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## John deere 5 series utility tractors receive updates for model year 2023 Pg.6

The John Deere 5 Series utility tractors are getting updates for model year 2023 with more configuration options, including more horsepower and a premium cab.

"Across the entire 5 Series lineup, customers now have more choices to find a tractor that meets their needs and budget, and to customize configurations to match the jobs they need to finish," says Greg Christensen, marketing manager for John Deere.



## July-September 2022

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## **Design and layout**





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## **From the Editor**

feel farmers are helping them build the future they want?

philosophic and vague. It

Magazine, our goal is for every page to be real, to talk about smart decisionmaking, and to have a

So what's the "use" of talking about farmers as heroes?

to learn from the science

generations, farmers have supported their neighbours and, to varying extents, their communities. It's deep in the roots of farming, and it's still there today, often in an expanded way due to the new era of larger, more sophisticated farms.

to the prospect of working on organic farming issues and related food chains,

problems. But: where to publish? While there are no longer major hurdles to publishing papers on organic farming in established scientific journals, it remains difficult to publish results based on novel methodologies and ideas, or on innovative and holistic approaches chain as a whole (inter-, intra- and transdisciplinary research).

expanding, many researchers are attracted to the prospect of working on organic farming issues and related food chains, which could help solve future food production problems. But: where to publish? While there are no longer major hurdles to publishing papers on organic farming in established scientific established scientific journals, it remains difficult to publish results based on novel methodologies and ideas, or on innovative and holistic approaches to exploring the food chain as a whole (inter-, intra- and transdisciplinary research.

Readers, welcome to yet another edition of African

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# Krone and LEMKEN present autonomous system



Combined Powers is the name of a joined Krone / LEMKEN project and design concept – the autonomous 'process unit' that consists of a drive unit and various implements. After passing trials in cultivating, ploughing, sowing, mowing, tedding and raking last year, innovative concept will be integrated in the well-proven forage harvesting and tillage systems of the two companies.

Using a diesel-electric drive that generates up to 170kW (230hp), the drive unit is designed to meet the power input requirements of the implements used in the processes above. The drive power is transferred electrically to the wheels and the pto and from there to the implement which couples to a three-point linkage. The drive unit boasts multiple and extensive sensor systems which monitor the immediate surroundings and the implement attached, ensuring safe operation and optimum results as the primary objectives. Operators control and monitor the combination from a mobile device, transmitting jobs and job reports via a communication module and the agrirouter, the established data exchange hub.

The speciality of the process unit is that it is controlled by the implement and not vice versa. This detail was considered imperative for achieving optimum results. The implement and the drive unit act as one integrated smart system. Based on the long experience in the application of ISOBUS and TIM on Krone and LEMKEN machines, the drive unit and implement communicate and interact, sharing literally all types of data.

#### **Advantages**

The Combined Powers design concept also brings further benefits, because it was also developed to counter the increasing shortage of skilled labour in agriculture. Also, it will free farmers from spending those long days in the field. Instead, they will become system operators who merely monitor the process unit which delivers a consistently accurate quality of work. Thanks to its enormous versatility, the unit is designed for year-round work and a long service life. Intensive trialling in all types of conditions and seeking feedback from farmers and contractors will continue this vear.

Further information is available at <u>www.combined-powers.com</u>

# Eicher launches Prima G3 premium range

<u>Eicher Tractors</u>, from the house of <u>TAFE</u> (Tractors and Farm Equipment Limited), launches the Eicher Prima G3 Series, an all-new range of premium tractors for the new-age Indian farmer who demands style, substance and solidity. The Eicher Prima G3 is a new series of tractors in the 40 – 60 hp range, that offers premium styling, new technology and better comfort.

Launching the **Eicher Prima G3** series, Mallika Srinivasan, CMD – TAFE said, "The Eicher brand, for decades, has been well-known for its trust, reliability, ruggedness and versatility in both the agriculture and commercial space. The launch of the Prima G3, brings to the progressive farmers of a modern India, more productivity, comfort and ease to match their new aspirations, and offers a value proposition that Eicher has always promised ."

The new Prima G3 boasts a new age design with its distinct aerodynamic hood, that makes a style statement and offers easy access to the engine with its one-touch front-open, single piece bonnet. The bold grille with high intensity 3D cooling technology and wrap-around headlamps and Digi NXT Dashboard are a perfect fusion of bold and elegant looks, which provide higher cross air flow and long hours of continuous operation. The youthful sporty steering wheel with a spinner knob offers effortless control.

Dr. Lakshmi Venu, DMD, TAFE Motors and Tractors Limited (TMTL) said, "Young and progressive farmers of India are seeking to maximise returns from farming operations while focusing on technology and agri-tech solutions, and the Prima G3 would be the ideal partner in creating an ecosystem that will revolutionize agriculture".

Engineered with customercentric technology, the Eicher Prima G3 range comes the High Torque – Fuel Saver (HT-FS) liquid cooled engine, that provides greater efficiency for higher productivity and more fuel savings. The CombiTorq Transmission offers perfect



pairing of the engine and the transaxle to deliver maximum power, torque and productivity. The new multispeed PTO provides 4 different PTO modes, making the Prima G3 compatible with multiple agricultural and commercial applications.

Sandeep Sinha, CEO – TAFE said, "We are delighted to launch the new Prima G3 series with a world-class styling and international technology, that offers premium automotive excellence in style, fit and finish, and robust build quality. The Prima G3 is equipped with ergonomic operator stations, new steering controls for a comfortable, safe and long hours of productive use. We will ensure that our customers have easy access to the new series."

The all-new tractor redefines operator comfort. With its ergonomically designed elevated Comfy Luxe seating, the tractor provides clear allaround view for confident manoeuvring of the tractor while its spacious platform represents a comfortable operating environment. In addition to comfort, the Prima G3 is designed for safety, be it day or night. The unique 'Lead Me Home' feature provides an illuminated path at night, ensuring safety and convenience.



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# How lack of proper know-how affects poultry keepers in Tanzania



There are factors that make poultry farmers fail to realise good results in their business even as many more keep joining.

According to poultry farmer Sarah Kulanga, who lives in Mbezi Ward on the outskirts of Dar es Salaam, one of the factors is that some poultry farmers lack know-how of poultry farming, resulting in their failure in properly feeding the chickens as well as failing to administer proper vaccination. Due to that, Kulanga and fellow poultry farmer Lusekelo Mwasota of Mbeya Region have advised the government to see how it could find a solution to the problem for the sake of the development of the poultry sector and how it could support the poultry farmers to reduce the rate of losses they get.

Kulanga says in 2018 she received training on modern poultry management from Silverlands Tanzania Company that provided her with 500 chicks and 10 bags of poultry feeds on loan. "I received that training at their college in Iringa Region and thereafter I started undertaking poultry farming after getting a capital of Sh375,000, whereby I got 500 chicks and 10 bags of poultry feeds," she says. She adds: "The training that I have received has enabled me to get profits and how modernly I could run poultry farming."

She says she can earn Sh1.5 million as a profit per month because she rears her chicken by following the instructions of poultry experts.



## Agric Ministry directs MMDAs to enforce temporary ban on export of grains



The Agriculture Ministry has directed Metropolitan, Municipal and District Assemblies (MMDAs) to strictly enforce a temporary ban on the export of grains including soya beans, maize and rice.

This forms part of measures put in place to ensure food security and increase local poultry and livestock production.

The government last year restricted the export of grains from the country to save the poultry industry.

In an interview with JoyNews, the Public Relations Officer (PRO) for

the Ministry, Tanko Bagbara, said this approach is aimed at addressing the illegal flight of grains through the country's borders.

"Basically, you know last year we had some challenges in terms of feed for livestock – maize and soya were problems, they nearly collapsed the poultry industry. As a result of that, coupled with global issues in terms of food security, we thought it wise that we need to protect our own, what we've been able to produce.

"Information gathered and on the ground reveal that our

neighbours, Burkina Faso, Togo are in our farming communities buying the grains and taking them out. That has necessitated for us to write to the President.

"He has given an Executive approval; in fact, it's a temporal measure to check the export of our products to ensure our food security," he said.

Owing to that, Mr Bagbara says the Chief Director of the Ministry has written to the Assemblies to urgently institute adequate measures for the effective implementation of the policy.



## Veterinary experts inspect poultry farms infected by bird flu in Akatsi South

Poultry farms in the Akatsi South Municipality which were infected by bird flu, have been inspected by officials from the Diseases Surveillance Unit of the Veterinary Services from Accra and Ho.

The move was as a result of reported cases of Avian Influenza, also known as 'Bird Flu' in Akatsi in recent months.

Mr Charles Grunitzky, the Akatsi South Municipal Director of the Department of Agriculture, told the Ghana News Agency (GNA) that their outfit, in a joint exercise with the veterinary services department, would use five days to visit infected farms to trace the source of infection, detect how it was being spread, and advice on measures to put in place to stop the spread from farm to farm.

