

African Farming

and Food Processing



Tractors

Sector on the right track

Groundnuts

Aboveground care for underground crop

Flowers

Kenya's floriculture in full bloom



VIV Europe preview. p12



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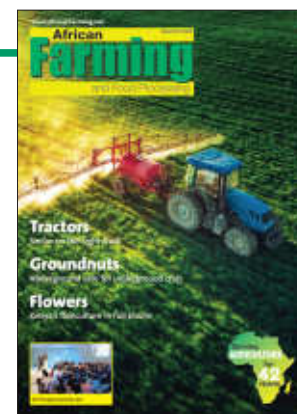


Image credit: Adobe Stock



Irritec filters allow for the best filter protection for every irrigation system.



CASE IH's Axial-Flow 4088 in the limelight.

African Farming

and Food Processing

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Farming Calendar 2022

MAY

16-20	NAMPO Harvest Day www.grainsa.co.za/pages/nampo/nampo-home	BOTHAVILLE
31-JUNE 2	VICTAM International www.victaminternational.com	UTRECHT
31-JUNE 2	VIV EUROPE www.viveurope.nl	UTRECHT
31-JUNE 2	V-Connect Europe Edition 2022 www.v-connect.net	VIRTUAL
31-JUNE 2	IFTTEX www.hppexhibitions.com/iftex	NAIROBI

SEPTEMBER

16-17	Naivasha Horticultural Fair www.naivashahortifair.com	NAIVASHA
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OCTOBER

5-6	Poultry Africa www.poultryafricaevent.com	KIGALI
12-14	agrofood Kenya www.agrofood-kenya.com	NAIROBI

NOVEMBER

6-10	SIMA Paris www.m-en.simaonline.com.com	PARIS
9-13	EIMA International www.eima.it	BOLOGNA

Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Nigeria: AfDB's Emergency Food Plan priority

THE PRESIDENT OF the African Development Bank (AfDB), Akinwumi Adesina, met with the Nigerian President, Muhammadu Buhari, to discuss the bank's strategy to avert a food crisis in Africa.

Adesina gave further details on the AfDB's

US\$1.5bn Africa Emergency Food Production Plan, which is set to help countries rapidly produce around 38 million tons of food to alleviate global stresses on food prices. 11 million tons of wheat, 18 million tons of corn, 6 million tons of rice and 2.5 million tons of soy are expected to be produced.

Nigeria is a key focus of the plan, with Adesina elaborating that the strategy will help Nigeria alone produce around 9.5 million tons of food. The initiative will help support the nation's 5 million smallholder farmers throughout the 2022 rainy season along with 1 million farmers in 10 northern states during the 2022/23 dry season. Adesina said, "Urgent action is required to prevent a food crisis in Africa," reaffirming that the AfDB "is completely ready to take up this new challenge head-on."

Official figures show that the price of wheat has risen in Africa by more than 45% since the start of the Ukraine-Russia conflict; the two nations dominate wheat and maize exports to Africa. With the disruption to the supply chain continuing, the continent faces a shortage of at least 30 million tonnes of food, with wheat, maize and soybeans expected to lead the shortage. Along with rising prices, fertiliser prices have increased by 300% and the continent faces similar shortages of up to 2 million tonnes. These shortages combined could see a decline in food production of up to 20%, resulting in over US\$11bn loss.

AfDB will submit the emergency plan to its board of directors, and is expected to begin implementation by the end of May 2022.



Nigeria will be central to AfDB's 'Africa Emergency Food Production Plan' this year.

Seed treatment lab inaugurated in Pretoria

CORTEVA AGRISCIENCE HAS officially opened its Centre for Seed Applied Technologies (CSAT) laboratory in Rosslyn, Pretoria, one of only six worldwide.

This modern facility will utilise industry-leading equipment and focus specifically on recipe development and safety testing of seed applied solutions. The site will also be integrated into Corteva's global CSAT network and is strategically positioned to meet the ongoing demands of grain producers across Africa Middle East (AME), ensuring that farmers have access to high-quality seed and better field performance.

Seed treatments involve the application of chemical or biological substances, such as fungicides or insecticides, directly to the surface of a seed, safeguarding the seeds and seedlings against insects, fungal diseases and soil-borne pathogens.

Seed treatments help improve seed and plant health, as well as germination rates; protect plants from the start when they are most vulnerable to insects and disease; and increase the likelihood of a quality and improved harvest. Solutions also allow for an efficient and targeted use of active ingredients, reducing the total amount of pesticides required, helping to preserve biodiversity and pollinators, and promote sustainable agriculture.

Corteva's evidence-based methodology combines science and ingenuity to develop and deliver advanced seed treatments that enhance grower productivity and contribute to more efficient and resilient food systems. The company's technical teams evaluate



Corteva's evidence based methodology combines science and ingenuity to develop and deliver advanced seed treatments.

hundreds of products each year, seeking out the right components and formulations to meet every farmer's needs. Once products are developed, a rigorous research process is applied focusing on specific aspects such as agronomy, safety and stewardship before solutions reach customers. The Rosslyn site was designed with advanced equipment to perform various tests that will ensure the quality of the treatment applied to the seed, offering a greater guarantee to AME producers.

Image Credit: Corteva Agriscience

Pig tracking application to improve operational management



Image Credit: Adobe Stock

In cooperation with SUISAG, pig producers from Switzerland and Germany started to test the innovative software application in their daily operations.

SUISAG, THE SERVICE partner for Swiss pig producers and international genetics customers, and Cloudfarms have introduced an innovative application of its existing production management system called the 'Pig Passport'.

The system enables breeding farms, production farms and processors to register and analyse the production data of each individual pig from birth to processing. The registered production data contains information such as the pig's genetic pedigree, feed consumption, or health information. An electronic ear tag connected to the Cloudfarms' mobile app allows fast, reliable, and easy data entry for each pig directly in the barn. The individual animal data are made available in real-time reports through the Cloudfarms web application.

In cooperation with SUISAG, pig producers from Switzerland and Germany have started to test the software application in their daily operations. Thereby, the Cloudfarms Mobile App is integrated into SuisDataManager, the existing reporting solution from SUISAG, which is widely used by pig producers throughout Switzerland.

As part of the test phase, the software application will be further customised to the pig producers' specific needs. In the next step, SUISAG said it will make the Cloudfarms Mobile App together with the SuisDataManager available to all interested pig producers in Switzerland and Germany.

"So far, individual tracking is only common on specialised breeding farms, whereas on production farms, pigs are typically managed as groups, not as individuals. Now, each animal receives a digital 'passport', which can be used throughout the supply chain," said Cloudfarms managing director Jens Toppenberg.

"Allowing more traceability, transparency and precision, individual management of pigs is the foundation to address key challenges of the pig industry such as food safety, animal health, efficient and sustainable production, and full transparency for consumers." In combination with the existing Field-to-Fork Traceability Platform from Cloudfarms, the Pig Passport enables integrators, pig producers, feed mills and processors to create added value along the supply chain. For example, they can track and sort individual pigs, according to parent lines or type of feed consumed. This way, Cloudfarms supports the industry in meeting the growing demand for safe and nutritious food at affordable prices, while improving operational management and reducing environmental impact.



Farming is Business

References in Africa

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Distribution Partner for Africa wanted!

Four agri-tech centres come together to boost innovation in global sustainable farming

UK AGRI-TECH CENTRES – CHAP, CIEL, Agri-EPI and Agrimetrics – have formed a sustainable farming partnership with world leading agricultural research and training organisation, Wageningen University & Research (WUR) in the Netherlands.

The new partnership will pursue advancing science and innovation to help meet the challenges of sustainable global food production, including the reduction of its environmental impact. Recognising the agri-tech centres' position as the hub of UK agrifood innovation, WUR approached them with a proposal to collaborate. The partners will seek to establish new, joint opportunities for innovative public-private partnerships in agrifood science and business.

Tackling transboundary animal diseases in Zimbabwe

TO CURB HIGH impact transboundary animal diseases in Zimbabwe, the Food and Agriculture Organisation and the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development launched the animal health component of the EU-funded Support Towards the Operationalisation of the SADC Regional Agricultural Policy Project (STOSAR).

The animal health component of the project seeks to strengthen the livestock sector as it supports livelihoods, provides food and nutrition security, and provides an essential pathway out of poverty for at least 42% of people living within the SADC region. The project speaks well to Zimbabwe's national imperatives, such as the Livestock Growth Plan and the Agriculture and Food Systems Transformation Strategy, leading to the attainment of Vision 2030.

AfDB supports digital platform to help women farmers

BLAATTO, A DIGITAL platform recently launched by UN Women and a part of the UN agency's Buy From Women initiative, will target women smallholder farmers and members of women-led agricultural cooperatives in Cote d'Ivoire to easily find markets for their crops.

In Cote d'Ivoire, UN Women is rolling out the initiative with African Development Bank support and with funding from the Bank-managed Korea Africa Economic Cooperation Trust Fund. The word 'blaatto' means 'come and buy' in the region's Baule language. Buy From Women is an open-source, cloud-based enterprise and e-commerce platform that can be customised to specific market products. It also offers women information and finance.

The platform is part of a UN Women project in Cote d'Ivoire to strengthen women's agricultural resilience to climate change and quality of life by incorporating ICT into agricultural production.

Blaatto was launched during a ceremony held in Abidjan, attended by Felix Anoblé, minister for the promotion of small and medium enterprises, handicrafts and informal sector transformation of Cote d'Ivoire.

Antonia Ngabala Sodonon, UN Women's country representative for Cote d'Ivoire and Esther Dassanou, coordinator



The platform is part of a UN Women project in Cote d'Ivoire to strengthen women's agricultural resilience to climate change.

of the African Development Bank's Affirmative Finance Action for Women in Africa initiative also participated.

Before an audience of government representatives, development partners and women farmers, Anoblé and Sodonon signed an agreement for the management of Buy From Women.

Minister Anoblé said, "The Buy From Women platform will ensure long term results for beneficiaries." He urged its adoption, saying, "Please take the opportunity to use it and uplift locally produced crops."

Sodonon said, "The Buy From Women platform will connect women producers to all categories of buyers of agricultural products: wholesalers, retailers and

consumers across Cote d'Ivoire. It is an opportunity for women farmers to sell their products to a large market of buyers."

Esther Dassanou said, "We appreciate the support from the Government of Cote d'Ivoire in various interventions, especially in women's economic empowerment. For the African Development Bank, UN Women is a strategic partner to implement the gender equality and women's empowerment agenda."

She added, "This platform will serve as a one-stop shop for producers, buyers, sellers and investors. Not only will it help women farmers gain access to markets but will also elevate their expertise and improve the quality of their farming products."

Image Credit: African Development Bank Group

Ishida to demonstrate packing solutions at Propak

ISHIDA EAST AFRICA will showcase its value-for-money multi-head weigher and bagmaker combination for the snacks sector and the latest integrated checkweigher and metal detector model for comprehensive quality control checks, at this year's Propak East Africa exhibition.

Solutions that enable companies to automate their packing lines and accomplish an increased production throughput and efficiencies, better product quality and consistency, will be exhibited at the event.

Ishida experts will be available to outline the operational efficiency benefits that can be gained through automation and discuss specific customer projects. Visitors can witness Ishida equipment in action and learn about the company's product development plans to support the particular needs of the African market.

With a dedicated office in Nairobi for sales, service and spares support, Ishida can supply both stand-alone packing machinery and integrated automated lines. All of these combine value for money positioning with a number of advanced features to maximise machine performance, helping businesses throughout the region to make the most of opportunities in both local and export food markets.

Ishida's weighing and bagging solutions for the snacks industry will be represented on the stand by the company's entry-level CHW & ASPEC Snacks Packing System. The economical and reliable weigher and bagmaker combination incorporates Ishida's proven multi-head weighing and bagmaking technologies to provide an economical investment that can deliver a fast payback of typically less than a year.

