person who usually gets called when a guy has bad grain," he laughs.

"Once a problem starts, it grows quickly," Woodruff says. "If you let it go too long between checking, instead of having a small problem ... you can end up having to empty out a third or half of the bin and you lose a significant amount of grain." Hellevang believes moisture content doesn't necessarily need to be monitored as closely as grain temperature but it's still important it be checked periodically.

He recommends farmers measure moisture content at harvest when cereal crops are going in the bin. Another good time to do this is when the grain is emerging from winter storage to ensure moisture levels are in line with what's required for warmer temperatures, he says.

6. Spread out sensors: Temperature sensors on cables are a common method for gauging the condition of stored grain. Hellevang believes they are an excellent tool; however, because grain is an excellent insulator, he maintains it's best to try to utilize several sensors and spread them out in the pile. The more temperature cables that can be put in, "the better it's going to be giving us a true indication of what's occurring in the bin," he says.

Having a temperature cable near the centre of the bin makes sense because that's where most of the fines and foreign material will accumulate, reducing airflow and increasing moisture content.

If a couple of temperature sensors are all a farmer can afford, Hellevang recommends placing them in the central as well as the southern portion of bin, since the south-facing side is what gets the most solar heat gain.

"If I can afford more, I'm probably going to put one on the northern side and then the other two quadrants, east and west," he says.

7. Consider carbon dioxide sensors: Hellevang is a proponent of carbon dioxide sensors as an additional tool for detecting mould and insect problems. "With an insect infestation or mould growth, both are

producing carbon dioxide," he says. "We probably would see a change in the carbon dioxide level much more quickly than what we might pick up on a temperature sensor."

These sensors measure carbon dioxide levels in parts per million. Hellevang says outdoor readings are typically around 400 to 500 parts per million.

"If you start getting concentrations in the 700 to 800 range, that's an indication something's going on in that bin."

8. Use your nose: It's important not to overlook another key instrument for catching storage issues — your nose.
"The human nose will detect that there's a problem in the bin, even when it's really small," says Woodruff. "When grain starts to go out of condition in an area even as small as your fist, it usually produces enough odour for a person to smell it."

Sniffing out storage problems is what Hellevang calls old school, "but it's still very critical because our noses are very sensitive and pick up the odours very quickly."

9. Don't let grain peak up: When grain peaks up in the bin, it creates more surface area "so the peak will warm much more quickly than if you have a flat surface," says Hellevang. Woodruff points out peaks also result in less air movement in the centre of the stored grain.

"Where most problems occur in any grain bin is in that centre of the bin. If you can pull that grain down to where the centre of the bin is the same (level) as the side wall or lower, you're going to tremendously improve the ability of that air to get through it," he says. "This will make a huge difference in how well that grain stores."

10. Seal bin openings: Our experts agree farmers should make a point of sealing fan and discharge openings when not in use to limit outside air from entering the storage. "A critical part of keeping that grain cool is to make sure the fans or any of the openings in the bottom of the bin are covered," Hellevang says. "(Otherwise) you have warm, moist air flowing in during the spring and summer."

He says covering up fan and discharge openings in the winter will help prevent drifting snow from entering the bin.

Winter Cereals an Option for Adding Forage in 2022

The drought of 2021 left many ranchers short of feed, both grazing forage and hay. A great option for spring grazing or hay production is winter cereals.

"Establishing a winter cereal for grazing next spring will allow producers to delay pasture turnout, giving drought-stressed pastures more time to recover," says Miranda Meehan, North Dakota State University Extension livestock environmental stewardship specialist. "Many pastures were overgrazed due to decreased forage production this year, and producers may see delayed growth and decreased production in 2022."

Winter cereals are planted in the fall. Much of the Northern Plains finally received some needed rain in August and early September, providing an opportunity for growing winter cereals.

"Winter cereals can be planted anytime in September, with early- to mid-September recommended," says Kevin Sedivec, NDSU Extension rangeland management specialist "There are three winter cereal options for grazing and haying that fit well in North Dakota; including winter rye, triticale and wheat. The seeding rate for all three types is 90 pounds per acre."

Sedivec says there are a few questions to consider when selecting a winter cereal to plant. Do you plan to graze it early next spring or harvest it for hay? Do you want to plant a cash crop afterward or a crop for forage?

Winter Rye

Winter rye fits best if you plan to graze in May. It is the most aggressive growing winter cereal in May, providing the greatest economic return to the livestock. Seed costs will be around \$22 to \$27 per acre, with forage ready for grazing between May 5 to 10.

Rye achieves 80% to 90% of its growth by early June and is recommended to be harvested for hay in early June. Livestock do not like to forage on rye once it produces seed heads.

Winter rye also reaches the recommended harvest time for hay or silage by June 3 to 10. Rye also is a great option for seeding soybeans into after grazing or haying. Planting a forage crop like foxtail millet, sorghum-sudan, sudangrass or a full-season cover crop also is a great option. Rye does use a lot of water to grow, so if seeding a cash crop or forage crop following winter rye spring moisture will be critical.

Winter Triticale

Winter triticale also is a good fit for grazing in May. It is a little slower to grow in the first half of May compared to rye and matures about three to five days after rye. Triticale will have a higher protein and total digestible nutrient (TDN) value than rye, but also costs around \$33 to \$37 per acre for seed. Triticale is usually ready to be harvested for hay by early- to mid-June.

Triticale regrows better than rye, so if spring moisture is good a second crop can be harvested for hay or grazed, usually about 50% of the first harvest. A second forage crop often is planted after grazing or haying triticale with crops such as foxtail millet, sorghum-sudan, sudangrass or a full-season cover crop.

Winter Wheat (forage varieties) "Winter wheat would not be recommended for May grazing, as it grows much slower than rye and triticale," says Zachary Carlson, NDSU Extension beef cattle specialist. "The forage winter wheats are best suited for hay production, as it is ready for hay harvest in late June."

Winter wheat is the lowest in lignin content, thus more palatable to livestock, and highest in crude protein and TDN compared to both rye and triticale. Seed costs will be around \$29 to \$32 per acre.

A second forage crop often is planted after harvesting winter wheat with crops such as foxtail millet, sorghum-sudan, sudangrass or a full-season cover crop.

GPS monitoring could help with disease intervention and prevention

A new study from Tanzania finds that using GPS to monitor cattle herds can facilitate targeted interventions that could reduce the burden of livestock diseases. Researchers at the University of Glasgow have tracked cattle using satellite GPS (Global Positioning System) devices to gain a better insight into how livestock diseases spread in East Africa.