He said the Agriculture Department needed to be consulted by farmers when starting up any farming venture for advice, "most importantly when setting up poultry or livestock farms."

Mr Grunitzky further said the decision would go a long way in improving the protection of the life of birds also known as 'biosecurity' in their farms.

He said the exercise involved everything a farmer would need to do to prevent the disease from entering their farm as well as diseases leaving the farm to other farms.

The team would be expected to come out with reports and measures to be put in place to prevent any further outbreak.

Among the team was Dr Saviour Genueme, Akatsi South Municipal Director of Veterinary Services.



# Northern Regional poultry industries are folding up



Some of the poultry industry in the Northern region is closing down due to the high cost of production.

Mr George Dassah, the Chairman for Northern Regional Poultry Farmers Association disclosed that cost of poultry feed, especially maize and soybeans price keep on increasing which has affected large quantities of production in the Northern region. He disclosed this in an interview with Ghana News Agency in Tamale.

He complained that the increment of transportation is also one of the challenges facing the industry.

He also indicated that the high cost of borrowing from the banks had put the industry under serious threat to the poultry industry. He pleaded with the government to partner with the banks to reduce the high interest of borrowing to enhance the poultry farm industry.

Mr Dassah urged the government to increase targeted sector adoption of quality standards, strengthening business planning and market penetration to strategies and reinforcing buyer supplier linkages



## Vaccination failure due to mycotoxins?

<u>Author:</u> Dr. Marlene Luttmann, MIAVIT GmbH

Bacterial resistance to antibiotics has increased so strongly that measures to combat the phenomenon have become urgently necessary. One effective option is to use vaccines for our farm animals. But why do breakthrough cases occur again and again in this context?

If typical disease symptoms occur in a livestock population despite vaccination, everyone initially thinks of a vaccination failure. It is possible that the virus has mutated so much that the vaccine previously used is no longer effective. It is also conceivable that the vaccine was stored in too warm conditions, too low a dose was administered or the chosen vaccination intervals were too long. However, very few suspect that mycotoxins in the feed could be the reason for the problems. Yet these can permanently damage the function of the immune system, which has a strong influence on the formation of antibodies.

Agricultural production today involves high-performance animals that are required to grow and produce as quickly and as much as possible. The partially sterile environment delays the development of their immune system. Furthermore, young animals are more sensitive to changes in their environment. Even low mycotoxin concentrations can lead to changes in the intestinal flora. Mycotoxins such as deoxynivalenol (DON) particularly affect the health of the gastro-intestinal tract. Even a low concentration quickly leads to an inflammatory reaction in the mucosa. This inflammation increases leaky gut syndrome, thus facilitating the penetration of pathogens and their toxins, e.g. endotoxins, into the bloodstream. The preceding damage to the intestinal barrier caused by the mycotoxins then makes it easier for the



endotoxins to infiltrate into the blood circulation. The result is fever, pain, increased heart rate, blood clots in the capillaries and weakening of the immune system.

In addition, the mycotoxin DON reduces the intestinal absorption of nutrients. Blocking important nutrient transporter causes easily digestible nutrients to remain in the intestine. This can lead to an imbalance in the microflora composition which, in turn, weakens the immune system and intestinal health.

Put simply, the immune system is permanently damaged and overloaded by exposure to mycotoxins (especially DON), reducing the desired antibody formation after a vaccination. The vaccination protection is incomplete and breakthrough cases occur.

To lower production costs, the gastrointestinal tract and immune system should be considered holistically during each stage of the animal's life, and supported prophylactically in a variety of ways. Therefore, feed should be analysed for mycotoxin content, and preventive protective products should be used accordingly. But the fact has to be taken into account that additives are not medicines; accordingly, they should be considered as preventative support and not as a substance for treating sick animals.. It should be noted at this juncture that, according to scientific studies, clay mineral and yeast cell wall binders have not been positively proven effective in animals against trichothecenes such as DON. However, in the case of mycotoxin binders, attention should be paid to their quality and independently scientifically proven effectiveness. Generally, the routine use of EU-authorised mycotoxin-deactivating products such as MiaBond 360 is recommended to avoid vaccination breakthrough, prevent subclinical stress, support full nutrient uptake, and prevent an imbalance in the composition of the microbiota.





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## How to produce safe chicken meat, eggs

The current indiscriminate use of antibiotics in poultry production systems raises safety concerns. To avoid this, farmers need to apply good agricultural practices that include deployment of bio-security measures and use of recommended vaccines. Here is how to do it

Across the world, poultry meat and eggs are some of the most popular livestock products.

Poultry meat consumption rose significantly from 34.6 million metric tonnes (MT) in 1990 to 130 MT in 2020, according to the Food and Agriculture Organisation (FAO). In 2022, consumption of chicken meat, the most popular poultry product, is expected to hit 98 million MT, double the volumes eaten in 1999, the Organisation for Economic Cooperation and Development notes in its latest report. And in less than a decade, adds the organisation, chicken will become the most consumed source of animal protein.

Affordability, worldwide production, low fat content and few religious and cultural barriers are some of the things that contribute to the high preference for poultry products.

Safety concerns However, the current indiscriminate use of antimicrobials in the poultry production systems raises safety concerns to animals, humans and the environment.

The main one is anti-microbial resistance (AMR). To overcome this challenge that has the potential to wipe out gains made in the poultry trade, farmers should familiarise themselves with the dangers of arbitrary application of antimicrobials.

Also, they need to know and apply good agricultural practices (GAPs) that will curb use of antimicrobials. These include deployment of biosecurity measures and use of vaccines. Others are control of external and internal parasites, proper housing and feeding and environmental hygiene. Regulations should also be put in place to curb use antibiotics as preventive drugs, growth promoters and egg production enhancers.

#### Antimicrobial resistance (AMR)

AMR occurs when microbes/ germs such as bacteria, viruses, fungi and parasites change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death. The main drivers of AMR are misuse and overuse of antimicrobials.

Further, lack of clean water, proper sanitation and inadequate disease control promote spread of drug resistant disease-causing pathogens, which are currently referred to as superbugs. AMR is a global health and development concern and the World Health Organization (WHO) has declared that it is one of the top 10 global public health threats facing humanity. Misuse and overuse of antimicrobials in chicken production is common among poultry farmers. In a study carried out recently researchers from FAO, Kenya's Ministry of Agriculture and College of Sciences in Makerere, Uganda, investigated the challenges of small-scale layer farms. They found out that 62 percent of

farmers were constantly using antimicrobials, some of which were referred to as magic drugs. These included tetracycline and tylosin. Misuse of antibiotics was done through treatment of all birds when only one of them in a flock was ill and use of the drugs to prevent diseases. The study further showed that only 47.5 percent of farmers had heard about withdrawal period, which implies that they continued selling and consuming meat and eggs that had traces of the drugs used to treat the birds. Further, it was found that the farmers were using antibiotics as growth promoters and egg boosters. This implies that the antibiotics were being used throughout the lifecycle of a bird. Here is how to avoid misuse of antiobiotics.

#### **Biosecurity**

These include putting foot and or vehicle baths at the entry of the farm or from one poultry house to another to control spread of diseases from farm to farm, unit to unit. A footbath is a shallow trough that has a disinfectant that kills most germs on the feet and wheel of vehicles passing through it. This important disease control measure is rarely utilised. Researchers found out that only 51 percent of the respondents had footbaths at the entrance of their layer houses.

Out of those who had indicated that they had footbaths, 51 percent described theirs as sponges/mats soaked in plain water (without soap or disinfectant), 33 percent had mats soaked in disinfectant, 13.4 percent had concrete troughs with plain water and 2.6 percent had added disinfectant to the concrete troughs. For this important tool to control diseases perfectly, it must have a broad-spectrum disinfectant that should be of the correct strength as indicated by the manufacturer's label.

The chemical should also be changed regularly as it undergoes bio-degradation with time thus becoming ineffective. If possible, install troughs in a series so that the initial ones contain only clean water for removing dirt and the one next to the door has the disinfectant. You see, dirt dilutes the strength of the disinfectant. Ensure that the trough or container is protected from environmental effects such as rainwater that is likely to dilute the disinfectant and direct



sunlight, which evaporates the water necessitating frequent addition.

Other biosecurity measures include installing a perimeter fence on the poultry farm or house and use of personal protective equipment (PPE), regular cleaning and disinfection of feed and water equipment as well as regulating human traffic to the poultry establishments.

Vaccines Vaccines have been able to transform traditional poultry keeping into thriving enterprises, attracting people of all ages through the income offered by the agribusiness. However, disease outbreaks continue to be experienced among vaccinated and unvaccinated birds despite the high effectiveness of vaccines. This leads to use of antimicrobials to control the diseases thus leading to AMR.