Hydraulic and Automation Warehouse to participate in Grain SA's NAMPO Harvest Day 2022

HYDRAULIC AND AUTOMATION Warehouse (HAW), a Bosch Rexroth Group company, will participate in Grain SA's 2022 NAMPO Harvest Day in Bothaville, Free State, from 16-20 May 2022. Grain SA's NAMPO Harvest Day is one of the largest agricultural exhibitions under private ownership in the southern hemisphere and it takes place annually, just outside of the town of Bothaville, in the Free State province of South Africa.

NAMPO Harvest Day is dynamic and each year the organisers strive to keep pace with the changing needs, requirements and expectations of producers and role players in the agricultural sector.

As one of the largest distributors of hydraulic components in Africa, and a specialist supplier of products for mobile machinery, HAW will be demonstrating its full product range for the agriculture and transport industries. This includes hydraulic hose, hose fittings, steel tube and fittings, adaptors, external gear pumps, hydraulic motors and steering orbitals, tie-rod cylinders, Uniflex hose crimpers and a variety of inline valves.

"We are happy to be attending the first NAMPO Harvest Day since COVID-19. Our



Image Credit: NAMPO

HAW will showcase the solutions at stand H9D at NAMPO 2022.

technical team and sales staff are excited to return to face-to-face interaction with the farming community to demonstrate our high-quality, plug-and-play solutions at affordable prices. We aim to make the most of the extended NAMPO Harvest Day to interact with broader audiences, including our existing and prospective clients," said Neville Alberts, branch manager, HAW.

HAW will showcase the solutions at stand

H9D at NAMPO 2022.

NAMPO Harvest Day enables producers and other role players in the agricultural industry to experience the latest technology and products on offer in the farming industry first-hand and on one terrain. The NAMPO Harvest Day also offers producers the opportunity to obtain knowledge from experts in their various agricultural fields by means of debating and discussion panels.



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IFTEX to return after three years

AFTER A DELAY of three years due to the pandemic and two postponed editions, IFTEX 2022 is set to take place from 30 May to 1 June at the Oshwal Convention Center in Nairobi, Kenya.

With more than 125 Kenyan and international exhibiting companies and a strong growing number of registered international flower buyers, the event will present the ideal opportunity for growers and buyers to meet and boost business.

Growers and buyers being confronted with strong increased costs from every corner and, as well having to deal with various other economical threats, are facing real tough challenges. Following some very difficult years for the industry, the organisers are hoping for this year's fair to contribute to the recovery and strengthening of the floral industry. It will take a lot of effort and entrepreneurial courage to overcome all the hurdles before the sector, but IFTEX offers the opportunity for it to come together and address these together.

Flower buyers such as importers, wholesalers, retailers, etc; growers of flowers, plants, vegetables, fruits & herbs are considered qualified attendees.

The conference is being organised and



Image Credit: Adobe Stock

The organisers are hoping for this year's fair to contribute to the recovery and strengthening of the floral industry.

managed by HPP Exhibitions with the support of the Agriculture and Food Authority (AFA) of Kenya and the Kenya Flower Council. It is being sponsored by Kuehne + Nagel and so far a wide range of exhibitors are already signed up including Alani Gardens, Greenspan Agritech, Richel

Group, SB Talee, United Selections Kenya and many more.

To find all the available updated information around the event, including how to register or exhibit, visit the website: <https://hppexhibitions.com/iftex/>

VICTAM International: a 'one stop' show for animal feed decision makers

RUNNING FROM 31 May to 2 June 2022, VICTAM International will present a series of high-quality conferences alongside business matchmaking opportunities to accommodate the animal feed industry professionals in attendance.

The event, which is being held at Jaarbeurs in Utrecht, Netherlands, is co-located with GRAPAS Europe, the event for the grain, flour and rice processing industries and VIV Europe.

Attendees will be able to discover the latest technology, ingredients and additives to manufacture and process feed for animals, pets and aquatics as well as the latest technology for grain and flour milling.

Conferences include the grain storage seminar; 'build my feedmill'; a roundtable on the sustainability and future trends on milling technology; and much more.

At the last live event, held in Germany in 2019, industry executives and stakeholders arrived in their thousands with every continent represented. After it was completed, 91% of exhibitors stated that they would participate in the next edition of the conference and, when asked for their assessment of the show, it was rated 8 out of 10, with visitors giving it an 8.5. Those in



Image Credit: Jaarbeurs

At the last live event, industry executives and stakeholders arrived in thousands.

attendance were reportedly very pleased with the exhibits, the newly-launched products as well as the quality of sessions available. There are high hopes that this year's edition will be equally as successful.

Exhibitors at the event include Andritz, Famsun, Zheng Chang, Milling and Grain and many more. Of those in attendance, 57% are expected to be from the animal feed industry; 22% from the aquafeed and

pet food industry; with the remaining 21% representing the grain, flour and rice industries. In the previous editions, the representation of job functions included 42.49% CEOs or directors; 17.83% nutritionists and feed formulators; and 39.68% management.

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Delivering new and state-of-the-art solutions to the farming community of Zambia and beyond, the event attracted a total of 16,700 trade visitors and 140 exhibitors, over the period of three days.

Agritech Expo: Reviving agriculture



AFTER A TWO-YEAR hiatus, Zambia's agricultural showpiece, AgriTech Expo, was back to the country's central province town of Chisamba, in its 7th edition glory.

AgriTech Expo Zambia 2022 upheld the long-standing tradition of delivering agro technology and innovation advancements, paving the way for a robust future for agriculture and agribusiness in the country and beyond.

Delivering new and state-of-the-art solutions to the farming community of Zambia and beyond, the show attracted a total of 16,700 trade visitors and 140 exhibitors, over three days, after AgriTech Expo opened its doors the first time, under the DLG flag.

Live crop trials

Highlights of the expo included 25 live crop trials, including new maize and vegetable varieties to mixed cropping of legumes and fruit trees; professionally moderated panel discussions focusing on topics of high interest such as exports, water distribution and a well-trained workforce in the agricultural sector; and a series of technical seminars providing a valuable transfer of knowledge; and machine demonstrations.

"Zambia continues to have great agricultural potential and a politically stable market environment that is increasingly attracting professional investors from abroad," Marin Botzian, DLG's head of communication said.

"It is heartening to note that the

Government places agriculture in the top echelon of its developmental journey as it champions its desire to wean the country from the copper spoon which has reigned supreme since the shedding of the colonial yoke in 1964. Indeed, diversification is a top-agenda item for the United Party for National Development (UPND) government which ascended to power in August 2021."

Government envisages to increase agriculture's contribution to economic growth by not only increasing production for food security but also agro-processing and manufacturing for both domestic and export markets. To achieve this, government prioritises agricultural productivity and extension services.

The improvement in agricultural productivity is tailored to meet household and national food security and to becoming the regional breadbasket.

Inaugurating the expo on April 8, President Hakainde Hichilema emphasised

President Hakainde Hichilema emphasised the need for government and farmers to put in place a structured way of working between the two parties to develop the agricultural sector which provides hope for the Zambian economy.

the need for the government and farmers to put in place a structured way of working between the two parties to develop the agricultural sector which provides hope for the Zambian economy.

Support from government

The government has introduced a platform called Public Private Partnership (PPP) Dialogue for Development aimed at placing agriculture at the centre of economic development and job creation.

"Private sector farmers and the government are one. Let us work together to provide answers. I want us to use our brains to revolutionise agriculture. We will ensure that we lower the cost of production," the President enthused.

The president assured farmers who depend on irrigation, that it will no longer take more than six months to acquire water rights so that they could adequately produce to satisfy the markets in the region.

Zambia National Farmers Union (ZNFU) president Jervis Zimba is optimistic that with the dawn of a new government, farmers' challenges on the agricultural field will be dealt with pragmatically, adding that bad agricultural policies that negatively impact on farming should be reformed.

"We want predictable export policies. Farmers are crying and they want to be listened to. The pig industry is dying, potatoes are rotting and fresh milk is going bad while chickens are imported. So, engage with us so that you hear our serious concerns," he said.

Minister of agriculture Mutolo Phiri

underscored the government's openness to criticism, saying "We are a new government and so we want to listen to new ideas. We heard your cry on exports and we opened up the borders. We will not close them again."

The head of state toured selected stands, including Spectra Oil Corporation, Tata Zambia, Syngenta, Saro Agro Industries, Haygrove Zambia, BSF Chemicals, Industrial Development Corporation (IDC), Ministry of Fisheries and Livestock, and pavilions of the European Union (EU), Germany, Finland and United Kingdom.

At the EU pavilion, President Hichilema awarded five companies that have been given matching grants by the EU under its Enterprise Zambia Challenge Fund. These are Zambika Aqua Farm, Kariba Harvest Limited, Saro Agro Limited, Chimphembela Trust Limited and Agriserve Agro Limited.

An interesting feature at the German pavilion was the Zambia-German Agricultural Knowledge and Training Centre (AKTC), a project within the Bilateral Cooperation Program of the German Federal Ministry of Food and Agriculture. Working through the Zambian Ministry of Agriculture, AKTC supports the country in

building a resource-saving agriculture and food industry through its diverse training courses for farmers, service providers and multipliers as well as agricultural advisors, lecturers and students.

Syngenta showcased its sustainable innovation solutions which are tailored to contribute to the country's endeavours to boost its food security.

"We are now focusing on our vegetable seed and crop protection business. This new direction has given us the opportunity to focus on bringing even more crop protection technologies to farmers in Zambia so that they are better placed to grow more in the face of evolving challenges," said Syngenta Zambia's managing director Given Mudenda.

Farmers need to embrace new technologies acquired through this expo which are a launch pad to improved production and productivity. From the government front, there is need for certainty on the export trading policy environment.


Some of the bottlenecks inhibiting growth of the agri sector in the region encompass low productivity; low mechanisation; inadequate information on modern farming techniques; lack of agriculture extension

At the EU pavilion, President Hichilema awarded five companies that have been given matching grants by the EU under its Enterprise Zambia Challenge Fund.

officers to help small scale farmers. Farming is also taken as a hobby and not a business, making it difficult for financial institutions to lend to farmers.

The Agritech Expo was last held in 2019 due to the pandemic. It attracted visitors from Germany, Italy, United Kingdom, South Africa and Zimbabwe among others. The exposition is a PPP concept driven by ZNFU and Golden Valley Agriculture Trust (GART).

Zambia's agriculture can engender economic growth, job creation and development if well exploited. Private sector investments through effective partnerships between agri-businesses, key public and private actors and farmers' organisations are essential for unlocking this potential. This potential remains relatively untapped but offers huge opportunities for development. **1**



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The event will be held from 31 May to 2 June at Utrecht, Netherlands.



Innovative and sustainable supply chains at VIV Europe

THE ROLE OF local food production is essential to the global supply chains. 'Global inspiration' and 'local practice' is the leitmotif of this edition of VIV Europe, the global exhibition and conference programme of the animal protein sector for the production & processing of poultry meat, eggs, red meat, fish and dairy.

"A truly inspirational area located at the show entrance welcomes visitors onsite with more than 35 innovative agri-food concepts waiting to be discovered and replicated in the world," said Renate Wiendels, senior project manager of VNU Europe, the organiser of VIV Europe.

The show serves as the optimal platform for global supply chains, while promoting the importance of bringing back farmers to a more central role. The HubOrange! Inspiration Square provides practical answers to the increasing consumer demand for sustainable food production. 'The Round Egg' circular concept and the 'World Food Center' are examples of innovations that make food supply chains shorter, future-proof and transparent for all stakeholders involved. We need global farming to secure fresh food locally.

Innovative services and technologies

VIV Europe is by definition, the preferred show for the sector's innovators to launch their new solutions. As many as 20 innovations will be highlighted in hall 9, while many other exhibitors will be disclosing cutting-edge products.