Their findings, published in Scientific Reports, show that targeted interventions at specific times could reduce the burden of foot-and-mouth disease, peste des petits ruminants and anthrax, which continue to plague sub-Saharan Africa.

In the study, researchers teamed up with farmers in rural parts of Tanzania to monitor dozens of herds of cattle using GPS trackers.

The team were surprised to find that cattle moved long distances each day, to and from shared grazing lands, at an average of 7.5km, with occasional movements up to 12km. The places where animals

"The biology of the pathogen is particularly important when working out these risks. Some livestock pathogens require close physical contacts for transmission. while others can be carried in the air or water over long distances, or can remain infectious in the environment for extended periods of time." were most at risk were those where animals had to gather for extended periods – such as at water holes and cattle plunge dips – where livestock are regularly treated for parasites.

Scientists say their findings mark an important step in understanding how to develop effective strategies for controlling a host of diseases in similar settings.

"We had no idea how far farmers moved their livestock each day, let alone where contacts between herds were most likely," commented Dr Divine Ekwem, a veterinary epidemiologist at the University of Glasgow.

Co-author Dr Tiziana Lembo, also from the University of Glasgow, added: "The biology of the pathogen is particularly important when working out these risks. Some livestock pathogens require close physical contacts for transmission, while others can be carried in the air or water over long distances, or can remain infectious in the environment for extended periods of time."

A grass native to Africa could transform the continent's dairy yields. Here's how

The cows kept by small-scale farmers in Africa are notoriously unproductive. The average dairy cow, for example, produces about 540 litres of milk per lactation. By contrast, dairy cows in North America that belong to commercial or intensive farmers can produce up to 10,479 litres of milk per lactation.

One of the main differences between the two animals lies in the quality of their feeds and forage. Simply put, the more nutritious cows' diets are, the more and better quality milk they produce. And small-scale farmers – of which there are about 33 million in Africa, contributing up to 70% of the continent's food supply – usually cannot afford more nutritious feed.

Brachiaria – the genus name of Urochloa – consists of about 100 documented species of grass of which seven species used as fodder plants are of African origin. This grass may

hold the key to improving milk yields from cows kept by small-scale farmers. Why is this an important goal?

First, it will help to meet rising demand for animal-sourced foods - like cow milk - as the continent becomes more urbanised and its population grows. Second, it will provide an economic boon to individual farmers and communities more broadly. Finally, there's potential for Brachiaria itself to become a money maker. Local seed traders will benefit if the grass seed is commercialised.

Brachiaria has already proven its worth in some parts of the world. It has been instrumental to the beef industry's success in the tropical Americas. Brazil alone now has some 99 million hectares of land dedicated to Brachiaria grass.

The seed varieties currently used in African agriculture are all imported, most from South America and South East Asia. Long distance transportation and tariffs make these seeds expensive. It would be ideal to develop a quality, climate resilient Brachiaria séed production system on the continent. But where? We believe the answer lies in Cameroon. Farmers there have long planted Brachiaria seeds, but nobody had ever tested their quality. Our research filled this gap. Though the overall seed quality was poor, we've found that improved cultivation practices can address this issue. Now we're hard at work to turn Cameroon into

Africa's Brachiaria seed hub.

A quality grass

Brachiaria's forage quality was recognised by scientists in the 1950s . It has a high biomass yield potential and is adaptable to low-fertility soil. South American farmers, especially in Brazil, started using Brachiaria on a largescale in the early 1970s and it is recognised as being key to the region's booming beef industry.

In Africa, however, interest in the grass grew more slowly. It was not until the early 2000s, when the continent began to feel the effects of population growth and urbanisation that higher demand for animalsourced foods piqued renewed interest in ways to improve agricultural yields. As a plant scientist based at the International Livestock Research Institute, I have researched Brachiaria grass since 2013. Through various partnerships, colleagues and I have worked on a climatesmart Brachiaria programme to test the varieties already developed in Australia and South America in various African contexts. They performed well independently, but the next step was to integrate them into the mixed crop-livestock systems typical of the continent.

Farmers responded enthusiastically to the grass: it significantly increased milk production by up to 40% and caused substantial body weight gain in livestock, by as much as 50% in heifers. Its popularity grew as major journals and media outlets publicised its benefits. However, the seeds that made all this research possible were still unavailable on the continent. We had to import them, an arduous and costly process because of regulations and distance. So we knew that, going forward, we had to look at local seed production. Brachiaria seeds. Sita Ghimire/ILRI It was also crucial to find the best country for the task at hand. While our work in Kenya and Rwanda was promising, it wasn't as successful as we would have hoped, possibly due to these countries proximity to the equator; the fact that night and day are of equal length affected various stages of seed development in species that favour longer days.

Why Cameroon?

Cameroon is often called " Africa in miniature". It represents the continent's major climatic zones, creating a perfect place for seed research.

During a visit to Cameroon, I noted that farmers had been growing *Brachiaria* grass for over 50 years and simultaneously producing the seed for domestic uses. They also sell surplus seed to neighbours, and seed traders from the Central African Republic and Nigeria. However, the quality of seeds produced in Cameroon was not established until our study

There are ten regions in Cameroon; *Brachiaria* grass is commonly grown in five. Our team collected seeds from these five regions to determine their quality: trueness to variety, germination percentage, purity, vigour and appearance. The quality was generally too low to meet international standards, but with improved cultivation practices this hurdle can be overcome.

Production hub

We are currently engaged in activities that would make Cameroon Africa's Brachiaria seed production hub. Achieving this would significantly increase seed availability to farmers, reduce the cost of the seeds and facilitate the scaling of *Brachiaria* grass production across the continent.

To this end, my research team at International Livestock Research Institute (ILRI) and researchers from the Institute for Agricultural Research and Development in Cameroon have been working to document the quality of Brachiaria seeds produced in the country's different regions of Cameroon. We're also fine-tuning agronomic practices to improve seed quality, as well as training local farmers on improved agricultural practices for the production of quality Brachiaria seeds. We hope that this partnership between the two institutes will develop Cameroon into the continent's Brachiaria seed production hub in the next three to five years. This will have numerous economic benefits and make quality seeds available in the Áfrican continent at a much lower price.

Analysing the effect of drought regime changes on the Namibian livestock output supply growth

The research characterises the nature of the long-term trend in livestock market supply growth and its relation to the evolution of a reoccurring drought.