#### Dos

Cold storage: Always use cool boxes/ice packs to transport vaccines that require low temperatures.

High percent coverage: Ensure that you administer a vaccine to all birds in a flock using an appropriate route. For example, whereas it is easy to administer Newcastle Disease (NCD) vaccine through drinking water to layers and broilers because they consume dry feeds and thus take a lot of water, it is advisable to administer NCD vaccine though the eye or nose route to free-range or unconfined birds as they might not consume water within the stipulated time. Constitute the vaccine with the recommended amount of water so that the birds finish it in one hour. Thereafter, you can add more water. Water with reconstituted vaccine should be placed in a cool environment as high temperatures inactivate the drug.

Hygiene: The vaccine handler should ensure that his hands are clean and any equipment or tool used for vaccine administration is also clean. Administer vaccines early in the morning or late afternoon to minimise handling and weather stress. For injectable vaccines, use sterile non-expired vaccine diluents issued by the manufacturer of the drug. Mature and trained personnel should do the vaccine administration. For vaccines that are administered through drinking water, withdraw water for not more than one hour before provision of the vaccine water so that birds get thirsty. Have an assistant to restrain the birds when administering vaccines that are not applied through drinking water. Vaccination schedule: Diseases

commonly controlled through vaccines are NCD, infectious bursal disease (Gumboro), infectious bronchitis (IB), fowl typhoid and fowl pox. Commercial producers are normally issued with a vaccination schedule upon purchase of chicks, thus, all you need to do is follow the schedule judiciously for effective vaccinatíon.

For producers of local/improved indigenous chickens, a likely vaccination schedule includes administration of Gumboro at Day 10 and a booster at Day 18; NCD and fowl pox at three weeks and fowl typhoid at eight weeks.

Key facts In 2022, consumption of chicken meat, the most popular poultry product, is expected to hit 98 million MT, double the volumes eaten in 1999, the Organisation for Economic Cooperation and Development notes in its latest report. And in less than a decade, adds the organisation, chicken will become the most consumed source of animal protein.



## Nigeria: CBN Moves to Support Livestock Farmers in Kano

The Central Bank of Nigeria (CBN) yesterday pledged to extend a window of intervention to dairy and livestock manufacturers as part of federal government policy of diversifying the nation's economy.

The Controller of CBN Kano branch, Babangida Jino, gave the commitment at the 2022 World Milk Day celebration at Imawa village in Kura Local Government Area of Kano State.

He was represented by Manager, Development Finance Department, Aminu Garba Idris, who reminded that CBN is widening the opportunity to several sectors to drive economic viability of the country.

Jino reminded the CBN's multibillion financial facility including Anchor Borrower programme tasked the dairy and livestock union to avail themselves with various facilities at CBN to boost dairy production in Kano. Also speaking on the occasion, Kano State Chairman of Dairy Union, Usman Aminu Usman, who worried that over 55 percent of daily production end up useless by fermentation, appealed for government's intervention.

Usman noted that 12,400 members spread across 74 registered pastoral clusters communities in the state, struggling to survive with five dairy collection centres.

He disclosed that challenge of inadequate cold chain system had continue to affect the dairy production.

"From our statistics, an estimated 10,000 liters of milk are being collected daily in Kano, although some are still collected locally without being captured in our data. But the available facilities can only retain 4,000 liters daily storage," he said. He also lamented the increasing economic loss of produce due to inadequate cold chain system for dairy preservation.

In his keynote, Regional Manager, Outspan Nigeria Limited, Mr. Manish Khede, declared that Outspan, a subsidiary of Olam Farm, organised the event to support dairy farmers and children in recognition of the importance of milk to human beings.

Khede revealed that Outspan has continued to demonstrate its commitment to driving real growth in the local dairy sector through the implementation of several initiatives under its "Milk Mission" programme.

Highlights of the event organised by Outspan include distribution of instructional materials and dairy products to 60 pupils drawn from public primary schools in the community.

## High cost of feeds pushes farmers out of business as milk, meat prices soar

High cost of animal feeds has forced many farmers to scale down livestock-related businesses due to lower productivity which has subsequently resulted in the high cost of eggs, meat, and milk across the country.

cost of eggs, meat, and milk across the country. The Association of Kenya Feed Manufacturers (AKEFEMA) during a media briefing, said that this in addition to the drought situation and shortage of fodder has even forced many other Kenyans engaged in poultry farming, feed millers, and dairy cattle to completely shut down businesses thus rendering many Kenyans jobless.

The lobby group largely blamed the high cost of feeds on the Government's failure to allow free importation of soya bean meal and yellow maize from regional markets, the two key raw materials required for the manufacturing of animal feeds.

"The government should allow sourcing of soya bean meal and yellow maize from both GMO and non – GMO sources on a continuous basis, the ban on GMO foods importation continues to cripple the country's ability to respond promptly to food and feed crises, despite the availability of overwhelming scientific evidence that GMOs are safe for human and animal consumption," Martin Kinoti, KEFNET's Secretary-General said.

The Government had published a Gazette Notice waiving import duty for registered feed milling companies to import raw materials for exclusive use by feed manufacturers. But the lobby decries that the requirement for imported materials to be purely non – GMO disadvantages them from the global market which mainly composes raw materials that are 99.1 percent

"This complicated the ability of the gazetted millers to source the raw materials in the global market," he said.

The group also wants the importation period extended to three years," taking into account that the supply and demand disruptions caused by the war in Ukraine, which together with Russia contributes nearly 30 percent of grain traded globally, are likely to last much longer."



## How much offshore is enough?

While investing is certainly rewarding it can be complex. You will have questions along the way and Old Mutual Wealth is here to help you find the answers. As we partner with you on your investment journey, we've asked ourselves some hard questions. So that you don't have to.

The recent change in regulations on retirement funds allowing up to 45% direct global exposure, from 30% previously, raises the question: **should you take more offshore and if so, how much?** 

Even before this regulatory change, our modelling suggested that, on a long-term view, a balanced fund should have around 40% global exposure. This change will therefore allow investors to get closer to an optimal allocation. However, the optimal allocation really depends on the individual's goals, risk appetite and total portfolio and where the valuation opportunities are.

## WHAT ARE THE KEY REASONS FOR INVESTING OFFSHORE?

#### Diversification

Although offshore investing is a key financial planning requirement for all investors seeking to protect and grow their wealth, it is estimated that between 65% and 80% of South African investors' total wealth is exposed directly to the local economy. This means that the majority of South African investors are not sufficiently diversified. They are overexposed to the domestic market, largely because it is what they know best.

#### Opportunity

A typical South African investor will have a pension fund with their employer, probably own a property and their primary source of income will most likely be derived from the local economy. From a pure diversification point of view, it therefore makes sense to have decent offshore exposure, especially in discretionary portfolios where there are no regulatory limits.

Offshore markets offer more depth relative to local markets, which allows investors to better diversify risk and access more



investment opportunities for growth. There is also substantial global exposure on the JSE, with more than half of revenues of JSE-listed companies generated outside South Africa.

## IS THERE AN OPTIMAL TIME TO INVEST OFFSHORE?

Our currency also plays a big role. Investors who draw an income from their portfolio are potentially most exposed to currency volatility. South African interest rates are consistently higher than in the US or Europe. Even when currency movements are considered, it makes sense to rely on local incomeproducing assets while getting global exposure in the long-term growth portion of a portfolio.

Finally, it doesn't make much sense to sell cheap domestic investments to buy relatively expensive offshore assets, or vice versa. Currently, the former is the case with local bonds, equities, and property cheaper than counterparts in developed countries. Therefore, current market conditions do not necessarily call for moving to the full 45% direct offshore exposure. We believe that offshore investing is a key financial planning requirement for all investors seeking to protect and grow their wealth. Our locallybased offshore specialists can provide you with access to a wide range of international assets and investment funds from some of the biggest and most reputable portfolio managers in the world.

For answers to more hard questions, <u>click here.</u>

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WEALTH

## **ROLAND GRABE** – HEAD OF OLD MUTUAL WEALTH TAILOR FUND PORTFOLIOS

## HARD QUESTIONS

## We ask ourselves about managing your investments, so you don't have to.

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Old Mutual Wealth is an elite service offering brought to you by several licensed FSPs in the Old Mutual Group.

#### Livestock

## How climate risk insurance can step up livestock rearing



Recent report by the Intergovernmental <u>Panel on</u> <u>Climate Change</u> (IPCC) predicts an apocalyptic future by the end of this century if current indiscriminate production of global greenhouse gas emissions continues.

The report also indicates that despite contributing the least amount of greenhouse gas emissions, Africa will be the most exposed to climate change impact. Highly populated cities like Lagos, Nigeria will be more vulnerable to heat stress, possibly exposing 350 million people to potentially deadly heat by the middle of the century.