This edition presents innovative services and technologies specifically enabling farmers and breeders to improve production, with a focus on the poultry and egg sector. From gender-specific broiler breeder

Exhibitors at VIV Europe, from more than 50 countries, are ready to showcase 52,000 sqm space packed with solutions for animal husbandry at Jaarbeurs, Utrecht.



watering systems to automatic farm data collection and precision poultry farming, new pathogen control feed materials, effective lighting recipes systems, and the latest feed ingredients to optimize feed digestibility – these and many more newly released products can ease your struggles with day-to-day operational challenges.

Six halls packed with solutions for animal production

Exhibitors at VIV Europe, from more than 50 countries, are ready to showcase 52,000 sqm space packed with solutions for animal husbandry, in halls 7 to 12 at the Jaarbeurs, Utrecht, the venue of the show in the Netherlands. The show gives industry players the chance to meet suppliers face-to-face and reconnect with business. As always, the show covers the complete Feed to Food supply chain, including feed ingredients and additives; animal health and pharmaceuticals; breeding and hatching; farm production; slaughtering and processing for meat, eggs, dairy and fish. VIV Europe will give you free access to the co-located VICTAM International show, presented in halls 1 and 2, dedicated to feed technology and production.

Feed strategies and inspiring food concepts

Next to the exhibition booths, the VIV Europe conference and seminar programme, along with its top-notch line-up of speakers, provides an unparalleled source of profes-

sional knowledge and great networking opportunity for all visitors joining onsite. All conferences and seminars are held either at the modern rooms at the first floor of Jaarbeurs venue, right above the expo halls, or at the arena by the show entrance.

The 2022 European Feed Congress - Strategies for future-proof food production explores how the European animal feed industry and its feed additive suppliers strengthen Europe's global competitiveness.

The Poultry Marketing Round Table (PMRT) – Europe Edition – includes John Kirkpatrick from Tesco, Nan-Dirk Mulder from Rabobank, and Vincent Guyonnet as speakers, who will discuss how the European industry can reposition itself during crisis.

Other sessions provide content on topics like insects as feed, dairy farming, food waste management, contamination prevention in feed supply, automation for fresh poultry packaging, feed extrusion technology for aquaculture, in-ovo sexing, pig gut health, poultry health and nutrition, feed efficiency, and much more. "Jaarbeurs organises trade shows, conventions and other events in accordance with the strictest possible safety standards. We are ready to welcome the world once again to the Netherlands for this exciting event," said Heiko M Stutzinger, Jaarbeurs COO. 

To book your seats, register for the show on www.viveurope.nl.

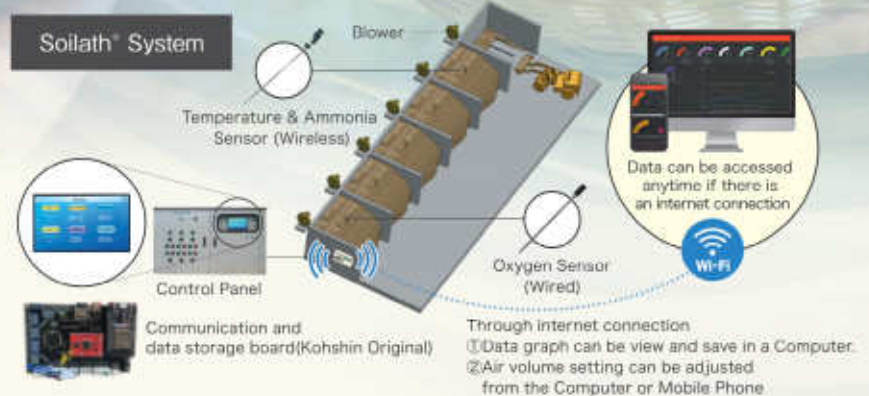
Image Credit: Jaarbeurs

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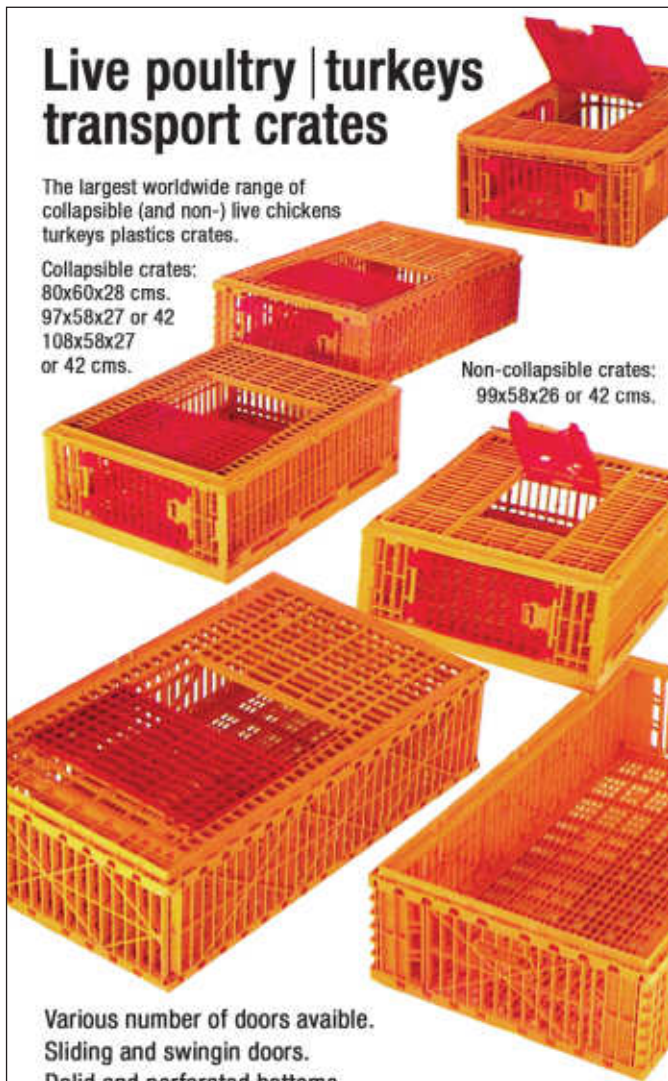


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A survey has found the reduction and elimination of antibiotics to be one of the greatest challenges to feeding programmes in the poultry industry.

Ditching antibiotics

RECENTLY, THERE HAS been a focus on removing or reducing reliance on antibiotics within the poultry and feed industries. Feed additives can an alternative to antibiotics, but the main challenge that emerges is the need to ensure they perform consistently under commercial conditions.

According to an article by Aurélie Moal, global marketing manager, Health by Nutrition at Adisseo and Pascal Thiery, the company's head of Applied Nutrition & Feed Technology, a probiotic that has a consistent action and can enhance animal resilience through three lines of defence, is a good alternative to antibiotics and can help ensure sustainability of poultry production.

A survey found the reduction and elimination of antibiotics to be one of the greatest challenges to feeding programmes by the poultry industry. Moal and Thiery have elaborated the challenges and solution to this problem in the article.



Image Credit: Adobe Stock

The overuse of antibiotics has caused many of the targeted bacteria to build up resistance to antimicrobial drugs, making animals more vulnerable to bacterial infections.

Challenges

Poultry farmers face two significant poultry health challenges as a result of an antibiotic reduction/elimination: necrotic enteritis and coccidiosis. Alternative feed additives that promote a beneficial microbiome and support the immune function and gut barrier have a role to play in such challenges. Improved gut health and animal resilience will also help poultry deal with these challenges.

A well-developed gut and optimal microbiome helps support poultry performance and enables birds to deal with challenges better – in turn reducing the need for antibiotics. Gut health is vital for the immune function and nutrient absorption, both of which have a positive impact on the health and growth of poultry. The use of probiotics has grown as antibiotic-free production has increased, along with a greater understanding of the importance of a healthy gut microbiome.

The main apprehension while replacing antibiotics is inconsistent results from feed additive alternatives. The survey respondents utilised and/or combined probiotics (64%), with organics acids

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 **BALDAN**

(61%), enzymes (57%) and phytochemicals (51%). They reported that probiotics showed a good level of efficacy (72% in 2020), as did organic acids (69% in 2020). In 2021, 59% of the interviewed people were planning to increase their use of probiotics; however, not all probiotics are the same.

Moal and Thiery stated Alterion is a complete probiotic solution for poultry, specifically designed to deliver a consistent performance. Developed by Adisseo, an expert in animal nutrition, in collaboration with Novozymes, the world leader in biological solutions, the product is the result of a stringent selection process: more than 900 AAFCO-listed bacterial strains were screened, before testing their activities *in vitro* and *in vivo*.

In spore form, Bacilli are naturally protected from pressure, acidity and temperature. The most stable strain – *Bacillus subtilis* DSM 29784 – was chosen to provide superior safety, stability, effectiveness and functioning. This naturally occurring bacterial strain is harmless for animals and humans and does not contain antibiotic resistance genes, which is vital for the safety of the product and to preserve the health and welfare of animals.

Probiotic spores are 'glued' onto calcium carbonate particles. This process ensures a low level of dust, low segregation of the spores and no demixing of the product in feeds or premixes.

Reliable results

Although it is important to test additives at research institutes, it is also essential for poultry producers that products perform consistently under commercial conditions. Alterion was fed to broilers on three farms that belong to a French poultry production organisation, over four consecutive cycles. These three farms were selected from among the top 30% of performing farms. The bacterial enteritis and coccidiosis scoring performed on these farms confirmed that all the flocks had a good health status.

Unlike antibiotics, which randomly destroy good and bad bacteria, phages specifically target harmful bacteria by injecting themselves into the bacterial cells, reproducing until the bacteria are destroyed.

When performance was already excellent, the data showed that FCR (standardised to 1.85 kg of the body weight) was on average improved by 3 points and live weight by 6.5 grams when the birds were fed Alterion. Such improvements in performance led to a 2% better European Broiler Index (EBI) and a 0.54 /m² gross margin.

Alterion helps animals face external challenges, maintains physiological homeostasis, and helps ensure their resilience. By reducing the impacts of stress on an animal, the energy from the feed is used more for growth, instead of being diverted to the immune system. This not just means better growth rates and feed utilisation, but also saving of resources. The product meets the challenge of consistency in the performance of alternative feed additives, which is required because of the rise in antibiotic-free poultry production.

The results of the field trials support Alterion's consistency to a great extent. The product also leads to a reduction in foot pad dermatitis, a welfare issue that is linked to a better control of gut health parameters. This probiotic solution enhances animal resilience by acting on three lines of defence (microbiota, gut barrier and immunity), thus ensuring a consistently improved performance. Trying to keep poultry as healthy as possible reduces the need for antibiotics and improves their welfare. The consistent mix and consistent action of the product makes it a reliable alterna-



Image Credit: Adobe Stock

A well-developed gut and optimal microbiome helps support poultry performance and enables birds to deal with challenges better – in turn reducing the need for antibiotics.

tive for the responsible use of antibiotics, and for a wider sustainability of poultry production.

Bacteriophages: an alternative to antibiotics

Non-profit organisations such as the International Livestock Research Institute (ILRI) have been exploring the use of bacteriophages, naturally occurring and abundant viruses that target bacteria, as an alternative to antibiotics in the treatment of bacterial infections in livestock and food production.

The overuse of antibiotics over the last several decades has caused many of the targeted bacteria to build up resistance to these antimicrobial drugs, making both humans and animals more vulnerable to bacterial infections.

Unlike antibiotics, which randomly destroy good and bad bacteria, phages specifically target harmful bacteria by injecting themselves into the bacterial cells, reproducing until the bacteria are destroyed, and then dispersing. More importantly, because phages co-evolve with bacteria, there will always be a new phage to infect and destroy emerging phage-resistant bacteria – at least in theory.

At ILRI, senior scientist Nicholas Svitek, who works to combat salmonella in animals, has been contributing to phage research by exploring the prospects of phage encapsulation to increase the survival of phages in chicken. The purpose of his research is to test materials that can protect phages as they travel through the harsh environment of a chicken's gastrointestinal tract.

Nevertheless, the widespread use of phages to treat microbial diseases, particularly in the global south, is not without obstacles. For example, as of now, they must be stored at 4°C, which poses a storage problem for farmers without adequate resources. To mitigate this, scientists have been exploring methods of storage that do not require refrigeration, like spray-drying, which would allow phages to be stored at room temperature for extended periods of time – although further testing is still necessary to achieve this.