The assumption is that livestock market supply is highly dependent on the climatic state of drought resulting in two distinct growth rate phases. This implies that livestock supply tends to correspond to a state of high and low swings during drought episodes. Therefore, the evolution of the time path of market supply growth rate was analysed using regimeswitching models to estimate the unconditional statedependent mean of the livestock market supply growth. The cattle, sheep and goat livestock industries were considered in the analysis. The result shows that the climatic drought state period corresponds to high market growth rates whereas, low market growth was associated with normal moderate rainfall periods. The process was found to be sticky around transitioning from a high drought state to a low state. An average state duration of six years was found in the cattle industry.

However, a different state duration was found for the sheep and goat industry. This is attributed to the policyinduced market restrictions in the small stock industry during the drought periods. The ability of the industry to restore equilibrium after an economic shock was found to be faster in the sheep and goat industry than in the cattle industry, signifying the ease to restock the small stock industry compared to the large stock industry.

The research shows that drought is a persistent phenomenon in Namibia, therefore, mitigation, adaptation and vulnerability strategies should have long time planning and implementation horizons. Drought policy and relief strategies should be guided by the ex-ante sign and magnitude of the conditional mean of livestock market supplies, the transition probabilities, persistence, and the duration of drought as depicted in this article.

Animal feed production my priority — Minister

The Minister of Agriculture and Rural Development, Mohammed Abubakar, has said the government will provide incentives to feed millers and agribusiness companies to site their factories in rural communities in <u>Niaeria</u>.

He said that is because feed ingredients are largely available in those locations.

Speaking Thursday through the ministry's permanent secretary, Ernest Umakhihe, at the National Animal Feed Summit, the minister said the government will improve the level of education of farmers on modern animal and feed production techniques.

"Government will also step up on its development plan to provide incentives to feed millers and agribusiness companies to locate in rural areas where feed ingredients are largely available, improve on the level of education of farmers on modern animal and feed production techniques, support various research institutes in developing alternative feed ingredients in providing animal feeds to ameliorate the effects of high cost of feed," he said.

Also, it will support various research institutes in developing alternative feed ingredients in providing animal feeds to ameliorate the effects of high cost of feed.

On his assumption of office, Mr Abubakar said he will focus on the government's livestock transformation plan not just for food security, but also to curb insecurity challenges in the country.

He said Nigeria now has over 1000 feed mills from two feed mills in 1957, which makes the nation the 40th leading country in livestock feed production in the world.

"This potential notwithstanding, the industry expansion remains tilted to the

South West which accounts for not less than 75% of total installed and operating feed mills in Nigeria," he said.

Proffering solutions, he said Nigeria must embark on livestock feed production, industrialisation, feed value chain development, development of National Animal Feed and Feed Safety Policy, establishment of National Strategic Feed and Feed Ingredient Reserve Centre, National Alternative Feed Ingredient Development, Promotion and Commercialization of Ruminant and Micro-livestock Feeds.

"As Minister for Agriculture and Rural Development, the issue of animal feed and human food security is a priority on my agenda," he reassured Nigerians.

"I am aware that the Ministry has been committed to the development of the nation's feed industry by making budgetary provision for capacity building on Alternative Ingredients such as cassava peels and cocoa pod with supply of cottage feed-block mold in some states in the East and West of Nigeria based on comparative advantage". "To support the livestock farmers alleviate the cost of feeds, the Ministry procured and distributed ruminant feed concentrates, salt licks, and finished feeds to small-holder farmers. Equally too, Mr. The <u>President</u> approved the release of 5000 Mt of maize from the Strategic Food Reserve to Poultry Association of Nigeria for the Feed Industry," he said.

"The Ministry will continue to give attention to the animal feed need of farmers in the country through an enduring policy that will transform Nigeria's livestock and agriculture in general, for the benefit of the citizenry."

Mr Abubakar further noted that animal feed accounts for over 70 per cent of the cost of animal production, which makes it the most important consideration in a livestock business.

"It engages over 5 million Nigerians directly or indirectly as technical or skilled personnel, distributors, fabricators of tools and machinery, input suppliers etc. It generates massive employment across its various value chains and strengthens the national social safety net with copious contributions to food security, household income and poverty reduction," he said.

Mr Abubakar quoted a 2016 data, saying the Nigeria feed industry produces an average of 5.5million metric tonnes of animal feed per annum comprising 85 percent poultry feeds, and with commercial ruminant and swine feed coming up in the industry, it will produce not less than 50 million metric tonnes per annum.

"Even with this, the feed sector has the potential to engage over 20 million Nigerians, as the industry is yet to reach 25 percent of its market size," he concluded.

Boost for poultry industry: Vencomatic in partnership with Agric Ministry secures \$200 million loan to establish poultry farms

A Dutch poultry company, Vencomatic Group in partnership with the Ministry of Food and Agriculture and the Ministry of Finance will be establishing poultry farms in the Greater Accra, Ashanti and Northern regions worth \$200 million dollars, a move that will help reduce the price of chicken on the market.

Vencomatic Group is a company that offers solutions in housing, egg handling and climate control for any type of poultry house.

The presence of the company will increase the number of hatcheries in the country to minimise importation of dayold chicks. Speaking to Joy Business, Consultant for Vencomatic Group in Ghana, Samuel Debrah said "the company got a loan to invest in its operations in Ghana. 36 million euros was secured to set up three branches across the country. We've earmarked Ejisu in the Ashanti region and the guinea processing project in the north and another set up in Accra."

Technical lead of USDA's Ghana Poultry Project, Raymond Denteh believes that the presence of the group will lead to increase market share of the poultry industry and boost the agric economy. "It's widely held that Ghana imports about 350,000 metric tonnes of poultry needs. So the idea is that, we're trying to close that gap because if we ban it we cannot feed the country and it will affect food security. This is the first step to increasing market share of the local poultry industry," he stated.

The \$200-million investment is expected to provide about 3,000 direct jobs in the country. This is a step in implementing government's 'Nationwide Chicken and Guinea Fowl Production, Processing and Packaging Projects'.

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Government to enforce restriction on mass live chickens distribution by large poultry producers to protect small scale businesses

From Monday, August 23, the Ministry of Trade will start enforcing Business Licencing (Travel Wholesale and Distribution Licence) that restricts large poultry producers from retail distribution of poultry, its products and particularly live chickens in order to protect small scale businesses.

A statement from Secretary for Trade, Christina Zakeyo, issued on Monday, August 16, says this follows a directive that Minister of Trade Sosten Gwengwe issued on January 20 this year that reiterated that large poultry production companies should only concentrate on selling live poultry by wholesale from their production facilities and limited designated depots.

Principal Secretary (PS) in the Ministry of Trade, Christina Zakeyo This is to leave all distribution and retailing to small scale Malawian traders and farmers — a restriction that seeks to safeguard an inclusive growth of the entire poultry value chain.