In Kenya, for example, it has become commonplace for pastoralist communities in arid and semi-arid regions to face starvation and even death due to severe and increasingly frequent droughts.

In some areas in Nyanza and Western such as Budalang'i and Kano Plains, communities' livelihoods are similarly threatened by floods, whose increasing frequency has been triggered by climate change.

While global economies and initiatives are committed

towards mitigating the current and emerging climate change impact by limiting humaninduced global warming from CO2 (Carbon Dioxide) and other greenhouse gas emissions, the magnitude of climate related disasters require an all-hands-ondeck approach to be able to cope with and manage climate risks. This calls for a coordinated response from the finance and insurance industry in building resilience.

Encouragingly, the industry has been alert to these new potential risks and is already experimenting with new innovative products in readiness for a world that must contend with a changing climate. For example, in Northern Kenya, an Index-based Livestock Insurance (IBLI) pilot is currently underway where pastoralist communities now insure their animals against risks posed by drought. Some have been compensated following several bouts of severe drought that wiped out thousands of animals.

Another insurance product being piloted in various counties is the <u>Crop Index Insurance</u> <u>Programme (CIIP) which</u> combines the implementation of two technological innovations in climate risk insurance: soil moisture index insurance and a picture-based loss verification tool.

Growing demand for IBLI and CIIP shows the finance and insurance sectors have a crucial role to play in enhancing resilience in the largely cropgrowing and pastoralist communities that drive Kenya's agriculture, which is the backbone of the economy.

While various measures are being implemented, recourse to compensation when climaterelated disaster strikes is still underdeveloped locally as compared to developed nations where properties destroyed as a result of natural disasters such as wildfires and floods is catered for via compensation. The local insurance industry can therefore not be left behind. It must introduce responsive products.

The products should also be categorised at individual, community or cooperative levels. These can be structured in such as that those purchasing the products enjoy post-disaster financial support. At the national level, compensation would be through a multinational risk pool.

## EFFECTIVE NUTRITIONAL AND MEDICINAL SOLUTIONS FOR SUSTAINABLE PRODUCTION AND ANIMAL WELL-BEING.



#### Livestock

# Research finds health hazards of livestock production



Research findings released today by World Animal Protection has laid bare the most damaging human health impacts linked to industrial livestock production systems.

The hazards include emergence of Antimicrobial Resistance (AMR), increased zoonotic pathogens and rising human illnesses from consumption of livestock derived foods containing food safety hazards in Africa.

The report, The Hidden Health Impacts of Industrial Livestock Systems, exposes how governments around the world are turning a blind eye to the public health toll of factory farming as well as the suffering of billions of farmed animals. The report builds on the concept of five pathways "through which food systems negatively affect our health" as outlined by the World Health Organization (WHO) in their 2021 report Food Systems Delivering Better Health.

It further shows how these negative health impacts will only

get worse as the demand for meat continues to grow. For instance, by 2030, meat consumption is projected to grow by 30% in Africa. This skyrocketing demand has billions of stressed animals mutilated and confined to cramped and barren cages or pens for their whole lives. Over seventy percent of the 80 billion land animals farmed globally are raised and slaughtered within cruel industrial livestock production systems annually.

World Animal Protection details how these negative health impacts are directly linked to industrial livestock production systems, characterized by substandard husbandry practices and poor animal welfare, and has further identified that African Governments are most significantly fueling the emergence of antimicrobial resistance (AMR) and increasing foodborne illnesses.

Dr. Victor Yamo, Farming Campaigns Manager, World Animal Protection said, "The emergence of Antimicrobial Resistance in Africa is driven by weak regulatory capacity of government agencies charged with the responsibility of managing the production, registration, distribution and utilization of these products leading to the rampant misuse of these products. For instance, the law requires that antimicrobial drugs be purchased against a prescription, but our farmers can purchase the same over the counter without a prescription."

He adds that "The situation is further compounded by the inadequate extension personnel on the ground to advice the farming community on innovative and good animal welfare, animal husbandry and animal health practices such as good biosecurity, proper nutrition, housing, stocking densities, hygiene & sanitation and infection, prevention & control (IPC) strategies which would render the need for use of antimicrobial drugs unnecessary."

The report highlights that threequarters of the world's antibiotics are used in farmed animals, either to prevent them getting sick, promote fast growth or treat disease – a practice driving the emergence of superbugs (antimicrobial resistant bacteria), which leaves us less able to fight infections. New research has found that 1.27 million people die each year from superbugs, and it is estimated that by 2050 this will be the leading cause of death globally. On top of this threat, industrial livestock production systems squash animals into tightly packed sheds, risking disease like swine flu or bird flu that can jump to humans.

Animals cruelly packed in such shades are often immensely stressed leaving them prone to infection by bacteria or parasites that can cause foodborne illness in humans, such as Salmonella. An estimated 35% of all foodborne diseases globally are linked to meat, dairy or eggs, which is costing lower income countries billions of dollars annually in lost productivity and medical expenses.

Dr. Lian Thomas, Scientist at the International Livestock Research Institute (ILRI) in Nairobi said: "Industrial livestock farming requires the production of a high density of genetically homogenous animals, which leads to the quick spread of diseases - many of which can directly affect human health. The health of farmed animals and their environment must be a high priority for the public health sector. Sustainable food systems which promote good animal health and welfare, and environmental protection, will directly protect human health."

Systemic shifts are needed to deliver the biggest health gains for our population. Some of those include re-orientating subsidies away from factory farming towards humane and sustainable practices, improving affordability of plant-based foods, and providing transition support for farmers no longer wishing to engage in factory farming.

To make these shifts, World Animal Protection is calling for African governments to impose a moratorium on Industrial livestock production systems, introduce and enforce higher farmed animal welfare standards like the Farm Animals



Responsible Minimum Standards (FARMS)

Jacqueline Mills, Head of Farming, at World Animal Protection, said: "Industrial Livestock Production systems are not only cruel to the animals that they produce but are also making us sick. On the surface, the meat, eggs, fish and dairy products produced by these systems seem cheap, but they are costing us our health and our governments trillions of dollars each year to mop up the damage they cause."

"We need to break the cycle of suffering of the animals in our food system. The food industry needs to embrace a humane and sustainable future where farmed animals are kept in genuinely high welfare systems where they can have good lives. Now is the time for governments to focus on better health outcomes for farmed animals, people and the planet. We need a moratorium on Industrial Livestock Production systems."

African governments should recognize the inter-connectivity between public health and planetary impacts of industrialized farming systems and commit to stopping the support for these systems. The commitment in the form of a moratorium on industrial livestock production systems should be within the National Climate Action Plans (known as Nationally Determined Contributions (NDCs)) in recognition of these systems contribution to climate impacts. As well as this, the African governments must develop and implement national One Health, One Welfare action plans and national Antimicrobial Resistance (AMR) plans that recognize the health impacts of industrialized livestock and restrict its growth.

# Good irrigation decisions help save money



Climate change and environmental degradation are existential threats. That is why the European Union has set "sustainable growth" as one of its objectives. The goal is to obtain a greater agri-food production to meet growing demand with fewer resources and in a more sustainable way.

And how can we contribute to the setting up of intensive crops to obtain large productions without further depleting our resources?

Projar has offered its hydroponic growing solutions, with a range of more than 250 substrates made with different raw materials: coco coir, peat, and wood fiber. "If a good 'fertigation plan' is implemented, the choice of a quality substrate is important to optimize crop yields and production costs, such as the use of fertilizers, irrigation water, etc.," says Vicenta Riera, Crop Marketing Specialist and Agricultural Engineer at Projar.

Projar advises first to define this "plan" and then establish an action protocol for its implementation and follow-up, keeping a daily/weekly control of the various irrigation parameters and applying the necessary adjustments to volumetric allocation or to the frequency and start/end time of irrigation, depending on the conditions and phenological state of the plant.

"We offer an agronomic advisory service to our customers, allowing them to apply our vast knowledge to the management of soilless cultivation. Our more than 40 years of experience in different markets has led us to develop the AGRO+ Projar Support Solutions advisory solution. This new service addresses aspects related to crop planning and monitoring, as the first few weeks are key to the crop's success; therefore, we guide our customers on the best practices for the stabilization of coconut fiber or substrate in hydroponic cultivation" says Vicenta Riera.

To this end, the company has agronomic advisors specializing in different types of crops (horticultural, medical cannabis, berries, ornamental plants...) and with extensive experience in international projects.

This service includes everything from the set-up and installation of the hydroponic system to the provision of technical support in the fertigation plan. A study and proposal for improvement of both the irrigation and fertilization programs are carried out to meet the water and nutritional needs of the plant.