Because phages self-amplify – the viruses reproduce only up to the necessary amount that would destroy targeted bacteria – farmers would not need to worry about the dangers of overuse in their livestock, unlike with antibiotics.

However, the solution is neither simple nor one-size-fits-all. Since it is ultimately farmers who would be treating their livestock with phages, it is crucial that the options consider farmers' needs, available resources, and perspectives.

In an interview with *Chemical and Engineering News* magazine, ILRI postdoctoral scientist Angela Makumi said that by consulting farmers in the process, new phage technologies can disrupt the growing threat of antimicrobial resistance. **E**

Roxell's Oxsano tunnel fan helps during the growth stages of chickens and changing weather conditions that require flexible ventilation.

Optimal temperature for optimum growth

IN ORDER TO grow optimally, poultry needs a healthy barn climate, in addition to good feed and water. Three important factors that influence a comfortable barn climate are temperature, relative humidity, and air speed. The right ventilation system not only ensures adequate air exchange throughout the broiler house, but also removes excess moisture from the litter, maintains oxygen and carbon dioxide levels, and regulates temperature within the house.

Roxell, one of the leading manufacturers of automated feeding, drinking, nesting and heating systems, is launching the Oxsano variable speed tunnel fan in fiberglass.

The innovation was introduced to facilitate the growth stages of chickens and changing weather conditions that require flexible ventilation. The variable speed tunnel fan provides tailor-made ventilation. The motor technology is innovative, linking high energy efficiency to a stable, healthy and animal-friendly house climate. In addition, the direct driven fan blade ensures hassle-free operation every day for many years. This approach also requires fewer parts, resulting in a simpler and more durable design. The life of this tunnel fan is increased by the use of fiberglass that prevents rust formation.

In the Oxsano tunnel fan, performance starts with the aerodynamic design and a uniquely shaped fan blade. This design, complete with innovative motor, achieved a top ranking in the Bess lab tests.

The company stated that this tunnel fan is among the most powerful on the market with an airflow of 30 300 CFM* and an efficiency ratio of 20 CFM/watt* (*at 10" static pressure – Bess Lab test n° 21281 and 21285). It is therefore registered as a 55-inch high capacity fan.

Variable speed is made possible by the speed controller in the motor. The fan then runs according to the actual need and the energy consumption decreases. The transition between ventilation levels is also seamless, which is good for the well-being of the animals in the house. In addition, a direct drive is the most efficient method of running a motor.

The black colour of the cone and butterfly doors promotes the spread of the animals in the house because the outside light is not reflected.

Corrosion-resistant material

The material used and the motor determine the life of a fan. The Oxsano tunnel fan uses fiberglass or galvanised steel with powder coating (fan blade) in all crucial places (cone, butterfly doors, etc.) so that rust does not stand a chance. A soft start and stop function also protects the motor, making it last longer.

The variable operation at lower speeds makes these tunnel fans not only quieter but also less sensitive to maintenance.

Variable speed controllers for durable ventilation

"A very effective way to cool a chicken's body is to move air,"



Image credit: Roxell

The motor technology of Roxell's Oxsano tunnel fan is innovative, linking high energy efficiency to a stable, healthy and animal-friendly house climate.

said Frank Hartmann, marketing manager at Roxell. "In a house, you create that optimal 'wind chill effect' with high-capacity tunnel fans. But there is also an increasing awareness of the energy costs

of ventilation. For an energy-conscious poultry farmer, variable speed ventilation is therefore a logical next step. An engine that adjusts the speed to the required load will consume much less energy." **B**



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Price volatility propels the use of alternative feed ingredients. Adisseo's team discusses how the quality of diets and the performance of animals can be maintained in such situations.

Volatility: challenges in animal feeding

WE ARE PRESENTLY going through a challenging period of high prices of raw materials and a limited availability of some of these materials. The use of less common raw materials that are readily available, and potentially less expensive, can be an alternative to traditional protein and energy sources and may help reduce the pressure on feed costs. However, new types of ingredients need extra attention to be paid to make sure they are suitable for feed processing, are free of contaminants and can deliver the right amount of nutrients to the animals for an optimal performance and health. Price volatility propels the use of alternative feed ingredients. But, when adopting such ingredients, how can we maintain the quality of diets and the performance of animals?

The quest for alternative ingredients

According to recent Rabobank figures (2022), soybean still dominates the world markets, with the US, Brazil and Argentina being the three largest producers.

Soybean meal is one of the main ingredients in animal diets around the world because of its nutritional value, its stability in quality and availability, and has hence been called 'the gold standard' in animal feeds. However, with the double digit spikes in market prices observed over the last year, soy is – metaphorically – not far behind from being equally valued as real gold. Because of the soaring prices (together with environmental concerns about soybean production amongst others), animal nutritionists and farmers are looking for new ways to reduce feed costs. This is not an easy task, as there is a limited availability of alternative protein sources, such as rapeseed meal, sunflower meal, peanut meal and cottonseed meal. Moreover, rapeseed meal and (especially) sunflower meal production and availability are now heavily impacted by the war in Ukraine, as Ukraine and Russia are the main producers of these products.

Extra attention needed for optimal use

In spite of their limited availability, the use

Table 1. Some of the characteristics of a selection of alternative ingredients (compared with soybean meal).

Canola/rapeseed meal	<ul style="list-style-type: none"> • Higher fiber content and more variations • AntiNutritional Factors (ANFs) • Lower lysine digestibility
Cottonseed meal	<ul style="list-style-type: none"> • Higher variations in CP %, due to the processing methods • ANFs (gossypol) • Lower lysine digestibility
Sunflower meal	<ul style="list-style-type: none"> • Variations in the fiber %, due to the processing methods • ANFs • Lower in lysine
Copra (coconut) meal	<ul style="list-style-type: none"> • Large variations in the energy level (oil residual) • Low lysine digestibility, due to the drying process • Mannan and galactomannan
Palm kernel meal	<ul style="list-style-type: none"> • High in fiber (~20%), with medium levels of CP (~15%) • Deficiency in lysine and methionine • Large variations in the energy level (oil residual) • Mannan and galactomannan
DDGS	<ul style="list-style-type: none"> • Rich in protein, and low in lysine • Lower digestibility of the amino acids • Variability in quality, due to the process • Risk of mycotoxin contamination • Negative impact on fat quality

Image Credit: Adisseo

of alternative ingredients has become a must in most regions in the world. When replacing soybean meal (completely or partly) with alternative ingredients (often from new and different suppliers), it is crucial to determine their nutritional value and their overall quality.

Using alternative and less common feed ingredients can be particularly beneficial from a cost and nutritional perspective, but it may require paying extra attention. Alternative ingredients may have a fickle and inconsistent fibre and protein level (see Table 1), can contain elevated mycotoxin levels and may react differently in (already existing) feed processing equipment.

Adapting the practices in the feed mill

Using alternative or new feed ingredients can have an effect at different levels (and on the costs) in feed production plants. Before making the decision to start using something new, it is necessary to know that the ingredient is safe to use, compatible

with the existing plant equipment and should not increase the feed processing costs. This can be a challenge, as new ingredients may come in smaller quantities (smaller bags for instance), may be sourced from different regions, and may not be suitable for storage in silos.

Moreover, the feedstuff properties (such as hardness, moisture content, fibre content and particle size) can have an effect on the throughput (kg/hour) and energy consumption of the feed processing equipment.

Mini-adaptations when feed formulas change

Using alternative feed ingredients can reduce the feed costs and overall production costs. But this is only true when the new diet does not have a negative effect on the feed intake, or on the animals' performance and health. The performance of animals can be negatively affected when feed ingredients that are not palatable are used. Some examples of components that

negatively affect feed intake are lectins, gossypol and alkaloids.

When a feed formulation is changed, the animals may need to make some mini-adaptations and this may lead to some associated small hiccups in the feed intake. This is often noticed in the beginning of the ingestion of a new diet or whenever the quality of the ingredient is slightly different (such as a different quality of DDGS – a different colour), as shown in Table 1. Obviously, too many drops in feed intake should be avoided, as this will negatively influence the overall feed efficiency and performance.

Preventing nutrient loss by contaminants

The performance and health of animals can also be compromised when ingredients are contaminated. The presence of molds, bacteria and oxidised lipids are examples that can lead to severe nutrient losses, reduced palatability and reduced feed intake levels.

Mycotoxins are a particular challenge for alternative feed ingredients, and even a low inclusion rate in the diet can contribute to the final risk. Such commonly used alternative ingredients as DDGS, wheat bran and wheat millings, all have a relatively high risk of containing mycotoxins. However, all types of raw materials are prone to molds and mycotoxin formation, which depend on the weather conditions, crop production, harvest, transport, storage conditions and feed processing.

There is also a lack of rapid test kits to test mycotoxins in alternative materials, and it takes longer to monitor a diverse range of variable quality materials.

It is recommended to test the finished feeds more often when different (new) ingredients are used and to not use too

Table 2. The dry matter degradability of a range of feed ingredients, with and without enzymes.

	Control	without enzymes (%)	Rovabio® (%)	DIFF.
Wheat	13	58.0 ± 7.1	86.2 ± 2.3	28.2
Wheat DDGS	23	41.3 ± 6.0	50.9 ± 5.5	9.6
Corn DDGS	16	20.5 ± 12.1	26.7 ± 13.4	6.2
Cassava	9	50.5 ± 18.7	70.3 ± 14.6	19.8

Image Credit: Adisseo

many new ingredients at once, thus avoiding multiple challenges at the same time.

Solutions to maintain diet quality and animal performance

Several effective approaches are available to help make the right decision when using alternative feed ingredients in times of volatile and uncertain market conditions.

- 1. Rapid feed testing methods:** Using NIR is a fast and accurate way of determining the nutritional values, which is key for the optimum quality control of alternative feed ingredients that are prone to variable nutrient contents. The finished feeds should be regularly tested for mycotoxins.
- 2. Enzymes:** The use of enzymes can increase the digestibility of alternative feed ingredients that are prone to a high fibre content and can help to buffer the variability of ingredients
- 3. Mold inhibitors:** The use of these infed products can prevent mold and mycotoxin formation in high risk feed ingredients (such as DDGS)
- 4. Antioxidants:** The supplementation of animal diets with antioxidants can help prevent fat and protein oxidation of alternative feed ingredients that are sensitive to this type of degradation.
- 5. Palatability enhancers:** These allow more flexible use of alternative ingredients by ensuring consistent palatability

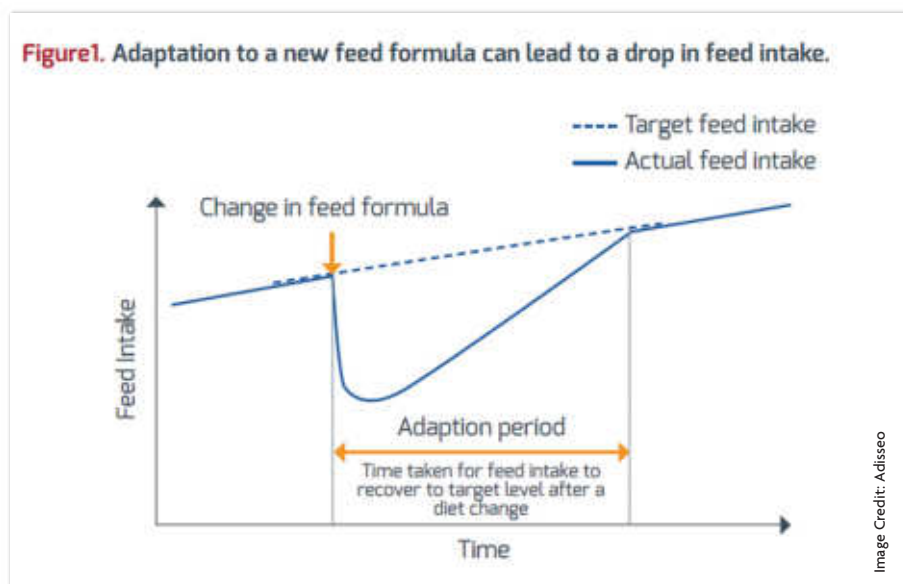
and feed acceptance, including overcoming depressed intake due to adaption when changes are made to the feed formula.