Zakeyo said the directive is meant to "address anticompetitive and unfair trade practices displayed by most of the large poultry producers, who have been engaged in the distribution and selling of live poultry in trading centers and other undesignated areas".

"In this regard and in line with the Business Licencing Regulations 2014, the Ministry of Trade started issuing Distributor's Licence to poultry distributors and Travelling Wholesalers Licence to large poultry producers to allow them to deliver their products to the designated market places and appointed distributors in designated points throughout the country."

The Ministry says Malawians engaged in distribution and retailing of live poultry or those intending to venture into this business are thus invited to submit applications for the Distributors Licence to the Ministry of Trade in Lilongwe by providing all necessary documents such as the National Identity Card as well as their business registration certificates where they shall obtain the requisite licenses.

The Ministry further warns that Malawi Police officers "will be empowered and deployed to monitor the operations of the players on the ground especially the movements of the poultry mobile vans just to ensure that those found on the road and trading centers have requisite permits".

"Those who will not comply with this directive will face the full might of the law including having their vans impounded."

FAO hands over Poultry Feed Mill to farmers in Kaiaf, LRR

The Gambia produces about ten percent of the poultry meat and eggs consumed by its estimated population of 2.2 million people. In 2019, the country produced about 160 metric tonnes of poultry meat and 10.8 metric tonnes of eggs and imported about 21,000 metric tonnes of poultry meat and 500 metric tonnes of eggs.

The high demand for poultry products coupled with the huge potentials of the poultry sub-sector provide opportunities for the government and stakeholders to increase investments in the sub-sector for food security and nutrition as well as for the creation of jobs for sustainable development.

In recent years, poultry farming is booming in The Gambia. Many Gambians, especially women and youths are venturing into poultry farming. However, access to quality and affordable poultry feed remains a major challenge; most feed supplies are imported and may not be affordable.

In a bid to mitigate this problem in a sustainable and cost-effective way, the Food and Agriculture Organization of the United Nations (FAO) in close partnership with the Ministry of Gender, Children and Social Welfare, the Ministry of Agriculture and the Department of Livestock Services have provided five Poultry Farmers' Associations with Poultry Feed Mills. A regionally implemented FAO project titled "Rural Women's Empowerment in Agriculture Programme (RWEAP)" funded by African Solidarity Trust Fund supported the initiative.

On 31st of July 2021, the FAO Country Representative, Ms. Moshibudi Rampedi handed over the feed mill in Kaiaf to the beneficiary community through the Ministry of Gender, Children and Social Welfare. In her remarks, Ms Rampedi said 'the overall objective of the project was to support female entrepreneurship and rural women's empowerment in agribusiness'. She highlighted that women ought to be supported to enhance their agribusting in income participation in income generating value chains. Ms. Rampedi confirmed that apart from the mill being inaugurated in Kaiaf in the Lower River Region (LRR), the project built 4 other poultry feed mills in North Bank Region (NBR), Central River Region – North (CRRN), Central River – South (CRRS) and in the Upper River Region (URR). "Each Feed Mill comprise of well ventilated infrastructure, a grinding machine, a mixer, an aggregating machine and a weighing scale. Each Mill has the capacity to produce up to 500 different sized

aggregate bags of poultry feed per day'.

In her remarks, Mrs Rohie Bittaye Darboe, Permanent Secretary Ministry of Gender, Children and Social Welfare said that women contribute close to fifty percent of the total agriculture labour force, playing a significant role in crop and livestock production. She noted that it was against this backdrop that her Ministry together with the Ministry of Agriculture joined hands with FAO to embark on the Rural Women Empowerment Agricultural Programme. "Today, we are seeing the benefits of this collaboration in the form of this feed mill which has the capacity to produce feed for both chicken and small ruminants" she said.

Mr Ebou Jobe a representative from the Department of Livestock Services said that his department has in the past received numerous support from FAO and they were grateful for these mills, which will improve access for livestock feed for farmers. He challenged the beneficiaries to manage the mills well and ensure their sustainability. Mrs Kuling Colley a beneficiary of the project thanked Ministry of Gender, Children and Social Welfare, Ministry of Agriculture and FAO for the intervention and promised that they would do their best to maintain the mill. Forestry

Ghanaian sawmill shows the way forward for sawmilling in Africa

With profitable timber exports to overseas markets just one of its many successes, Boison Sawmill in Ghana is an inspiration for sawmillers across Africa.

Boison Sawmill in the Western region of Ghana headed up MD John Boison has no interest in selling logs. Instead, it produces sawn timber that is sold at a premium in the US, Europe, Africa, and Asia.

"We compete with the best sawmills in the world, and we almost always win because of the quality that we produce," John Boison continues.

The sawmilling sector in Africa has several weaknesses.

Selling logs instead of adding value first, limited, or old sawmilling infrastructure, limited sawmilling and drying technical skills, and that sawmillers in Africa can't compete internationally, are some of them.

Boison Sawmill has not only met these challenges but has then gone on to focus on issues like workers' safety and well-being and sustainability to name a few.

Cut straight and dry flat

Boison Sawmill's first two Wood-Mizer LT40 sawmills in 2008 quickly doubled into six LT40's and four EG200 edgers.

This, John Boison says, laid the foundation for their success.

"Exports markets want accurately sawn timber. With our Wood-Mizer sawmill, we cut straight, and then we dry our timber flat and with the right moisture content," John says.

The sawmill wastes nothing with scrap made into ceilings, doors, and windows and what remains turned into charcoal.

Current output from the mill stands at 200 m³/day with the bulk of that exported and the rest sold locally.

Boison Sawmill also resharpens and sets its blades with Wood-Mizer's blade maintenance equipment, thus ensuring that the mill can saw accurately and produce the quality it needs.

More focus areas

Regular maintenance of sawmills after shifts boosts productivity further.

Each sawmill is cleaned and greased for the next shift. Crews

also receive training to clean debris off all logs before cutting starts to ensure longer blade life.

Wood-Mizer's dealer in Ghana, Gyadosaboc Limited supports Boison Sawmills with regular maintenance of the mills and deliveries of blades, spares, and consumables.

Staff safety and well-being are priorities too. Personal Protective Equipment prevents injury during work with monthly and weekly safety briefings ensuring that staff remains safe.

A canteen where meals are served to all employees also doubles as a briefing room for company announcements and celebrations.

Sustainability is also high on the sawmill's agenda. The company has land planted to Afram, Cedrela, Mohagany, and teak to ensure a ready source of timber into the future.

Final take

Sawmilling in Africa is tough, but Boison Sawmill inspires sawmillers across Africa to unlock the value of timber sustainably.