"To become partners and really stand next to our customers on their path to success, we could not limit ourselves to selling crop solutions. We had to share our experience and knowledge with them. In this way, our customers feel accompanied and advised at all times, and this helps them improve and optimize the profitability of their productions," says Vicenta Riera.

"And what better time is there for this than now, when the world is suffering an increase in the costs of raw materials and transport, making all products drastically more expensive, not only for processors but for the agriculture and livestock sectors," she said.

To help optimize hydroponic cultivation, Projar has developed this <u>Technical Guide</u> for irrigation management in periods of low solar radiation that can be downloaded for free.



Temperate climates or tropical zones, small farms or large farms, all farmers are looking for efficient and reliable equipment for their water supply.

ETS20LP

From the generator for the irrigation boom or livestock equipment, to motor-pumps for the XXL pumping station, including the portable emergency unit, the solutions offered by 2 GARENI INDUSTRIE are tailor-made to meet the customers' needs and specific constraints.

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# The smart-irrigation tech companies to watch in 2022

The global-smart irrigation market is expected to grow at a compound annual rate of 15,2% from 2021 to 2030, according to Quince Market Insights. And remarkably, this is off an already a huge base: the market reached an estimated value of US\$1,15 trillion (about R17,5 trillion) in 2021.

In its January 2022 global report, Quince Market Insights explains that the smart-irrigation market is being driven by efforts to promote water conservation; the expansion of smart cities; the demand for efficient irrigation systems; and the falling cost of sensors and controllers.

Smart-irrigation systems are datadriven, and are thus more efficient than conventional irrigation systems; sensors monitor water saturation of the soil and other parameters, and use this information to increase or decrease irrigation. The constant monitoring of soil and crop health also means that crop production can be optimised at lower cost.

According to Quince Market Insights, the leading players in the global smart-irrigation market don't only market their products to farmers. As the demand for water efficiency spreads to urban areas, consumers in non-agricultural industries are also buying these systems.

As such, investment in the industry is expected to increase over the short and medium terms.

#### Here is a list of some of the top global and local industries likely to make a splash in 2022: The Toro Company

The Toro Company (TTC) is a USbased company that specialises in "innovative solutions for the outdoor environment, including turf and landscape maintenance [...] underground utility construction, rental and specialty construction, and irrigation and outdoor lighting solutions", according to the TTC. The company was founded in 1914 in Minnesota, and reported annual sales of US\$3,61 billion (R54,9 billion) in 2021. Approximately 11% of this is attributed to sales in irrigation. TTC operates in 125 countries, but is not present in South Africa at the moment.

TTC specialises in drip tape, sensors and controllers. The company says its innovative technologies allow for a substantial saving of water and energy. Its drip tape, FlowControl, for example, is described as "the latest advancement in precision drip irrigation", and is the only flowregulating drip tape available. "The innovative flow-regulating design provides you with the flexibility to increase or decrease flow while maintaining a uniform output across changing elevations."

#### **Rain Bird**

Rain Bird, founded in 1933, is based in California, US. The company is privately owned and, like TTC, prides itself on offering a range of services to various industries. However, Rain Bird has a particular focus on agriculture, according to the company, and offers the industry's "broadest range of irrigatión products It operates across 130 countries, and is present in South Africa. Rain Bird's horizontal action impact drive sprinkler was the first of its kind, and was named a "historic landmark" in 1990 by the American Society of Agricultural Engineers for its impact on food production. Like other smart-irrigation companies, Rain Bird offers water-efficient solutions to irrigation.

The company's flow-indicating basket filter product line helps farmers install and maintain flow measurement, filtration and integrated pressure regulation. This provides "easy visual monitoring of irrigation system changes over time", according to Rain Bird.

"A dial at the top of the filter cap provides diagnostic information about the zone's operation, saving time and simplifying maintenance.

#### Netafim

Netafim has become a wellknown name in the industry over the past few years, largely due to its continual product development. The company's range covers a wide spectrum of irrigation solutions, including precision agriculture equipment. Netafim was established in 1965, and has its headquarters in Tel Aviv, Israel. Its products are traded in South Africa. Some of its newest technology includes the NetBow, a multi-outlet arcshaped dripper developed to address the needs of high-value, soilless, container-irrigated crops, such as blueberries and cannabis. It's available as a 12cm-diameter model containing four dripper outlets. or a 25cm-diameter model containing eight dripper outlets.

The flow from each outlet is determined by the hub dripper, divided evenly by eight or four, depending on the model. The flow rate of the hub dripper is between 2l/hour to 8l/hour.



"The main advantage of the technology is that it wets the medium uniformly from top to bottom. Roots develop in every square centimetre of the container, including the top layer, allowing crops to reach their full productive potential, says Willem Smit, sales manager for Netafim South Africa's southern region.

He adds that NetBow is easy to install and operate, always in place and can be connected to a variety of dripper lines.

#### HydroPoint Data Systems

Hydropoint Data Systems (HDS) specialises in water-use efficiency. It was founded in 2002 and has its headquarters in California, US. Its product line consists of hardware, including controllers and flow sensors, as well as its data analysis software, which enables farmers to monitor and control irrigation remotely. The software also takes into account information about the weather to make more accurate predictions, according to the company. HDS is not available in South Africa at present.

AGRICO AGRICO, a South African company, produces a range of irrigation equipment and smartirrigation solutions. As it was then known, Paul Andrag and Co imported agricultural machinery into South Africa in 1905. In 1937, Paul Andrag and Co installed

the first irrigation system in South Africa, and also became the country's first John Deere dealer. The company has more than 30 branches across South Africa. AGRICO's product line includes irrigation components and solutions. Its Web Control, for example, provides "simple, effective control" over the irrigation system, the company says.

The service allows farmers to monitor and manage their irrigation systems remotely, via Internet-enabled devices, such as a smartphone, tablet or computer. The advanced RAIN service, used in conjunction with Web Control, allows farmers to remotely control centre pivots.

"RAIN automatically controls your centre pivot irrigation according to pressure and enables you to quickly detect and respond to system issues, says AGRICO.

The Web Control system has GPS functionality, which means that farmers can monitor separate components of their irrigation systems to increase energy and water savings.

"Web Control is able to determine the position of the last tower in a centre pivot and can monitor the pressure at the end of each pivot. You can adjust the strength of the motors and pumps to meet each pivot's exact needs at any moment."

# 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.

- 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 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;
- 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
- eliminating any leakage; and
  4. Ahe pipe sprinkler outlet uses a <sup>3</sup>/<sup>21</sup> 304 stainless steel outlets 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.
- 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 <sup>3</sup>/<sub>4</sub>" 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.



## Smarter management of water can help feed Africa

Stretching through 11 countries, and serving more than 300 million people, the Nile provides freshwater for a range of diverse uses, chief among them is agriculture.

Yet the pressures of climate change and population growth means competition for increasingly strained water resources is intensifying.

With 95% of African agriculture depending on progressively unpredictable rains, the smart and sustainable use of the continent's water resources for irrigation will not only define Africa's future food and nutrition security, but also its adaptation to climate change, and the migration of people – both domestic and international – which is driven by both water and food insecurity.

Therefore, COP27 should ultimately be a water, food, ecosystems and climate COP to fully address the interconnected challenges that come with sustaining a healthy planet with healthy people and economies.

Understanding the complexities of how water resources are used by different actors, at different levels, will be a crucial first step in transforming the agri-food system to sustainably feed Africa's rapidly growing population.

For example, more than 80% of the River Nile's flow originates from rainfall on the Ethiopian highlands, yet the river itself, and the actors who depend on it, stretch far and wide.

Ultimately, different actors with different needs and objectives, sometimes thousands of miles apart, can still come to rely upon the same resource. These can range from farmers and landowners at the local scale, to irrigation system managers, to ministries and governments at the regional and national scale, all of whom depend upon the same resources.

With this in mind, countries need to take steps to better ensure



that water for food production, in particular, does not come at the cost of other needs of households, industries, energy, and other sectors.

Firstly, governments must ensure that they are fine-tuning water management policies according to the full range of needs of different sectors. For instance, a cap on the amount of water that a farmer can extract for irrigation fails to consider that much of this water will ultimately end up back in the environment, due to the low water-use efficiency of irrigation.

Consequently, more effective policies might include caps on water consumption, which more realistically manages water use in agriculture, and ensures farmers are not faced with misdirected guidelines.

Secondly, water agencies, utilities and development organisations must also make full use of breakthrough technologies that can allow them to account more accurately and efficiently for water usage.

For example, we can improve our accounting of the world's water resources, thus assessing whether they are used sustainably, by taking more advantage of high-tech satellite information. IWMI's partnership with Digital Earth Africa, as just one example, provides opensource water data to better manage and account for resources across the African continent.