Adisseo offers a variety of solutions that are key to making alternative feed ingredients work in animal diets. These solutions include NIR services (Adisseo's Precise Nutrition Evaluation platform), palatability enhancers, digestibility boosters and products to manage feed preservation and mycotoxins. The positive effect of Adisseo's multi-NSPase (Rovabio) on dry matter degradability has been shown in an in vitro trial. Table 2 shows the results of adding enzymes on the dry matter degradability and variance.

In summary, the use of alternative feed ingredients is currently increasing due to the high prices of such commonly used ingredients as soybean meal. However, the availability of alternative feed ingredients, such as rapeseed meal and DDGS, is still way below the previously produced volumes of soybean meal and can differ in quality. Therefore, the quality and nutritional value of alternative feed ingredients should be carefully monitored. Variations in the protein and fibre contents, higher risks of mycotoxins and the presence of some bitter components may lead to lower feed intake levels, and to losses in nutrients.

A cheap ingredient may therefore end up being an extra cost, because of the loss of animal performance. The use of feed additives (such as Rovabio), regular testing of the nutritional values with quick methods (NIRS as PNE) and regular testing of the finished feeds for contaminants all help to control the problems that arise due to feed ingredients that are new to the nutritionist, farmer and animals. **E**

Authored by
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El Mehdi ElOuahli.



For more information, Scan the code and fill the online form to get in touch with Adisseo team

Africa's growing reliance on milk production and processing for income, coupled with the increasing support of European NGOs and dairy brands in assisting local milk producers with infrastructure and technology, is anticipated to expand the size of the African dairy market.

Transforming the dairy sector

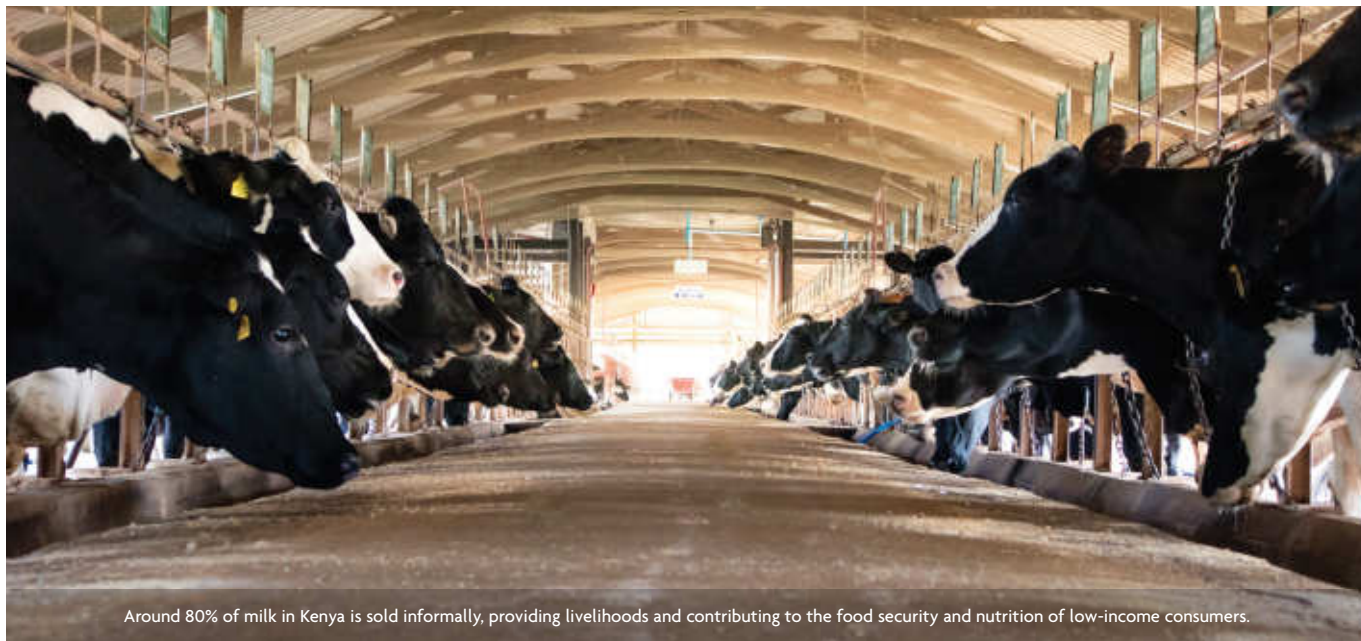


Image Credit: Adobe Stock

Around 80% of milk in Kenya is sold informally, providing livelihoods and contributing to the food security and nutrition of low-income consumers.

THE ETHIOPIAN SOCIETY of Animal Production (ESAP) organised its 29th annual conference in Addis Ababa to mark the progress of dairy sector transformation in Ethiopia. The event featured an exhibition of animal products and technologies.

More than 30 research papers were presented for the panel discussion session. ILRI's Gebregziabher Gebreyohanes was among the panellists and made a presentation on the application of information communication technology (ICT) tools and genomics for dairy cattle genetic improvement in Ethiopia. The presentation focused on ILRI's African Dairy Genetic Gains (ADDG) project response to the challenges of smallholder farmers through innovative application of ICT and genomic technology.

According to International Livestock Research Institute (ILRI), Tadelle Dessie, principal scientist at ILRI, in his keynote address, highlighted the role of the Ethiopia livestock master plan in setting the projections of the livestock sector in the country. He spoke of the many opportunities in livestock development that are being and could be exploited by livestock sector stakeholders in partnership with ILRI to achieve greater livestock productivity gains in Ethiopia. These opportunities include the significant increase in domestic demand for livestock products, the availability of an export market to African and the Gulf countries, and an enabling policy environment.

According to Future Market Insights, the global dairy processing equipment market is expected to grow at a CAGR of 5.4% during

the forecast period (2022-2032) and the Middle East And Africa dairy market is forecasted to grow at a CAGR of 3.50% during the forecast period (2022-2027). The shift of Africans towards milk production, processing, and marketing activities for income coupled with the increasing support of European NGOs and dairy brands in assisting African local milk producers with infrastructure and technology is anticipated to expand the size of the Middle East & Africa dairy products market.

The global market value is projected to increase from US\$10.2bn in 2022 to US\$17.2bn by 2032. The dairy processing equipment market was valued at US\$9.7bn in 2021 and is anticipated to exhibit Y-o-Y growth of 5.2% in 2022.

Milk farms have digitalised their processes to make them more efficient and marketable. From robotic milking to AI forecasts and digital-based livestock management, advancement in technology is streamlining the farm's activities.

Growing consumption of dairy products is the key driver for growth in the dairy processing equipment market.

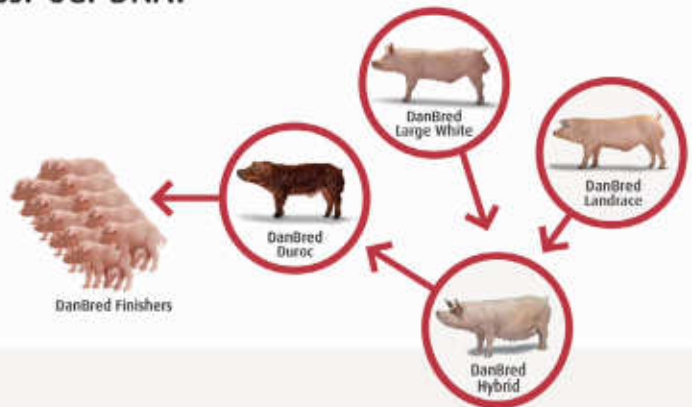
The machines are used to improve the shelf life of dairy goods, fill and package milk before shipping, and reduce carbohydrates and fat content.

Shifting preference toward quality milk-based products is

driving market expansion. Also, manufacturers are spending on research and innovation to enhance the equipment's efficiency. This aids in the reduction of the dairy processing plants' operational expenses by including automatic types of equipment.

Urbanisation, higher disposable income, and the development of cold chain facilities such as refrigeration transport and storage are driving demand for dairy processing equipment in economies such as India, China, and Brazil.

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DanBred Large White

DanBred Large White is one of the female breeds in the DanBred crossbreeding system. DanBred Large White is characterised by its good mothering abilities, and it produces large litters of uniform and vigorous piglets. Furthermore, DanBred Large White has a high daily gain, high feed efficiency and a good meat quality, which makes this breed extremely effective for the production of pork.



DanBred Landrace

DanBred Landrace is the other female breed in the DanBred crossbreeding system. DanBred Landrace has a high fertility and good mothering abilities, and it is known to produce large litters of robust pigs. Additionally, DanBred Landrace is a strong animal with solid legs and a high lean meat percentage.



DanBred Hybrid

DanBred Hybrid is a first cross between DanBred Large White and DanBred Landrace. It is the optimal dam line and the **most prolific hybrid** for production of optimal finishers, which ensures high efficiency in the production by combining the best traits. DanBred Hybrid has an even temper and excellent mothering abilities as well as a good longevity. The breed produces large viable litters of robust pigs, which grow fast and have a high feed efficiency all the way to slaughter, and when crossed with DanBred Duroc, the offspring will inherit all these traits as well as an excellent meat quality.



DanBred Duroc

DanBred Duroc is the **most competitive terminal sire** and is used in the DanBred crossbreeding system for production of DanBred finishers. DanBred Duroc contributes to large litters as well as fast-growing finishers with low feed conversion ratio and a high lean meat percentage. Furthermore, DanBred Duroc produces carcasses with an excellent meat quality, as the breed has been genetically improved through decades of targeted selection, especially in relation to lean meat percentage and slaughter loss. Our Duroc gives more pork for less money.



Further, milk farms have digitalised their processes to make them more efficient and marketable. From robotic milking to AI forecasts and digital-based livestock management, advancement in technology is streamlining the farm's activities.

Moreover, the preference for eco-friendly and reusable packaging to reduce energy wastage is surging. As offering reusable packaging is difficult, leading dairy producers are developing sustainable packaging means to adhere to the growing demand. This is likely to bode well for the market.

Bridging the gap

Meanwhile, efforts are underway to improve the condition of the informal milk sector in Africa too. Effective communication and constructive dialogue on inclusive ways forward between policy-makers and informal milk vendors can help to bridge the gap between policy and reality in Kenya's informal milk sector, according to a new research study published in Development Policy Review (May 2022).

Around 80% of milk in Kenya is sold informally, providing livelihoods and contributing to the food security and nutrition of low-income consumers. Government policy is focused on formalisation –

Effective communication and constructive dialogue on inclusive ways forward between policy-makers and informal milk vendors can help to bridge the gap between policy and reality in Kenya's informal milk sector.

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primarily through licensing and pasteurisation – with enforcement via fines, confiscation of milk or closing the premises of informal actors.

The study, which was carried out by researchers from the International Institute for Environment and Development (IIED) and ILRI, sought to better understand if, and why, Kenya's informal milk sector and regulatory system are disconnected from one another and how the policy-reality gap might be better bridged.

To understand the nature and performance of Kenya's informal milk markets and their governance, surveys with informal market players and key informant interviews were used. It was found that milk safety and quality matters to all actors in informal milk value chains. The trust-based system used is effective in moderating behaviour and assessing and prioritising quality and safety.

However, government policy was found not to accomplish the stated goal of formalisation, with low levels of licensing among informal actors. Pasteurisation was not rewarded in the market, and there was some evidence of sub-optimal pasteurisation processes being undertaken to satisfy regulators.



Image Credit: Adobe Stock

Growing consumption of dairy products is the key driver for growth in the dairy processing equipment market.