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RainFine Introduces Just-Fine Pipe

Corrosive water, caused by a number of factors ranging from high or low pH to variable mineral content to waste water applications, can weaken and deteriorate standard galvanized pipe, leading to premature failure.

RainFine Just-Fine irrigation uPVC lined pipes protect your irrigation pipelines from any corrosive components in your water, ensuring a long life for your machine.

"Farmers drive everything we do at RainFine – and water quality issues continue to be an increasingly prevalent challenge for growers around the world. While several different options to handle corrosive water have existed in the market for years, farmers told us there was a real need to have a better solution, said Wang Zhi, director of global sales at RainFine. "We looked at this issue with a new approach and redesigned an entirely different solution about which we are extremely proud and, even more importantly, that our farmer clients are telling us is an absolute gamechanger for them."

Other poly pipe type offerings in the market rely on polyethylene pipes and flanges for structural integrity, but the poly flanges create a gap between the steel flanges at the joint and can compress and crack over time, resulting in leaks.

The new Just-Fine pipe features a manufactured insert uv-stabilised plastic flange that allows for positive flange contact and eliminates the potential for a gap between flanges at joints, resulting in improved strength and span consistency.

It is the same span joint design used for existing RainFine galvanized pipe, but with the

added protection of the Just-Fine PVC liner through the span pipe to provide an unmatched level of quality and rigidity. To address the pipe expansion and contraction challenges that cause the liner to move within the pipe, potentially leading to cracks and leaks, RainFine introduced

two additional new design innovations. 1. Rigid uPVC provides the solid

- base for the pipe, and does not expand or contract like the poly pipes do and will not crack after time at any deviation like at flanges or pipe ends; Stainless steel fittings (304) are
- 2. used at the pipe ends for rigidity and keeping with the corrosion free goals. The Riser Pipes and Elbows are also supplied with 304 stainless steel;
- 3. The pipe uses an insert type flange with double rubber seals which allow for any expansion and contraction in the pipes, it provides a perfect fit and seal, eliminating any leakage; and
- the pipe sprinkler outlet uses $a^{3}/2$ 304 stainless steel outlets 4. fitting with ideal unrestricted flow characteristics; with a strong nut that will not break off over time as poly ones are inclined to do.

Re-piping your older Lindsay or IrriFrance pivots with Just-Fine pipes and fittings can extend their life significantly, providing a longer-term solution to the conservative farm operator.

Benefits

Just-Fine pipe is a comprehensive protection against corrosion made from an inert PVC material, making it ideal for chemigation, fertigation and resisting corrosive water. No leaking – wide self-seating pipe flange, stainless steel

self-locking sprinkler outlet couplers ensure a water-tight seal.

- Long lasting the first machine with Just-Fine, installed in Australia is still operating with no leaks.
- All structural components from pivot pipe to last pipe are lined and uPVC protected.
- The joints are made of stainless steel maintaining structural integrity, while Overhangs are short and of minimum 6-5/8".
- Pipes available are 8" and
- 6-5/8". Not affected by abrasion from sand or sediment in irrigation water.
- Highly resistant to sunlight and humidity as the pipe is completely away from any UV.
- No substantial extra machine weight.

Features

- Warranty: A 20 years pipeline corrosion warranty includes unconditional replacement due to corrosion for 20 years. This is the longest and most substantial warranty in the
- industry. **Robust design:** Designed for agricultural, industrial and municipal water applications
- Greater profit and productivity: Allows you to take advantage of corrosive water, and allows chemigation and fertigation with aggressive chemicals.
- Minimizes pressure loss: Sprinkler outlets: Full size 3/4" stainless steel self-locking couplings for minimal pressure loss and no leaks offering optimal flow characteristics.

For more information about protecting your pipes with Just-Fine pipes, contact your local RainFine dealer today.

Is it possible to pay less money for a corrosion protected pivot?

- Just-Fine PVC-lined pipes, stainless steel pivot joints and control panel come with a 20-year warranty, the best in the business.
- Just-Fine PVC-lined pipe is the the perfect solution for corrosive, acid and saline water.
- Special PVC 2.5mm wall thickness PVC-pipe liner is stable in hot or cold climates.
- Sprinkler outlet is made of stainless steel with curvature on inner pipe wall.

Tanzania: Farmers Urge Rehabilitation of Crucial Irrigation Schemes

Residents of Songea District have expressed the need to revamp irrigation schemes in the area so as to increase crop production.

They did so during a meeting with Agriculture deputy minister Hussein Bashe at Namatuhi Village on Friday.

The meeting was held after touring the Njoka A and Namatuhi Irrigation Schemes in Peramiho that benefit 301 farmers with the ability to irrigate 220 hactares of land.

"Following challenges facing the schemes, only 192 hactares of land are currently being irrigated. Two canals at the Namatuhi Irrigation Scheme and one at the Njoka Irrigation Schemes are not properly working," said Namatuhi Village chairman Beda Zenda.

He said establishment of the schemes had increased maize production from two tonnes per hactare to 4.5 tonnes per hectare, the equivalence of 125 percent increase.

"Farmers earnings increased to Sh1.35 million per hectare from Sh600,000 per hectare. However, absence of reliable market and increased price of agricultural inputs are stumbling blocks impeding prosperity of agricultural production," he explained.

Mr Kelvin Mbunda said most irrigation schemes were incomplete, therefore adversely affecting irrigation in available hectares of land owned by farmers. "The price of fertilizer has reached Sh80,000. Farmers can't afford this," he said, requesting for the government's intervention.

He was seconded by Ms Donatha Charles who said the situation was worse due to farmers' lack of access to low interest loans from the government and financial institutions that could support farming.

"We've 15 well organized groups, but their efforts to secure low interest loans have failed," she said, asking the government to empower farmers.

During the meeting, Songea District Commissioner Pololet Mgema supported his farmers, saying efficiency in agricultural activities would be realised through effective irrigation schemes. "The two irrigation schemes are shoddy requiring major rehabilitations. Honourable Deputy Minister say something in order to restore smiles on farmers faces." he said. Ms Jaqueline Msongozi (Special Seats MP-CCM) said decline in maize price and excessive increase in prices of fertilizers dealt a huge blow to farmers.

In his response, Mr Bashe said irrigation schemes have died because of poor management and care by farmers.

Therefore, he instructed the irrigation officer to collaborate with the district council to evaluate costs of repairing the irrigation schemes.

"The analysis should include costs of constructing a canal that will take waters to the farms and another canal for taking water to the river from the farms to prevent floods in the fields," he said.