Finally, as existing water resources come under increasing strain, countries must also ensure that they are sustainably tapping into underexploited resources. For instance, groundwater is not well-managed or utilised in Africa, but by sustainably increasing access and use, countries can both diversify their water sources, and increase their resilience as a result.

The irrigation potential using renewable groundwater in Africa is significant, and more than 40% of the continent's cropland could benefit from the resource sustainably, often together with alternatives like treated wastewater.

More groundwater irrigation could considerably increase food and nutrition security across the continent, while also managing the risks related to increasingly unreliable rainfall due to climate change, and ultimately benefiting hundreds of millions of rural people.

While the importance of water extends to all of us, scientific understanding of these complex interdependencies across scales and the impact of different water-using sectors is surprisingly under-developed and underappreciated.

Just as recognising that what happens upstream has an impact downstream, developing effective policies that account for how different actors manage common water resources can deliver the triple benefits of feeding more sustainably, ensuring sustainable economic growth, and building greater resilience to climate change.

## HORN OF AFRICA: \$385m funding for groundwater development

The Board of Directors of the World Bank Group has approved \$385 million in financing for drought-affected countries in the Horn of Africa. This financing will allow the implementation of a groundwater exploitation project carried out in partnership with the Intergovernmental Authority on Development (IGAD).

Faced with the climate emergency in the Horn of Africa, the World Bank is finally reacting. Its Board of Directors has just validated a financing package of 385 million dollars. Granted through the International Development Association (IDA), the funds will finance the Horn of Africa Groundwater Resilience Project (HoAGWRP).

This regional project aims to strengthen the capacity of the Horn of Africa to adapt to the effects of climate change. Climate change is manifesting itself in prolonged drought that is drying up the already scarce surface water resources in this region known for its arid climate. The HoAGWRP project targets Ethiopia, Somalia and Kenya. The governments of these three countries are expected to work closely with the

Intergovernmental Authority on Development (IGAD), a regional grouping of seven East African countries including Djibouti, Ethiopia, Kenya, Somalia, Sudan, South Sudan and Uganda.

Improving water supply

With funding from the World Bank, the governments of the countries concerned and Igad will use solar energy to set up small- and medium-scale facilities to provide water to drought-affected populations. Specifically, after assessing the sustainable management of aquifers, the Horn of Africa countries will rehabilitate and build new climate-resilient groundwater infrastructure for human and livestock consumption.



This includes the drilling of new wells equipped with solar pumps to replace diesel generators and thus reduce CO<sub>2</sub> emissions. In addition to improving the supply of drinking water, the regional project focuses on investing in small-scale irrigation systems, contributing to soil conservation and aquifer recharge.

#### Sustainable use of aquifers

These investments are currently being considered in the Borena region of Ethiopia, on the border with Kenya. This activity will help small-scale farmers to switch from rain-fed to irrigated agriculture, enabling them to adapt to changing rainfall patterns and drought events in the lowlands. Irrigation systems will also be equipped with pressurised systems that will use renewable energy for pumping and distributing water.

Also, Igad and the three Horn of Africa countries will invest in

infrastructure to support aquifer sustainability (recharge) and flood mitigation. This type of infrastructure will also help improve water supply during periods of extreme drought. Examples include sand dams, a storage mechanism built into dry riverbeds that helps retain soil moisture and concentrate water during dry months.

The HoAGWRP project will build on other nature-based solutions to improve groundwater recharge. These include rainwater harvesting, afforestation, and soil and water conservation measures to prevent erosion and land degradation. The regional project will also encourage the integration of these interventions into river basin plans as part of broader water resource management strategies.

## Crop Production Continues to be Devastated by Climate Change



Ghana, like many developing countries in the tropical zone of West Africa, is already experiencing climate change impacts that include unpredictable rainfall patterns, rising temperatures, and the greater frequency of extreme weather events including floods. Climate change also affects agricultural production in Ghana, especially in northern Ghana. According to UNEP, Climate change is expected to: render rainfall patterns increasingly unpredictable and erratic; increase mean temperature by  $1.5 - 5.2^{\circ}$ C by 2090; and increase sea level by 34.5cm by 2090. This is likely to have serious implications for the agricultural sector, which contributes 54% of Ghana's GDP.

Agriculture also accounts for more than half of Ghana's labor force, which has itself been severely affected by changing climate. Crop production has proven to be one of the most climate-sensitive sectors of the country as a whole. It is estimated that Ghana has experienced a 1.0°C raise in temperature over the last 60 years. This has significantly weakened crop production in northern Ghana, an area that is historically marginalized and characterized by high poverty and malnutrition. Due to their over-dependence on rainfall, farmers in northern Ghana are challenged by changing and increasingly unpredictable rainy seasons.

Ghana, like most sub-Saharan African countries, is predominantly agrarian, with crop production being the main driver of the agriculture sector. More than 80% of growers are smallholder farmers, and their practices are characterized by low labor input and low technology use, high raindependence and a low adoption of irrigation. Less than 2% of arable lands in Ghana is under any form of irrigation. Thus, the over-dependence on quantity and pattern of rainfall for crop production in Ghana exposes the economy and livelihood of citizens to fluctuation in production. This has been exacerbated by growing unpredictability of weather caused by climate change. For example, the drought of 1983 cut cereal production by some 15% leading to widespread poverty, hunger and deaths.

A World Bank report just last year revealed that temperatures in Ghana have risen by almost 1°C since the 1960s, with Ghana projected to increase mean temperatures by 1.0°C to 3.0°C, by 2050 and upwards of 2.3°C to 5.3°C by the year 2100. The alarming data also showed that climate change is expected to raise the risk and intensity of water scarcity and drought across Ghana. Water, agriculture, forestry, and human health are the main sectors affected across the country. Ghana's rainfall itself is highly inconsistent and should remain variable over the next 75 to 80 years with heavy rainfall events looking to increáse over time.

In recent years, effects of climate change on food production has been especially felt in the dry Guinea Savannah spanning the five northern regions of Ghana, which has only 1 rainy season compared to the 2 rainy seasons of southern Ghana. Farmers in the north continuously adapt their practices with the pursuit of weather and climate information for informed decision-making. However, the widespread changes in weather patterns, has not only reduced agricultural productivity, but also caused flood events – recent one in August 2021 that destroyed about 6,880 acres of farmland in the Upper West Region, affecting a total of 6,623 farmers that have significantly impacted livelihoods of inhabitants. A lot needs to be done to address the impact on climate change on crop production in these regions. The government, in an attempt to reduce famers' over-reliance on rainfall, has initiated the construction of the 1 billion USD Pwalugu Multi-Purpose dam for the irrigation of 25,000 hectares of hectares of agricultural lands, as well as the rehabilitating existing irrigation facilities with the capacity to irrigate 7,817 hectares of farmlands. The government also began their "One Village, One Dam" policy in 2017, where every village in northern Ghana is to be provided with an earth dam to facilitate year-round crop production. Though helpful, these initiatives will only barely move the needle, and thus more integrative approaches should be adopted to markedly slow down the impact of climate change and improve agricultural output in northern Ghana

Significantly, the interplay between crop production and climate change is bi-directional: sustainable crop production can contribute to mitigating climate change by sequestering carbon, reducing the use of inorganic fertilizers and hence climatewarming nitrous oxide emissions, reducing flooding-related methane emissions. New innovations and technologies will have to be introduced so that Ghanaian farmers can have more effective crop management systems, which will increase food production, lower overall costs, while slowing down climate change by reducing



greenhouse emissions and sequestering more carbon. Very critical to this is the introduction of climate smart agriculture (CSA) interventions which the FAO defines as farming techniques that transform agrifood systems towards green and climate resilient practices, and include on-farm actions such as: planting varieties that are high-yielding and tolerant to biotic and abiotic cues; using innovative Ag technologies that improve crop growth and physiology; encouraging farming practice such asintercropping, crop rotation, mixed cropping, increased use of organic fertilizers and manures, effective irrigation.

At the national level, two significant programs have been formulated with the long-term goal of reducing greenhouse gas emissions. First, the Green Ghana Project, launched in June 2021 to restore Ghana's depleted forest cover through tree planting, has resulted in the planting of some 25 million trees across the country. Secondly, under Ghana's Integrated Power Sector Master Plan 2019, the government is committed to scaling up the penetration of renewable energy by 10% by 2030; thus, gradually moving away from fossil-based energy production. These policies would ultimately reduce greenhouse emissions, slow down the devastating effect of climate change, and improve agriculture output and food security.

## Africa: China to Adopt Genetically Modified Maize and Soy - Why It Matters for South Africa



Something important for global agriculture happened this past week but received minimal media coverage. The Chinese National Crop Variety Approval Committee released two standards that clear the path for cultivating genetically modified (GM) crops in the country.