These findings point to a gap between the reality of Kenya's informal milk sector and its policy and regulatory system. This gap is seen in the form of adversarial relationships between regulators and informal actors, and unnecessary transaction costs, missing opportunities for enhancing livelihoods, food safety, and food security.

The authors of the study recommended new approaches to be built on and to consider existing approaches taken by actors in informal food markets to ensure food safety and quality.

Sustainable dairy farming

Dairy farms are becoming much more advanced in their approach, while giving ample importance to sustainability and environment concerns. On South Africa's Lancewood dairy farm, a GPS-guided tractor spreads cow manure across defined areas where tilling is banned and fertiliser used at a minimum, if at all.

Some 2,500 Jersey cows graze on a selection of plants, from chicory to lucerne (alfalfa), that have been planted for feed variety while helping preserve the soil's nutrients, according to Reuters.

Lancewood is among 40 dairy farms where South Africa's first internationally certified carbon programme for the agricultural sector – known as AgriCarbon – is being piloted by Climate Neutral Group (CNG) to help curb greenhouse gas emissions.

Dairy farms have been at the receiving end of criticism from environmentalists in the agriculture sector for releasing large quantities of methane and nitrogen that drive climate change.

"That's how we've worked – doing minimal till and reducing our nitrogen on the soil for many, many years and that's how we've reduced our costs on the farm to make the dairy very profitable," Lancewood owner Mark Rubin told Reuters on his farm in the

Sedgefield area of South Africa's southern Cape region.

Lancewood has, for example, more than halved its nitrogen use per hectare per year in 2022 from 2018, according to research consultancy Trace & Save.

Nitrogen in fertiliser can convert into nitrous oxide, a harmful greenhouse gas that can linger in the atmosphere for decades and is a more effective heat trap than carbon dioxide (CO₂).

South Africa's first internationally certified carbon programme for the agricultural sector – known as AgriCarbon – is being piloted by Climate Neutral Group (CNG) to help curb greenhouse gas emissions.

AgriCarbon, introduced in 2021, draws on farm-generated data to reward farmers who adopt better farming methods, such as reduced tilling. The first verified carbon credits will be sold later this year with a potential 230,000 tonnes up for grabs, targeting mainly European companies, CNG officials said.

The National Treasury is eyeing a domestic carbon credit market of 10 to 20 million tonnes of CO₂ a year, and has set a baseline price of between US\$7.27 to US\$7.57 per tonne for 2022, less than the US\$15 to US\$25 potentially on offer for AgriCarbon credits.

Conclusion

While Africa has been coming up with various ways to make the sector more profitable, it is yet to realise its full potential. Reports



Image Credit: Adobe Stock

AgriCarbon, introduced in 2021, draws on farm-generated data to reward farmers who adopt better farming methods, such as reduced tilling.

suggest that Kenya has been struggling to meet the demand and in turn, has to import from neighbouring countries.

One of the reasons is the low average annual dairy productivity which ranges between six to eight litres per cow per day. It is important to highlight that productivity varies with production systems. The highest productivity is attained under intensive production systems. A low level of productivity increases the cost of production and affects the competitiveness of the industry.

Improving coordination across the government and stakeholders in the industry and the government addressing the policy incoherence in the industry, can help the sector revive itself. **15**

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Leading Beyond Chemistry

Omex Agrifluids has a soluble nutrient nutrition programme for groundnuts, based on a profile of company products and currently used in key groundnut-growing countries across Africa. Dr Terry Mabbett reports.

Aboveground foliar feeding for the underground crop



Image Credit: Omex Agrifluids

AS A DUAL legume and oilseed crop, groundnut (*Arachis hypogaea*) along with soybean, is in a class of its own, with a range of uses across the agricultural arena. It is a major cash crop across the savannah regions of West Africa where it is prized as a source of vegetable oil.

Groundnut oil is used for a wide range of food products, including margarine, salad oil and cooking oil. In addition, there is a small but highly important and lucrative export market for the highest quality groundnuts in the confectionery trade of Europe and elsewhere.

The essence of groundnut's nutritional value lies in the plant's leguminous status and its high content of edible oil, which is known as groundnut oil, arachis oil or peanut oil.

Given that groundnut is such a rich source of plant oil and associated plant nutrients, one might expect its crop nutrition and facilitation with solid base fertiliser applied to the soil, to be well-practised and documented. However, that's not the case.

There can be many reasons for why this happens. As a leguminous plant species, groundnut has the capacity to generate its own intrinsic source of nitrogen via symbiotic nitrogen-fixing bacteria in the root nodules, which is why it is often wrongly believed that groundnut does not require nitrogen fertiliser because it has enough of its own.

Secondly, the crop tends to be grown on light sandy loams for easier cultivation and harvest of the seed pods, which are uniquely

'Omex Primer CoMo Bio 33' is a high concentration suspension seed treatment based on cobalt (Co) and molybdenum (Mo) formulated with a natural biostimulant. Concentrations on a weight/volume (w/v) basis are Mo 32.6%; Co 1.6% and natural biostimulant at 32.6%.

underground. While flowering and fertilisation of the ovary clearly takes place above ground, the fertilised ovary immediately generates a pointed stalk called 'a peg', and with the ovary at its tip, grows downwards to penetrate the soil to a depth of 2.5 to 6.0 cm. Fruit enlargement begins once it has penetrated the ground to a point below the soil surface. Then, it grows and develops into an elongated woody pod in which one to six seeds (groundnuts) develop, surrounded by a fibrous shell.

Providing the right ground conditions for easy penetration of the peg into the soil, is another reason for growing peanuts on light sandy loams and not heavier clay soils. However, the downside is low organic matter, low water-holding capacity and high potential for the leaching of base fertilisers applied to the soil.

This is where foliar feeding using soluble nutrient products applied by spraying the foliage, comes into play and into its own

as means of getting the nutrients into the crop plant at the right time. Procedures like foliar spraying, that avoids disturbance of the soil, and therefore the growing and developing seed-filled pods just beneath the soil surface, offers a distinct advantage of applying fertiliser and nutrients to groundnut crops. Well-grown crops present a good foliar canopy for the efficient interception and deposition of spray droplets in foliar feeding.

Groundnut in Africa is not the first crop to spring to mind for foliar feeding, as the technique is already up and running across the continent. Omex Agrifluids, a world leader and innovator in the design and development of soluble nutrient products as liquid or powder formulations, is on the ground for groundnuts in Africa. Omex has a soluble nutrient nutrition programme for groundnuts, based on a profile of company products and currently used in key groundnut-growing countries across Africa.

At the Omex Agrifluids' headquarters, R&D and manufacturing facilities at Kings Lynn in the United Kingdom, Dr Ben Odunlami, technical sales manager (Africa) told *African Farming* how Omex was active with its programme for groundnuts in a number of countries across the continent including Senegal, Malawi, Nigeria, Sudan and Mali.



Well-grown groundnuts present good foliar cover for efficient and effective deposition of spray droplets in foliar feeding.

Solid start with cobalt and molybdenum

Dr Odunlami concurred with the belief that the status of groundnuts as a nitrogen fixer leads to an assumption that nature does enough for the crop.

Omex has developed a specialist product based on two of the least well known and appreciated essential micronutrients but nevertheless 'essential' like the rest. 'Omex Primer CoMo Bio 33' is a high concentration suspension seed treatment based on cobalt (Co) and molybdenum (Mo) formulated with a natural biostimulant. "Concentrations on a weight/volume (w/v) basis are Mo 32.6%;

Co 1.6% and natural biostimulant at 32.6%," Ben said.

Molybdenum taken up as the divalent molybdate ion (MoO_4^{2-}) plays a vital role in the series of enzyme reactions which convert gaseous nitrogen into amine, via fixed-nitrogen compounds like ammonia which can be utilised by the plant, and thus making molybdenum a key 'element' for the nitrogen fixation process. More specifically molybdenum is a key component of the meta-protein nitrogenase enzyme. This enzyme needs elemental molybdenum to act as an electron carrier between the oxidation and reduction stages of the nitrogen fixation process.

Ben said a close association between molybdenum and the nitrogen fixation process means a low molybdenum status is closely correlated with nitrogen stress. Furthermore, plant availability of molybdenum is intrinsically low across a wide range of soils thus making application of soluble molybdenum, in this instance as a seed treatment, the obvious way to short-circuit and avoid soil-related molybdenum disorders. Groundnut plants not receiving sufficient molybdenum typically have problems with stem extension and foliar expansion.

So how does cobalt fit into the nitrogen fixation process? Cobalt is a co-factor for enzyme reactions instrumental in the formation of the vitamin B complex, especially Vitamin B12. Vitamin B12 is traditionally called 'cobalamin' due to its crucial cobalt component and is absolutely essential for leguminous plants like groundnut because insufficient cobalt can impair the nitrogen fixation process," he said. Cobalt availability is not generally a problem in the majority of temperate crops, but cobalt stress is frequently a factor in the development and performance of leguminous crops, notably groundnuts.

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On being asked about the role of a natural biostimulant in the Primer CoMo Bio 33 seed treatment, Ben said, "It provides the correct ratio of natural auxins to cytokinins, a dual-action hormonal effect promoting early root- and shoot-development, and thus ensuring prompt, rapid uptake of water and nutrients by germinating seeds and newly-establishing groundnut seedlings. Plants germinating from seed treated with Omex Primer CoMo Bio 33 are better able to cope with stress and grow and develop into well-established plants."

Recommended rates for Omex Primer CoMo Bio 33 is 0.1 – 0.2 litre of product/ 100 kg of groundnut seed.

Early growth boost by Omex Bio 20

An early-stage crop treatment with Omex Bio20 secures sound seedling establishment, fast growth and development into strong flowering plants. Omex Bio 20 is a concentrated emulsion containing the full spectrum of macro and micro nutrients, the latter in chelated form. But as the name suggests the product also contains a biostimulant so I asked Ben what form this one takes and why it is so important at this stage of crop growth and development.

"The biostimulant component of Omex Bio 20 is an organic fraction sourced from a specific marine alga (seaweed)," Ben informed. He explained how it is important to boost root growth and development so that the young plants can utilise macro and micro nutrients in Omex Bio 20 to the full. Omex Bio 20 is applied as a foliar spray at a rate of 1 litre of product/hectare.

The company stated that treatment with Omex Bio 20 maximises resilience of young groundnut plants to stress caused by a wide range of abiotic factors including high temperatures, soil water stress and other soil conditions. Stress may also arise from biotic factors including insect pests and diseases. In this context it is worth remembering that early-stage groundnut crops in West Africa are susceptible to attack and from Groundnut Rosette Virus (GRV) transmitted and spread by various aphids of which *Aphis craccivora* is most prominent. Young groundnut plants are highly susceptible to leaf spot diseases caused by a range of fungal pathogens of which *Cercospora* leaf spot caused by *Cercospora personata* is the most serious and damaging.

There is another and perhaps less well appreciated reason why this early boost to growth from the combined effects of the biostimulant and the full complement of nutrients is so important. Groundnut is traditionally planted as early as possible in the growing season to derive maximum benefit from the rainy season, but weeds will also take advantage this early start. Despite the relatively large seed size groundnut plants do not exhibit aggressive growth in the early stages which can allow weeds to get a hold. Use of Omex Bio 20 gives that extra boost which speeds up growth and crop cover to crowd out weed growth.

The company stated that treatment with Omex Bio 20 maximises resilience of young groundnut plants to stress caused by a wide range of abiotic factors including high temperatures, soil water stress and other soil conditions.



Image Credit: Adobe Stock

Omex CalMax B is applied as a foliar spray at a rate of 1 litre of product per hectare, 40 days after planting.

Boron and calcium for pod formation and development

All plant nutrients are essential but some are 'more essential than others' in relation to plant species and treatment timing within the crop development cycle. Groundnut has a particular requirement for calcium and boron during the reproductive period, starting at the pegging stage and extending into pod formation and development.