After evaluations and rehabilitations, schemes will be registered in a database and proper management of irrigation funds through the Irrigation Development Funds (IDF) will be established," he explained.

"You have been choosing embezzlers to manage irrigation schemes. The government will encourage proper management of irrigation funds in order to facilitate repair and construction of new schemes in the region and other parts of the country," said Mr Bashe.

He said Sh600 million has been allocated in 2021/22 budget for rehabilitation and construction of Muhukuru Irrigation Scheme in the district.

On high prices of fertilizers and low prices of maize, he said while the government was taking short, medium and long term measures to control fertilizers prices, next month, the National Food Reserve Agency (NFRA) will start buying the produce at Sh500 per kilo.

"Centres will be opened in every district and villages to reduce farmers inconveniences of taking their produce to a far located centres," he said.

Speaking about the 10 percent empowerment funds disbursed by council authorities countrywide to the women, youth and People with Disabilities (PwDs), the Songea District Executive Director (DED) Simon Bulenganija pledged to dispatch a team of experts to meet groups in the village.

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\$US40M granted for irrigation development in Madagascar

The government of Madagascar has received US\$40 million from the World Bank for irrigation development in the country.

The Sustainable Agriculture Project through a Landscape Approach (Projet d'agriculture durable par une approche paysage – Padap) is one of the Malagasy government's solutions to mitigate the effects of erosion and land degradation, notably through the development of landscapebased agriculture.

According to Malagasy authorities, the World Bank Ioan will be used mainly to develop activities aimed at increasing access to irrigation services, notably through the rehabilitation of 14,000 hectares of irrigated perimeters, as well as sustainable agricultural techniques and practices in Madagascar.

The overall objective of the Padap project is to increase agricultural productivity in connection with sustainable management of natural resources in five selected landscapes, within four regions of Madagascar (Sava, Analanjirofo, Sofia and Boeny). Specifically, the aims of the project are to increase access to irrigation services and sustainable agricultural techniques and practices; and to strengthen the integrated management of natural resources in the targeted landscapes.

At least 38,000 people, 40 percent of whom are women, will benefit from the impact of Padap, which was launched in June 2017. The project is expected to be completed in December 2022.

KENYA: New irrigation system serves 457 farmers' homes in Murang'a

In Kenya, an irrigation project will be completed by the end of 2021 in Murang'a County. The county government is implementing the project under the National Agricultural and Rural Inclusive Growth Project (Narigp), funded by the World Bank.

Farmers in Murang'a are expected to improve their farming practices through a new irrigation system. The information comes from the county government in west-central Kenya. With this new system, 457 households will receive water on a regular basis for domestic use and for farming. This will help to improve agricultural yields, which are currently declining due to drought. In Murang'a, the main cash crop is bananas.

The Murang'a County Government is implementing the irrigation project under the National Agricultural and Rural Inclusive Growth Project (Narigp). For the future irrigation system in Murang'a, water will be pumped from the Maragua River through 14 kilometres of pipelines to the various farmers' households. According to John Waihenya, the coordinator of the World Bank-funded Narigp project, each household will be provided with a 100 m³ tank to store excess water for use over a three-month period. An investment of \$976,000

"The ponds will also have a dam lining that will increase agricultural yields and create livelihoods. Households will be supplied with water in all seasons," says John Waihenya, the Narigp project coordinator. The irrigation project in Murang'a will eventually cost more than 107 million Kenyan shillings (about US\$976,000). As part of the irrigation project, farmers were also trained to be more efficient in the field. "The farmers' representatives visited the Mutunguru irrigation system in Meru for comparative analysis," says John Waihenya.

GrowStream[™] - World's Only Irrigation that talks to the plants.

The long-awaited "green revolution" is within the reach of Africa. The continent is at a turning point in the agriculture sector in terms of adopting market- friendly policies and in its commitment to more resources to this sector. South Africa, characterized by low rainfall, limited underground aquifers, and a reliance on significant water transfers from neighboring nations, is expected to face difficult economic and social choices between the demands of agriculture, key industrial activities, such as mining and power generation, and large and growing urban centers.

Considering the importance for a better solution in the African agricultural sector, the focus is shifting to implementing technologies that increase water-use efficiency and that are sustainable. By being the world's first PLANT-RESPONSIVE irrigation system, RDI's GrowStream[™] not only drastically reduces water usage between 30-90% compared to other forms of irrigation, but it also decreases plant stress, leading to healthier plants that are earlier to harvest and that produce much higher yields.

Because the system can work even in harsh climates and nonarable land, it enables local farmers to implement crop diversity and produce high yields. It is a simple system to install and operate. It does not require any electricity and can irrigate a field from a raised water tank or rain barrel. There are no valve boxe4s or electronic controllers to program. Now, more than ever, it is important that new innovations and changes in farming practices be instituted. These innovative solutions preserve fresh water sources, insure food security, reduce

carbon emissions and promote sustainable practices that can have a positive impact on Africa's economics and agricultural development.

Irrigation uses almost 80% of the world's water, so reducing that to 40% would preserve this precious resource, allowing the planet to stabilize and regenerate. RDI is currently being used in over 17 countries around the planet, including water-stressed areas in Kenya, Nigeria, Pakistan, South Africa, Australia and the UAE. RDI is focused on helping to increase water-use efficiency for irrigation in agriculture and greening cityscapes to preserve the Earth's valuable resources and create a sustainable future for generations to come.

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How Market Knowledge is Powering Africa's Solar Irrigation Sector

'Know your customers' is arguably the first rule of marketing. By identifying and segmenting customer groups, companies can target their products and services to the right people, in the right way. This can open-up opportunities for growth, inform product development and improve customer retention.

But market segmentation is also easy to get wrong, often because of a lack of research and data. In Ghana, the International Water Management Institute (IWMI) is working with solar pump manufacturers and suppliers, farmers and other stakeholders in irrigated agriculture to boost the adoption of solar technologies that meet target users' needs.

In many off-grid areas, petrol and diesel pumps are commonly used for irrigation. However, they are expensive to run and contribute to environmental pollution. With the abundance of sunshine in Ghana, solar pumps offer small farmers a promising alternative – if they can afford the initial investment. To begin addressing this issue, IWMI joined forces with Pumptech, a distributor of solar pumps manufactured by the German company LORENTZ. The pumps are designed for offgrid water pumping and several models are specifically aimed at smallholders.

Focusing on Ghana's Upper East Region, which experiences high rainfall variability, IWMI then conducted a survey to determine the market potential for the pumps.