This has been the missing piece in the regulations for the commercial growing of genetically modified maize and soybeans in China. The government has two steps in these regulations. These are a "safety certificate" and a "variety approval" before crops can be commercially cultivated. Various genetically modified maize and soybean varieties have received the safety certificate since 2019. What's been missing has been the "variety approval". Now that hurdle has been cleared and commercialisation of genetically modified crops in China is a real possibility.

This message was also echoed by the Chinese Agriculture Ministry. It noted that "China plans to approve more genetically modified (GM) maize varieties." Currently, China imports genetically modified maize and soybean but prohibits domestic cultivation of the crops.

The change in regulations would potentially lead to an improvement in yields. This is aligned with China's ambition of becoming self-sufficient in essential grains and oilseeds in the coming years. There are specific targets in products like pork, where the country wants to produce 95% of its consumption by 2025. South African farmers and agribusinesses need to pay close attention to these developments because it will have an impact on the long-term growth of the domestic agricultural sector.

The increase in production in other parts of the world, specifically in maize, where South Africa is a net exporter, could bring increased competition and downward pressure on prices in the medium term. Some of South Africa's key maize export markets are South Korea, Japan, Taiwan and Vietnam. All have proximity to China. If China progressively increases production and becomes a consistent net exporter of maize, South Africa would have to explore markets elsewhere. This would be a challenge.

#### The debate

China's maize yields are comparable with South Africa, the United States, Argentina and Brazil, which have long adopted the genetically modified seeds (see Exhibit 1). In these countries, among others, genetically modified seeds have had additional benefits such as lowering insecticide use, encouraged more environmentally friendly tillage practices and crop yield improvements. If maize and soybean yields improve in the coming years, China's import dependence could lessen.

China is one of the world's largest maize and soybean importers. The country accounted for 13% of global maize imports in 2021 and roughly 60% of the world's soybean imports. Reducing import volumes is likely to lead to downward pressure on global prices.

A reduction in the global maize and soybeans prices would be positive for consumers and the livestock and poultry sectors. This is much needed as the world has been in a period of elevated food prices over the past two years.

This is unlikely to happen within the next two seasons as widespread planting of GM crops in China will likely take some time. China has been slow in GM adoption, but made significant progress in gene editing, which has different regulations, and has helped improve the crop yields.

#### The consequences

There are lessons here for the African countries, most of which have resisted the cultivation of genetically modified crops. South Africa is the exception.

According to the International Grains Council, South Africa produces about 16% of sub-Saharan maize, using a relatively small area of an average of 2.5 million hectares since 2010. In contrast, countries such as Nigeria planted 6.5 million hectares in the same production season but only harvested 11.0 million tonnes of maize, equating to 15% of the sub-Saharan region's maize output.

Irrigation has been an added factor in South Africa, but not to a large extent, as only 10% of the country's maize is irrigated, with 90% being rainfed. This is similar to other African countries.

South Africa began planting genetically engineered maize seeds in the 2001/02 season. Before its

introduction, average maize yields were around 2.4 tonnes per hectare. This has now increased to an average of 5.6 tonnes per hectare as of the 2020/21 production season.

Meanwhile, the sub-Saharan African maize yields remain low, averaging below 2.0 tonnes per hectare. While yields are also influenced by improved germplasm (enabled by nongenetically modified biotechnology) and improved low and no-till production methods (facilitated through herbicide-tolerant GM technology), other benefits include labour savings and reduced insecticide use as well as enhanced weed and pest control. Close

#### SUBMIT

With the African continent currently struggling to meet its annual food needs, using technology, genetically modified seeds, and other means should be an avenue to explore to boost production. The benefits of an increase in agricultural output are evident in Argentina, Brazil, the United States, and South Africa.

Many African governments should reevaluate their regulatory standards and embrace technology. Of course, this typically introduces debates about the ownership of seeds and how smallholder farmers could struggle to obtain seeds in some developing countries.

These are realities that policymakers in the African countries should manage in terms of reaching agreements with seed breeders and technology developers but not close off innovation. The technology developers also need to be mindful of these concerns when engaging various governments in the African countries.

Geopolitical and climate change risks present the urgency to explore the technological solutions to increase each country's agricultural production. The Chinese regulators are following that path.



# Make agribusiness attractive to youth – AGI

The Association of Ghana Industries (AGI) has urged the government to provide incentives for young people who want to create Information Communication Technology (ICT) based solutions to improve the agricultural sector.

The Agribusiness Chairperson of the AGI, Fatima Ali Mohammed, said such incentives and awards would make the agriculture sector attractive to the youth and eventually grow the sector.

"I think the future is the youth. The youth are great at technology. If we can start getting the youth to think of solutions that are agric-based and put in awards and incentives, it will give them a reason to venture into the sector," she reiterated.

Ms Mohammed was speaking at the 2022 Ghana Agriculture and Agro Processing Awards held in Accra on Friday, April 22, 2022.

#### Agric players

The awards event was aimed at recognising the achievements of individuals and companies, as well as their significant role in the development of the agricultural sector.

It was also aimed at recognising key functions within the industry that promote standards, excellence, innovation in the agribusiness and stewardship.

The event brought together players in the agriculture and agro processing industry and it was attended by the Ambassador of Morocco, Imane Ouaadil.

#### Awards winners

Nineteen companies, including the Ghana Export Promotion Authority (GEPA), Addfra Limited, Avnash Industries, Premium Trees Limited, Achiever Foods Limited, Ghana Exim Bank and Agriseed Limited were awarded at the event.

The rest are Boris B's Farms & Veterinary Supplies Ghana Limited, Plot Enterprise Ghana



Limited, Amp Logistics, Eco Index Agro Solutions, Fairafric Ghana, Mediterranean Shipping Company Ghana Limited, Koa Impact Ghana Limited, Agro Innova Llc, Agrisolve Ghana, Advans Ghana, Yayra Glover Limited and Tropo Farms Limited.

Also, the Chief Executive Officer, of YARA Ghana, Mr Danquah Addo-Yobo, was awarded the Outstanding Business Leader of the Year, while the Chief Executive Officer, West African Mills Company (WAMCO), Frank Bednar, got the Visionary Leadership Award at the event.

#### Invest in Agric

Ms Mohammed noted that the COVID-19 pandemic had clearly exposed Ghana's overdependence on imported food items, and therefore, it was crucial to involve the youth in the agricultural sector.

She called on the government to invest in agricultural infrastructure to help in storing perishable goods such as tomatoes.

"We also have to start thinking very progressively in terms of dehydration foods, such as yam and cassava. Countries such as China are actually creating fish and putting it in a frozen state while its alive, and then put them back into water and it will come back to life.

The Ambassador of Morocco, Imane Ouaadil, in a brief remark, reiterated the Moroccan government's commitment towards supporting the agricultural industry.

# Tanzania seeks to be key rice producer in Africa

anzania is racing against time to become Africa's rice hub.

To begin with, the country wants to meet East Africa's total rice demand, a senior government officer has said.

Tanzania – which is the 4th largest producer of rice in Africa and the second-largest in Eastern and Southern Africa – has put in place plans and measures to increase rice production annually in an effort to reach a tipping point in 2030 and thus be able to feed the region and beyond, according to the director of the Mechanisation Division in the



Ministry of Agriculture, Ms Anna Mwangamilo.

"We have adopted a transformative technologydependent agricultural system model for rice, which includes mass adoption of improved seeds usage and other tools, including modern irrigation," Ms Mwangamilo told journalists in Dar es Salaam yesterday.

She noted the provision of substantial market opportunities for smallholder farmers in the last three years, has led to assured national self-sufficiency and a sizeable surplus for export, making rice one of the most significant cash crops in Tanzania.

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## Changing Nigeria's Agric Landscape Through Innovation, Technology

The introduction of tracking devices that allow farmers to book tractor services from local tractor owners via a mobile phone app, which is part of a programme recently unveiled by Hello Tractor in collaboration with Heifer International, will boost tractor ownership and guarantee a reality for entrepreneurs who find it impossible to get credit through normal channels, writes Festus Akanbi

With barely a month to the end of the second quarter of the year, expectations are high that the federal government will be able to deliver on its promise to ensure the provision of comprehensive farm inputs to rural farmers as a way of raising interest in agricultural practice with a corresponding increase in food production for domestic purposes and exports.

The Minister of Agriculture and Rural Development, Mr. Mohammad Abubakar, had at the 2021 budget performance and 2022 budget defence session at the National Assembly promised that comprehensive farm input, among others, would be provided to rural farmers through stakeholders such as the Central Bank of Nigeria (CBN) for the financial inclusiveness in the agricultural sector, to mitigate the adverse effects of COVID-19 and support farmers affected by incidents of flood disaster.

However, as the third quarter beckons, watchers of the nation's economy say funding is still a big deal to agric smallholders in Nigeria.

Meanwhile, available statistics showed that in the third quarter of 2021, Nigeria's agricultural sector grew by 1.22 per cent in real terms compared to the same period of the previous year.