"These requirements can be supplied via a single product called Omex CalMax B," Ben said, adding "how the groundnut crop benefits because the product contains a higher level of boron than does the company's standard Omex CalMax." Omex Calmax B contains a broad range of nutrients (nitrogen, calcium, magnesium, manganese, iron, boron, copper, zinc and molybdenum) but with relatively high levels of calcium (23.0% w/v) and boron (1.55% w/v).

Omex CalMax B is applied as a foliar spray at a rate of 1 litre of product per hectare 40 days after planting and is thus synchronised with the 'pegging' stage of the groundnut crop. Omex CalMax B is applied in a tank mix spray with Omex DP98, so I asked Ben about the benefits of adding the phosphite-containing Omex DP98. "Main function of Omex DP98 is to accelerate entry and within-plant movement of the notoriously slow-moving divalent calcium ion and facilitated by the main phosphite component of Omex DP98," said Ben. A second application of Omex CalMax B only is made at 50 days after planting and is synchronised with pod development.

Ben told *African Farming* how boron and calcium are key nutrients for pod formation and pod development and also for maximising pod number, while deficiencies can lead to a range of calcium and boron linked disorders, including pod rot, 'hollow heart' and unfilled pods called 'pops'. These disorders impact significantly on yield, quality and seed germination rate.

High end potassium

Final act in the Omex programme for groundnut is fulfilment for the crop's high requirement for potassium towards the end of the crop cycle. Potassium is the so-called gatekeeper nutrient which governs and controls the plant's water relations. Dr Ben Odunlami recommends groundnut growers apply two foliar sprays of Omex K41 at one litre of product per hectare, the first between 60 and 80 days after planting with the follow-up spray 100 days after planting when the pods are filling and finally maturing. Omex K41 is a highly concentrated water soluble emulsion containing nitrogen, magnesium and sulphur and a 'super helping' of potassium at 41.0% w/v concentration. **E**

After a slump due to Covid-19, Kenya's flower producers and sellers are elated to see the industry pick up pace. Mwangi Mумero reports.

Kenya's flower sector in full bloom



Image credit: Adobe Stock

The cut-flower industry has grown tremendously in the recent years, employing 200,000 people directly and over 1 million people supplying the industry, according to the Kenya Flower Council.

THE HORTICULTURE SECTOR of Kenya is one of the top foreign exchange earners for the country, generating approximately US\$1bn annually. It contributes roughly 1.25% to the national GDP while flower exports contribute nearly 1% from the flower industry. It has grown in significance to a vibrant flower industry worldwide.

While the pandemic affected the industry in more ways than one, the sector is reclaiming its glory with the growing sales.

Over the years, Kenya has been a key supplier of cut- flowers to shops, weddings and funerals in Europe as well as other parts of the world. As the world's third-largest exporter of cut flowers, Kenya sells 70% of its flowers to Europe. Kenya is also the leading exporter of rose cut flowers to the European Union (EU), with a market share of almost 40%.

During the recent season of Valentine's in Nairobi and other major cities like Mombasa, one could see boxes of fresh flowers being ferried across the city to restaurants, gift shops and other vendors, as demand soared.

At the Jomo Kenyatta International Airport, flower workers were busy preparing flowers for exports to the European Union, Middle East and China. "This has been a good season for our business. We are selling a bouquet of 10 red roses to retailers at US\$3.52, which was US\$1.76 last year," observed Fredrick Kelly, manager at Karina Flowers, a wholesaler based in Nairobi Central District.

A few metres away at the city market – one of the leading flower retail bazaars – Peris Njeri, a retailer, was elated with changing fortunes after a two-year slump due to the Covid-19 pandemic. "We were previously selling a bouquet of red flowers at US\$3.52 but now its US\$8.81. The price of a single red rose has also hiked to US\$0.88 from the earlier \$0.44," said Njeri.

The trickle-down effect of this could be seen in the packaging and delivery businesses too.

"We had to hire more staff to handle packaging and delivery as received so many pre-orders," said Paul Mwangi, a manager with Pablo Gift House that deals with souvenirs.

Over the years, Kenya has been a key supplier of cut-flowers to shops, weddings and funerals in Europe as well as other parts of the world. As the world's third-largest exporter of cut flowers, Kenya sells 70% of its flowers to Europe. Kenya is also the leading exporter of rose cut flowers to the European Union (EU), with a market share of almost 40%.

According to the Kenya Flower Council (KFC), flower sales generated US\$960mn in 2019.

Approximately 50% of exported flowers are sold through the Dutch Auctions, although direct sales are growing. In the United Kingdom, supermarkets are the main outlets to sell these. Over 25% of exported flowers are delivered directly to these outlets, providing an opportunity for value addition at source through sleeving, labelling and bouquet production. Kenyan flowers are sold in more than 60 countries.

The main cut flowers grown in Kenya are roses, carnations, and alstromeria. Other flowers cultivated include gypsophilla, lilies eryngiums, arabicum, hypericum, statice and a range of summer flowers among many others.

Flower growing is centred around Lake Naivasha, Nairobi and Central Kenya regions such as Thika and Nyandarua. Other flower producing regions include Kericho, Nakuru and Athi River.

The year 2020 was particularly tough for those in the flower business as international flights were stopped, halting any flower exports to the world. Domestically, restriction of movement from some critical flower markets such as Mombasa and Nairobi counties, added to the misery of flower producers.

According to the Kenya Flower Council (KFC) chief executive officer Clement Tulezi, farmers exported 160,000 tonnes of flowers in 2021 compared to 173,000 tonnes in 2020, mainly due to high freight charges and rising cost of farm inputs due to Covid-19 difficulties. Experts however note that with the reduced restrictions in movement across the globe and the opening up of key flower markets in Europe, the cut flower scenario is bound to be rosy in the 2021/22 year. With normalcy resuming in economic activity across the world, demand is bound to rise.

According to the Kenya Flower Council (KFC) chief executive officer Clement Tulezi, farmers exported 160,000 tonnes of flowers in 2021 compared to 173,000 tonnes in 2020, mainly due to high freight charges and rising cost of farm inputs due to Covid-19 difficulties.

A survey conducted by the Central Bank of Kenya (CBK) Monetary Policy Committee early last year, showed that the flower export market has recovered to 97%, boosted by spending during the Valentine's period. There was a 44% increase in demand, compared to a similar survey in April 2020, at the height of Covid-19 restrictions. "The average orders for the next four months (April-July 2021) were about 97% of the normal (pre- COVID-19) levels," CBK said in a statement.

Employment averaged 120%, with many laid off workers in the flower sub-sector being recalled to their workstations.

KFC's Tulezi predicts that the flower industry will fully recover in the second quarter of 2022.

The cut-flower industry has grown tremendously in the recent years, employing 200,000 people directly and more than one million people supplying the industry, according to the KFC.

Even with a slight drop in cut-flower sales in 2021, Kenya's



Image credit: Mwangi Mumbo

Some of the flowers cultivated in Kenya include arabicum, gypsophilla, lilies eryngiums and hypericum.

earning from horticulture rose by 5% compared to 2021.

Sales of cut-flowers, fruits and vegetables combined rose to US\$1.39bn in 2021 from US\$1.32bn in 2020, indicating the huge growth potential in the sector.

Horticulture is a key foreign exchange earner alongside tea, tourism and remittances. Industry players however lament several challenges among them freight capacity and rate, Kenya's taxation regime and EU tighter demands on plant health regulations.

"While demand for freight is there, increased rates of up to 20% are eating up the margins. Freight takes up a huge cost and an increase is affecting the farmers," said Tulezi, speaking on behalf of flower producers. According to KFC, 1kg of flowers is now being charged US\$5.33, which is unaffordable to farmers.

The current cargo capacity of only 70 tonnes a week against the harvested 5,000 tonnes weekly remains another bottleneck, according to Tulezi. Officials at KFC believe that shipping flowers to Europe by sea could be a viable and cheaper alternative to air.

Another major challenge for the flower sector has been increased government taxation.

"Increase taxation on key sectors such as agriculture has negatively impacted the cut flower and ornamentals industry. Equally, farm inputs such as chemicals, fertilisers, tractors and other machinery have also become expensive," observed Tulezi.

Emergence of the False Codling Moth pest among roses, capsicum and other crops has worried growers as EU plant health regulations tighten, worsening the export situation.

According to KFC, the EU is currently doing 10% minimum checks on Kenya's roses shipment due to the occurrence of the pest, which officials assert is likely to slow down the movement of goods with extra manpower being needed. This will also increase the cost to exporters. **E**

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Planting the seeds of future-safe systems

EVERY STEP OF farming, from soil sampling and seeding to irrigation, is becoming more efficient due to the latest technologies in agricultural machinery. The increasing demand for cutting-edge agricultural machinery, technology and equipment is evident from the magnitude and scale of exhibitions, including Grain SA's NAMPO Harvest Day 2022 in South Africa and the UK's leading machinery show LAMMA.

As with all aspects of the farming industry, planting and seeding technology continues to become more sophisticated.

Demand for seeding technology has prompted new seed drill features including changing row widths, simultaneous application of fertiliser and integration with tractors as well as farm information systems. Here is a roundup of some recent innovations for planters, drills and other products designed to improve planting results.

With the 2150S Early Riser front-fold trailing planter, Case IH brings a productivity-boosting, split-row configuration to its lineup of 2000 series Early Riser planters. A 525-gallon fertiliser tank



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SKF group's bearings, bushings, hub units, chains, belts, seals and lubrication systems are widely used by farmers on combines, planters, tractors and agricultural attachments.

capacity — along with more seed capacity — enables operators to cover more acres between fills and make the most of their time in the field.

David Brennan, Case IH planter marketing manager, said, "Greater fertiliser and seed capacity lets operators do their jobs more easily — without having to worry about capacity concerns while out in the field."

With a front-fold frame design, the 2150S Early Riser planter delivers a narrow transport width of 13 feet — and a simple on-screen, step-by-step folding-and-unfolding system provides a smooth and quick transition from transport to field operation.

"Operators should feel ready to take on the day as efficiently as possible," Brennan said. "The 2150S Early Riser model will help them do just that. Better yet, producers can feel confident that planting is completed accurately for optimal yield results, thanks to an agronomically designed row unit."

Complete with greater tank capacity, a superior parallel-link row unit and new productivity-enhancing features, the Precision Disk 550 air drill is designed to boost yield potential in a variety of crops and tillage practices. "We continue to hear from growers that they need added capacity to get more seeding done in a day," said Trent Nowosad, Case IH marketing manager for seeding equipment. "Case IH engineered the Precision Disk 550 air drill to

Many manufactures offer the control and operation of seeding technology via the ISOBUS interface and supplement with apps that are installed on a mobile digital terminal device.

meet this demand, with agronomically designed features to boost producers' bottom lines."

Seeding technology

The right seed drill technology plays a decisive role in determining the success and quality of the crop.

LEMKEN's modern sowing technology combines optimum seed placement and high output. A wide range of combination options and good reconsolidation create the basis for a good harvest. LEMKEN's seed drill technology includes mechanical and pneumatic seed drills, innovative precision sowing and cultivation combinations with different tillage units.

Many manufacturers today offer the control and operation of the seeding technology via the ISOBUS interface and supplement with apps that are installed on a mobile digital terminal device. These supplemental operating aids can contribute considerably to improved control of the work quality of seeding technology, as the devices operate with familiar intuitive user interfaces.

The use of sensor technology integrated into the seeder control system is also contributing to the improvement in work quality.

Agri-components

SKF group's bearings, bushings, hub units, chains, belts, seals and lubrication systems are widely used by farmers on combines, planters, tractors and various agricultural attachments. These components are popular with South Africa's agricultural industry and the company provides a showcase of its solutions at NAMPO 2022.

"Our turnkey agri-solutions, complemented by customer-specific solutions from our quality brands, SKF and PEER, add value to every stage of the crop cycle, from tillage, seeding and fertilising/spraying to harvesting, mowing and baling," stated Charl Engelbrecht, key accounts manager, agriculture. "As a valuable partner to the South African agriculture industry, we provide our agricultural customers with solid hands-on support through our professional and dedicated aftersales service solutions," said Engelbrecht. We supply bearings for the full range of agricultural attachments used for seeding, including opener and closing discs as well as for gauge, press and implement wheels, seed-meter drive shafts and row markers," he continued.