Four market segments were identified among smallholders: resource-rich farmers, mobile farmers (who rent land each season), resource-limited individual farmers (who have permanent access to cultivated land) and groups of farmers (who are interested in investing in solar-powered irrigation but need time and self-organization).

Each segment is slightly different in terms of the amount of water needed, land access, pump preferences and capacity to pay for the technology.

Pumptech shared these insights during a meeting on market segmentation and the suitability of solar pumps for small-scale irrigation. The meeting is part of an ongoing series of multistakeholder dialogues in Ghana and Ethiopia. Initiated in 2019 by IWMI under the USAID-funded Feed the Future Innovation Lab for Small-Scale Irrigation (ILSSI), the dialogues bring together relevant actors to facilitate and accelerate farmerled irrigation development both nationally and globally. Customized solar suitability maps Another insight that emerged was the benefits of customized solar suitability maps for business growth. In 2018, IWMI began mapping solar irrigation

suitability in Ethiopia. These maps pinpointed areas for smallholder farmers to introduce solar irrigation without depleting water resources.

IWMI then refined the mapping framework to produce an online interactive tool for sub-Saharan Africa. Geospatial information on high-potential locations for solar irrigation pumps is now available for the entire region. Most recently, IWMI has been working with solar manufacturing and distribution companies to demonstrate how the maps and tools can be customized and incorporated into companies' sales zoning and marketing strategies.

One of these companies is PEG Africa, which operates in Ghana, Côte d'Ivoire, Mali and Senegal. Using the maps, PEG Africa identified the areas of biggest opportunity for its pumps, based on water resource type and depth, and adapted its marketing strategy to focus on these areas. The maps are also being used in Ethiopia by companies such as Rensys. But during a similar multi-stakeholder meeting organized with the World Bank's 2030 Water Resources Group, stakeholders noted that the limited supply of solar pumps in Ethiopia is holding back market expansion. Price is an issue, too. This is despite the government making agricultural water technologies tax exempt in 2019. It is hoped that the country's soon-to-bepublished National Water Policy and Strategy, which incorporates several IWMI recommendations, will remove many of these bottlenecks.

Making solar technologies inclusive

An area that participants at both events agreed needs extra attention is ensuring solar irrigation technologies are inclusive. Women in particular, are more likely to face difficulties accessing resources such as land, credit and information that would enable them to invest in irrigation.

As a first step to making solar pumps more accessible, IWMI has partnered with farmers and private companies to test innovation bundles that combine pumps with financing models like pay-as-you-own. This model allows farmers to use the irrigation equipment while making regular payments until the total cost of the pump is paid off. Payments may be weekly, monthly, quarterly or scheduled around harvest times when cash flow is highest.

IWMI is currently working with several companies in West and East Africa to refine this payment plan, so that it can be tailored to each client, including women and resource-poor farmers.

Other companies interested in helping to expand small-scale irrigation in Africa and beyond are encouraged to get in touch.

The alternative way of wheat nutrition

After a systematic scientific research conducted by the Agricultural University of Athens, **Humofert SA** is now able to present to you its alternative fertilization proposal for cereals, based on the innovative biotechnology product **NitroStim**. With a single foliar application of **NitroStim** at the growth stage of 10-15 cm, the following results are achieved:

- Reduction of total nitrogen fertilization by 80%
- Yield increase by 20%
- Income increase by 21%
- Reduction of weeds by 67%
- Minimization of the environmental footprint of the crop

Yield increase

The application of **NitroStim** with only 20% of the total nitrogen fertilization significantly increased yield in comparison with the application of 100% of the total nitrogen fertilization without **NitroStim.**

NitroStim

The following results were obtained after a field experiment on durum wheat crop (Triticum durum Desf.) was performed under the supervision of the professors of the Agricultural University of Athens, as part of a research project.

LOCATION

Phthiotis, Greece

CROP Durum wheat (Triticum durum Desf.) **YEAR** 2020-2021

TREATMENTS

Control: application of the recommended dose of total nitrogen fertilization (100% N) with chemical herbicide

Treatment: application of the biostimulant NitroStim at a dose of 5L per hectare, with 20% of the recommended dose of total nitrogen fertilization (20% N) along with chemical herbicide, when the plants were at a height of 15-20 cm

Weed reduction

An important component of the crop's success was also the effective control of weeds due to:

- The fast and continuous growth of the crop, thanks • to NitroStim
- The reduced nitrogen fertilization, which limits the nutrition of weeds

The measurements were taken 4 weeks and 8 weeks after the application of NitroStim. The observed reduction in weeds was initially 62% (4 weeks) and then 67% (8 weeks).

The dramatic increase in crop yield is the result of the action of the beneficial endophytic nitrogen-fixing bacteria contained in NitroStim which:

- Bind atmospheric nitrogen in the plants' leaves and convert it into a readily assimilable form
- Produce intracellularly plant-hormones
- Increase the nutrient intake by the foliage

METHOD OF APPLICATION

Growth stage 10-20 cm.

5 L per hectare

The increased crop yield resulted in a 21% increase in revenue.

Reduced use of nitrogen fertilizers not only has economic benefits, but also a positive effect on the environment. With the application of **NitroStim**, the leaching of nitrates was reduced by 48%, thus protecting the soil and groundwater.

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Use NitroStim to:

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- Limit the use of nitrogen fertilizers
- Reduce weeds
- Help reduce the pollution of the environment by nitrates from the application of chemical fertilizers

Mastercard shares tomato seeds with Nigerian farmers

Value Seeds Limited, an indigenous crop seed production, solution, and development company, in collaboration with the Mastercard Foundation, is set to empower about 10,000 smallholder farmers in Nigeria with the distribution of farm supplements.

The collaboration targets that 70 percent of the participants would be women to be selected from 22 local governments in five states, including Kaduna, Kano, Niger, Benue, and Katsina.

The agricultural supplements to be distributed include fertilizers, herbicides, insecticides, agrochemicals, Knapsack sprayers, and sachet tomato seeds. In addition to the provision of farm inputs for maize and rice seedlings, the program will also promote financial inclusion, support the improvement of yield, provide access to best agronomical practices, and create linkages to premium markets.

In 2021, according to the organizations, 4,000 women and youth will be provided with farm inputs and training for agronomical practices, especially in maize and rice farming, and an additional 6,000 women and youth will be empowered in 2022.

Between May – July 2021, Value Seeds was able to complete the first and second distribution of inputs to participants. A participant, Mrs. Amina Marcus, noted that the interventions provided by the company through the provision of quality farm inputs and training have contributed to improving both her farm yield and financial standing. She stated, "Before 2020, we had challenges accessing quality inputs, especially fertilizers and high-yielding seeds."