It is a fact that agriculture is a key activity for Nigeria's economy after oil. Analysts said that Nigeria's agricultural sector has high growth potential, but that this potential is not being realised due to several reasons.

First, productivity is low and stagnant. In addition to this, farming systems, which are mostly small in scale, are still predominantly subsistencebased and for the most part, depend on the vagaries of the weather.

These developments did not produce any cheering news. For instance, \$22 billion is spent every year on food importation and as of March 2022, the inflation rate accelerated to 15.7%, food inflation rose to 17.20% and food prices jumped more than 20%.

While demand for food is growing, the supply side faces the challenges of changing environmental and climatic conditions, dwindling water supply, shortage of arable land and farming inputs, the rapid rate of urbanisation that is reducing available land for agriculture, and a host of other problems.

To mitigate these challenges, farmers must continue to innovate and embrace digital technology to improve productivity to meet domestic and external demand. Hence, the need for the transformation to digital or smart agriculture.

Technologies such as mobile telephony, robotics, remote sensor technology, the Internet of Things (IoT), big data, artificial intelligence, and many others, provide the agricultural industry with the tools and information to make more informed decisions and boost productivity.

New Opportunities However, as the Nigerian economy is opening up to private investments, new opportunities are emerging and are already dwarfing some of the challenges facing the agricultural sector in the country. The truth is that Nigeria, like some other members of the African continent, is beginning to enjoy direct interventions which promise to boost its agricultural financing.

Tractor Financing One of such direct interventions came from Heifer International, which recently announced that it is investing \$1 million in the tractor booking platform, Hello Tractor, to provide loans for tractor purchases—loans that can be repaid from revenues earned by leasing them to local farmers.

The programme, "Pay-As-You-Go (PAYG) Tractor Financing for Increased Agricultural Productivity in Nigeria," already has enabled tractor purchases in the states of Nasarawa, Abuja, and Enugu. These purchases, according to the company, could make tractors accessible to thousands of smallholder farmers via the increasingly popular Hello Tractor leasing platform.

Sometimes referred to as Uber for tractors, Hello Tractor offers software and tracking devices that allow farmers to book tractor services from local tractor owners via a mobile phone app.

"We developed the PAYG programme to make tractor ownership—and the reliable income these machines can bring—a reality for entrepreneurs who find it impossible to get credit through normal channels," said Jehiel Oliver, Founder, and CEO of Hello Tractor.

"We look at the revenue tractor owners can generate, not how much collateral they can pledge."

Oliver said that partnering Heifer "enables us to extend innovative financing to people who were previously considered 'unbankable,' while increasing access to technology that has the potential to improve the incomes of millions of smallholder farmers across Africa."

Unlocking Capital for Youths However, Senior Vice President of Africa Programmes at Heifer International, Adesuwa Ifedi, who unveiled the Hello Tractor Pay-as-you-go Tractor programme last month in Abuja explained that "The pay-as-yougo model provides financing for entrepreneurs who want to create jobs by capitalising on the demand for tractor services on African farms, but who lack traditional forms of collateral", adding that the gesture is a way to unlock capital for youth who have strong business skills that can help transform African agriculture but are often overlooked by private equity investors.

#### Partnership with Local Economies

Since 1944, Heifer International has worked with more than 39 million people around the world to end hunger and poverty sustainably. Working with rural communities across Africa for 47 years, Heifer International supports farmers and local food producers to strengthen local economies and build secure livelihoods that provide a living income.

Ifedi explained that the company's strategic goal over the next 8-10 years is to assist more than one million farmers (largely young men and women) to reach a sustainable living income by 2030, through strategic private and public sector partnerships, unlocking demand and market opportunities, leveraging finance across priority value chains, and leveraging innovation and emerging agricultural technologies to reach transformational scale.

"Heifer believes leveraging technology and modern practices will create a pathway for Nigeria and other African countries to increase productivity and competitiveness of the agricultural sector to curb food insecurity and poverty. More progress can also be achieved with the involvement of the largest group in the population – the youth – in all phases of agriculture," she stated.

She added that with Nigeria's population currently estimated



at more than 200 million people and growing at 3.2% a year, feeding 200 million people and a projected 400 million by 2050 will be a daunting challenge.

With more than 75 years of investing and technically contributing to agricultural transformation programmes globally, Heifer International is repositioning its work in Africa to include investment in infrastructure, young social entrepreneurs, and technology to support the continent's agricultural sector leapfrog.

Heifer International for more than four decades has been a trusted partner for smallholder farmers across Africa combining the power of African youth with the many possibilities of emerging technologies.

According to Ifedi, "Globally, there are roughly 200 tractors per 100 square kilometers of agricultural lands, but in sub-Saharan Africa, there are only about 27. This is illustrative of a mechanization deficit.

The deficit has a significant impact on farm productivity and local economies in a region where most people depend on smallholder farming for income.

"Hello, Tractor is one of many new agritech start-ups emerging across the continent that are finding business opportunities in addressing this and other farming challenges.

However, while private equity groups and large impact investors have provided more than \$5 billion for tech startups in Africa, very little of that financing has gone to young agritech entrepreneurs," she noted.

In 2021, Heifer International created the AYUTe Africa Challenge, which awards cash grants annually to the most promising young agri-tech innovators across Africa. It also supports Heifer's goal of helping more than six million African farmers to earn a sustainable living income by 2030. The Pay As You Go Tractor model was a fallout of this annual African challenge competition.

The inaugural AYuTe Africa Challenge awarded a total of \$1.5 million to two companies, of which Hello Tractor is one. The award allowed Hello Tractor to finance 17 tractors for 17 entrepreneurs in three countries.

Ifedi expressed the belief that Heifer's today's investment in the PAYG product will give more entrepreneurs and smallholder farmers access to tractor services at an affordable rate and in turn boost farm productivity, employment, food security, and farmer livelihoods in Nigeria.

Since 1944, Heifer International has worked with more than 39 million people around the world to end hunger and poverty sustainably. Working with rural communities across Africa for 47 years, Heifer International supports farmers and local food producers to strengthen local economies and build secure livelihoods that provide a living income.

## NISS Trains Members, Extension Workers in Northwest on Soil Test Kits to Boost Agriculture

The Nigeria Institute of Soil Science (NISS), North-west zone, has trained its members and extension workers in the zone on the use of soil testing kits for efficient fertilizer management and application.

The chief host and Vice Chancellor of Usmanu Danfodiyo University, Sokoto, Professor Lawal Bilbils, represented by Prof. Alhassan Danladi Isah, in his keynote address, while commending NISS for the tremendous achievements since it commencement in 2017, however, urged NISS to look into the low usage of fertilizer in the sub-Saharan region compared to global average.

He also challenged NISS to look into poor conditions of most soil laboratories in the country.

The Chairman of the occasion, Professor Abubakar Umar Dikko, and NISS Northwest Zonal Coordinator, Professor Samaila Noma, in their remarks, explained that NISS has placed great emphasis on training and retraining of extension agents and farmers on good agricultural practices. They maintained that the current training workshop is the third in the series of trainings in the zone in the last one year.

The state Commissioner for Agriculture, Professor Aminu Abubakar, who led the distribution of the soil test kits, in his speech, commended the foresight of NISS in supplying 175 Soil Test Kits for distribution across the seven states of the zone at the rate of 25 Test Kits per state.

According to him, this will immensely boost agricultural productivity in the zone.

In his presentation: 'Soil Sampling Guidelines for Accurate Soil Analysis', Dr. Garba Aliyu Abubakar dwelled extensively on the need for proper soil sampling guided by when to sample and how to sample.



Abubakar also emphasised methods of soil sampling, and depth of sampling, which should usually be between 0- 15cm and 15-30cm or 0-20cm and 20-40cm, which are the common rooting zone for most agronomic crops.

Also, Professor Musa Audu, in his paper: 'Step-by-step Procedure on the Successful Use of Soil Test Kits', emphasised that soil testing reveals the status of available nutrients in the soil as well as the pH of the soil which invariably affect the availability of nutrients to crops.

He listed importance of soil tests to include gaining knowledge about the soil condition and how to improve it; getting information on the fertility level of the soil as well as required management practices.

The professor emphasised the need to conduct soil test to ensure economic fertilizer use

leading to minimised fertilizer expenditure.

According to Professor Audu, "Soil tests are used to determine the nutrient content and pH level of a soil for the growth of plants, and help to know the exact type and quantity of fertilizer that needs to be applied for specific crops and a given period.

Documentary video on NISS activities, distribution of Soil Testing Kits to participants and field demonstration on proper soil sampling and soil sample analysis, using soil test kits climaxed the workshop. The participants expressed their appreciation to the Registrar and Chief Executive of NISS, Professor Victor Chude, for his commitment and good leadership qualities.

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