Managing Director, Value Seeds Limited, Mr. George Zangir, said it is encouraging to see a large number of Nigerian youth and women participating in the program, given how far-reaching the impact will be on the economy.

Zangir stated: "It is good to know that women in these locations are showing great interest in agriculture and especially farming. They are now fully involved in the entire agricultural value chain, which will directly impact our economy. As they say, when you empower a woman, you empower a nation."

Kalro banks on quality seeds to boost potato yield

The Kenya Agricultural and Livestock Research Organisation (Kalro) is banking on a high quality potato seed production and distribution deal with Syngenta Foundation to increase production five times to 10 million tonnes annually.

The deal involves increasing high quality certified potato seed availability to farmers by 25 percent through rapid multiplication, increased field seed bulking, and capacity building of commercial seed growers.

The key target is to increase local potato sales at high-end chain restaurants in Kenya, which have for years relied on imports to meet their needs as the locally produced ones do not have the required standards.

"Potato is a major crop in Kenya but it doesn't get the attention that it requires because farmers are still lacking access to certified seeds," said Tony Gathungu, global seed head at Syngenta. Head of crops at Kalro, Lusike Wasilwa said farmers should start planting certified seed that is clean, to stop multiplying of diseases and pests on the fields.

"When farmers grow clean seeds, it stops the multiplication of pathogen on the farms," said Dr Lusike.

The partnership is seeking to help local farmers produce high end potatoes to enable them access the local markets, especially the franchises which are very keen on quality.

This will be achieved through capacitating seed companies to breed and distribute high quality potato tubers.

Through a deal with Syngenta Foundation, they will distribute 240,000 high yielding potato tubers to small scale farmers in potato growing areas with the target of growing production from the current two million tonnes to 10 million tonnes. According to the breeders, the hybrid variety has a potential to produce up to 180 bags of 50 kg peracre as compared to the traditional variety that produces an average of 40 bags. The initiative also targets to increase potato consumption due to its high nutritional value.

Fast food franchises operating in Kenya have been slapped with a 30 percent duty on imports of potatoes used to make French fries, a move that will significantly raise the cost of the end product.

Major fast food joints rely on imports from as far as Egypt and South Africa for the potatoes they use as most that are grown locally do not meet required standards.

In June, Treasury Cabinet Secretary Ukur Yatani introduced the duty that will apply to crop coming outside the East African Community, arguing that it's meant to safeguard farmers.

6.6% agricultural budget inadequate for food security in Kogi – NGOs lament

The Participation Initiative For Behavioural Change in Development, PIBCID, and Actionaid Nigeria through Scaling up Public Investment Agriculture, (SUPIA) have lamented the poor budgetary allocation for agriculture in Kogi State.

The non governmental organizations, who made their position known on Tuesday in Lokoja at a one-day state level stakeholder consultative meeting on 2022 Kogi Stats agricultural budget, said the 6.6% for agriculture is grossly inadequate and contradicts the 10 percent Maputo declaration of 2003.

Speaking at the event, the Executive Director, Participation Initiative for Behavior Change in Development, (PIBCID), Halima Sadiq, said the aim of the stakeholder consultative meeting was to leverage on the Nigeria Agricultural Policy and it's connection to the Comprehensive Africa Agricultural Development Program (CAADP) targets. According to her, the programme is also aimed at strengthening citizens' participation towards making the 2022 agricultural budget responsive toward food security and wealth creation.

Explaining further, Sadiq noted that without solving food farm security issues, the country cannot solve the national security issues.

"With rising hunger and social insecurity, peace continues to be threatened. Farms are getting abandoned due to social security threats and natural disasters. Making farms safe and funding agricultural mechanization will create not only more for but also jobs to engage restless youths that have turned to crime for a living," she stressed.

In his presentation on critical look at the 2021 agricultural budget and way forward on 2022 agriculture budget, Mr. Idris Ozovehe Muraina, member Scaling Up Public Investment Agriculture, SUPIA, said the latest UN World Food Programmes estimates 957 million people across 93 countries of the world do not have enough to eat.

Continuing, Muraina explained that, "Nigeria and Kogi State are not exempted from this. A total of 239 million people are in dare need of life-saving humanitarian action and protection this year alone.

"COVID-19 has struck at a time when hunger of undernourishment keeps rising.

"Most low income, resource constrained economies would be most hit with the food crisis and Food insecurity. Nigeria with over 190 million people and over 100. million living in poverty, will have to increase its resources to the Agriculture sector to combat the impending disaster.

"Over the years, Kogi State has been under budgeting for the sector. This is despite its huge advantage in terms of its large population of over four million and a 70% farming sub group, coupled with its location at the confluence of the Rivers Niger and Benue. This makes its soil

Ghana to soon have fertiliser manufacturing plant to produce fertilisers locally

Ghana will soon have a fertiliser manufacturing plant to produce fertilisers locally, to meet the rising demand of farmers, Head of Results Delivery at the Office of the President, Nana Serwaa Amoako has said.

According to her, discussions are ongoing to establish the plant to support the National Fertiliser Subsidy Programme as well as reduce the shortage of fertilisers on the market.

Speaking at the launch of the Visualising Insights on Fertiliser for African Agriculture Ghanaian Dashboard, she stated that the looming fertiliser shortage is a global issue which government will address with both short and longterm plans.

"There are both short-term and long-term plans that the government is putting in place to address fertiliser shortage. Shortterm plans would be how we can still collaborate with international stakeholders to make fertilisers available. The Minister for Agriculture and his team are working on that."

"For the long-term plans, that's where the Ghana Fertiliser Expansion Programme comes in. A team was set up in 2018 and has been working tirelessly to develop feasibility studies to develop a fertiliser manufacturing plant using our local natural gas. This plant will also be part of the newly created petroleum hub," she said.

Meanwhile, Director of Crop Services at the Ministry of Food and Agriculture, Seth Osei- Akoto says the ministry is setting up a team to educate farmers on the use of organic fertilisers.

According to him, this will be a great alternative to sustain production whenever there's shortage in fertilisers.

"Alternatively, we also have organic fertilisers. We have different forms of organic fertilisers and some of these organic fertilisers are manufactured locally."

"We also recognise that there is a challenge with the use of organic fertilisers. That is why as a ministry, we need to come out with a programme as an alternative in case inorganic fertilisers become challenging that suppliers cannot afford to distribute the quantity needed, we'll fall on organic fertilisers," he said.

The Visualising Insights on Fertiliser for African Agriculture Dashboard is a website designed to address the use of fertilizer data in Ghana, Nigeria and Kenya.

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