Conclusion

As new technology constantly develops in seeding and cultivation, the goals continue to include the conservation of soil, increased efficiency and operability through the use of digital technology and better harvests. These technologies are helping farmers and land owners see greater returns on their investments with fewer inputs. **E**

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Situated in the Mkushi farm block, this historic property borders on a rugged hill with walking path for viewing spectacular African sunsets. Located off highway to Tanzania, with easy access to main road and town center. Includes one main house with four bedrooms and two bathrooms, and several outhouses (currently self-contained lodging units), surrounded by 495971 hectares (1.225.593) acres of fertile land, most of it never cultivated. Within reach of Kundalila falls and game viewing parks.

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The African agricultural tractor market is expected to register a CAGR of 9.6% during 2022-2027, reports by Mordor Intelligence stated.

Tractor market on the right track

AS PER A research survey conducted by the Agri Evolution Alliance, Africa holds great market potential for agricultural tractors. The increasing support by the governments to develop the agricultural sector is expected to drive the industry. For instance, the government of Ghana provides tractors at subsidised rates to entrepreneurs who run 89 centres that rent out and service tractors.

The African agricultural tractor market is expected to register a CAGR of 9.6% during the forecast period (2022-2027), reports by Mordor Intelligence stated.

In major parts of Africa, tractor sales were affected due to uncertainty regarding crop yields and exchange rates. Additionally, issues with respect to land restitution and farmworkers' shares in farms added to the uncertain conditions of the farmers.

Here's an insight into the African tractor sector in the recent times.

John Deere at NAMPO

At NAMPO Harvest Day, one of the largest agricultural exhibitions, John Deere's tractors are all set to make a mark. Over the past two years, John Deere has shifted its worldwide focus from a platform or product approach to a production system approach. Through a combination of equipment, technology and services provided by John Deere and its dealers, it offers farmers and clients economical and agronomical value, as well as sustainability of their production systems and the steps that are followed in this process.

John Deere's 6B series of tractors are perfect workhorses for local conditions, and models vary from 95 to 135 horsepower, making them ideal for application in grain cultivation, for use in the sugar, livestock and dairy industries, and general farm work.

Krone and Lemken, through a joint project, have launched a design concept – Combined Powers – which is an autonomous 'process unit' consisting a drive unit and various implements.



Image Credit: LEMKEN

Using a diesel-electric drive that generates up to 170kW (230hp), the drive unit of Combined Powers is designed to meet the power input requirements of the implements used in the processes above.

In the smaller tractors space, the company is displaying the 5E series 3- and 4-cylinder tractors, of which the 75 horsepower 5075E 3-cylinder model has been the top seller of all tractor models in South Africa over the past few months.

John Deere Financial will also launch its exciting new business model at NAMPO. The company experts are all set to explain the model, which offers a better experience and service delivery, as well as competitive interest rates for product financing.

On any farm there is constantly a need for repair and construction work to be done, be it structures, roads, dams or fields that need attention. A remedy for this will, for the first time, be displayed at NAMPO by John Deere through its range of construction machines and solutions.

Krone and LEMKEN's combined power

Krone and LEMKEN, through a joint project, have launched a design concept – Combined Powers – which is an autonomous 'process unit' consisting a drive unit and various implements.

After passing trials in cultivating, ploughing, sowing, mowing, tedding and raking last year, the 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 implements. 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 optimal 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 specialty 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 all types of data.

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 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. Due 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 year.

Boost to tractor sector

Seeking innovative ways to generate agribusiness opportunities for young African entrepreneurs, Heifer International has announced that it is investing US\$1mn 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', has already enabled tractor purchases in the states of Nasarawa, Abuja and Enugu. These purchases 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.

"The Pay-As-You-Go model provides financing for entrepreneurs who want to create jobs by capitalising on the demand for tractor services on Africa farms, but who lack traditional forms of collateral," said Adesuwa Ifedi, senior vice president of Africa Programs at Heifer International.

The Pay-As-You-Go model provides financing for entrepreneurs who want to create jobs by capitalising on the demand for tractor services on Africa farms, but who lack traditional forms of collateral.



John Deere's 6B series of tractors are ideal for application in grain cultivation, livestock and dairy industries, and general farm work.

Image Credit: John Deere

Globally there are roughly 200 tractors per 100 sqkm of agriculture lands, but in sub-Saharan Africa, there are only about 27. This is illustrative of a mechanisation deficit that 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 startups 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 US\$5bn for tech startups in Africa, very little of that financing has gone to young agritech entrepreneurs.

Ifedi noted that Heifer International is stepping into the breach to demonstrate the potential of agritech investments to generate jobs for millions of young people.

The inaugural AYuTe Africa Challenge awarded a total of \$1.5mn to two companies, one of which was Hello Tractor.

The award allowed Hello Tractor to finance 17 tractors for 17 entrepreneurs in three countries. Heifer's new investments announced for the company's PAYG product will give more entrepreneurs and smallholder farmers access to tractor services at an affordable rate. That, in turn, can boost farm productivity, employment, and food security and farmer livelihoods.

"We developed the PAYG program 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 with 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." 

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Resistant to pressure changes and external stresses, Irritec filters are characterised by a robust and flexible filter element.

Professional filtration in micro-irrigation

FILTRATION OF IRRIGATION water is one of the most important aspects when building a functional and efficient micro-irrigation installation. A filter has two very important actions on installations:

Clogging of the emitters: To protect the system, the filter must be adapted to the quality and type of irrigation water.

Proper functioning of system: A clogged filter generates a loss of pressure and if the loss is excessive, a decrease in the functionality of the irrigation system. A poorly sized filter gets dirty quickly (and often) and can lead to poor and uneven irrigation.

Irritec filters allow for the best filter protection for every irrigation system. The simple and safe structure – a result of careful building technology – reduces the need for maintenance. Resistant to pressure changes and external stresses, Irritec filters are characterised by a robust and flexible filter element.

The hydraulic capacity is ensured even at high pressures and the filter elements guarantee maximum filtration efficiency. The variety of filtration grades available is able to meet all filtering needs.



The hydraulic capacity is ensured at high pressures and the filter elements guarantee maximum filtration efficiency.

Image Credit: Irritec

Tis section includes: Plastic Filters – Y, Plastic Filters – Rotofilter, Plastic Filters – Rotofilter Twin, Plastic Filters – Rotodisk Automatic, Metal Filters, Metal Filters – Screen Filters, Metal filters – Hydrocyclone and sand filters and Metal Filters – Scan Filter, Automation Kit, Filters Accessories.

hydraulic system for the automatic backwashing. Automatic Rotodisk filters, when installed in a group of filters and used with suitable hydraulic valves and control unit, maintain a continuous irrigation cycle and reduce the waste of water and the maintenance of the filtering station.



The variety of filtration grades available is able to satisfy all filtering needs.

Image Credit: Irritec

Y filters

Irritec filters enable the best filtering protection for any irrigation system. Their simple and safe frame minimises the need for maintenance. These filters can withstand pressure changes and external stress, and their main feature is the strong and flexible filtering element.

Rotofilters/Twin Rotofilters

Made from reinforced polyamide, Irritec T filters and Rotofilters are suitable for both inline and angle installation. The two different closing systems, the different combinations and dimensions of the filtering elements and the available filtering grades allow you to choose always the most suitable system for every filtering need.

Plastic Filters Rotodisk Automatic

The Automatic Rotodisk filter is a T filter made from polyamide reinforced with fiber glass, provided with a special mechanical-

Metal filters: Screen filters, hydro-cyclone and sand media filter

Irritec metal filters are manufactured with cutting-edge machines and material. Weldings, cuts and holes are characterised by high precision and reliability. The welders assigned to manufacture metal filters are all highly qualified and licensed according to UNI EN ISO 9606-1: 2013 Standard. The protection obtained through epoxy powders also makes the filter durable.

Filtaworx

Filtaworx's range of fully automatic self cleaning filters have been designed and built in Australia by an experienced team of engineers using the latest 3D CAD software. Filtaworx filters are one of the most technically innovative self-cleaning filters available, combining proven high performance, reliability and economy in a compact robust design. **E**

Steketee's practical steering frame expands range of applications for any hoeing machine



Image Credit: LEMKEN

The EC-Steer 9 with reinforced frame design is suitable for larger hoeing machines.

THE STEKETEE EC-STEER parallel steering frame from LEMKEN turns unsteered hoeing machines from popular manufacturers into implements with joystick or even camera steering.

It is a simple option for farmers who want to upgrade their existing hoeing technology or switch between systems.

The three-point mounted steering frame enables smooth and precise steering while working with open lower link stabilisers on the tractor, as no lateral movements are transferred between the tractor and the steering frame.

Drivers control the machine from their seat using a joystick or the IC-Light camera steering system. Camera steering enables the machine to differentiate between crop plants and weeds based on different shades of green or the RGB colour spectrum. As a result, the machine can work automatically to within two centimetres of the plant.

The parallel steering frame is available as an integral part of standard Steketee machines or as a stand-alone unit that can be used to upgrade any other hoeing machines.

It comes in two versions:

- The EC-Steer 7 is suitable for hoeing machines with a weight of up to 2,500 kilograms and a working width of up to six metres. Its open three-point headstock offers the advantage that the camera can be positioned centrally on the steering frame to cover an extremely large field of view.
- The EC-Steer 9 with reinforced frame design is suitable for larger hoeing machines with a working width of up to nine metres and a weight of up to 4,000 kilograms.

Maintaining agricultural farm equipment

AGRIFARM LUBRICANTS FROM Fuchs Lubricants South Africa ensure maximum operational reliability of agricultural machinery.

The company has been active in the agricultural lubricant market for over 70 years, both as an OEM for machine manufacturers and in the field of workshop services, said sales director Andrew Cowling. "Our innovative lubricants secure maximum operational reliability of all agricultural units, from engines and transmissions right through to hydraulics in all machines and vehicles."

Agrifarm lubricants have proved extremely successful even under the toughest conditions, thereby offering the highest level of reliability for agri vehicle fleets. The products meet the latest standards of leading manufacturers in terms of application safety. Fuchs Lubricants uses only selected base oils and specially developed additives to produce the AGRIFARM range. It is especially suited for high-end agricultural machines required to deliver top performance daily. Benefits include noticeably increased oil change intervals in engines and significantly fewer signs of wear.

Alongside lubricants that can only be used for a certain component, there are also the all-rounder Super Tractor Oil Universal (STOU) and Universal Tractor Transmission Oil (UTTO) products for agricultural applications. Both were developed for use in transmission and hydraulic systems and can be deployed in brakes designed to run in an oil bath (wet brakes). LS (Limited Slip) lubricants are gear oils for differentials with disc lock that guarantee perfect functionality and low noise under all loads.

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Zack Janse van Rensburg, manager field service Africa, AGCO South Africa (Pty) Ltd, speaks with Tulana Nayak on how Massey Ferguson is doing its bit to encourage mechanisation in the continent.

The might of machinery

WITH MECHANISATION GAINING a lot of importance in farming, Africa is also doing its best to keep up with the changing trends. However, some countries in the continent are yet to fully incorporate the use of machinery in farming.

According to a World Bank report, the degree of mechanisation in Kenya is around tractors per 1,000 hectares or 26.9 tractors per 100 sq km.

The report indicates that despite the potential that mechanisation has in transforming agriculture by helping farmers to intensify their businesses, mechanisation levels remain very low in Kenya and across the continent. Keeping this in mind, efforts are under way to encourage mechanisation.

Zack Janse van Rensburg, manager field service Africa, AGCO South Africa (Pty) Ltd, spoke to *African Farming* on how Massey Ferguson is changing the scenario.

Reports suggest that the African tractor sector has a huge potential to grow but it is mostly untapped. How do you think this can be tackled?

Africa definitely has the potential to be the largest tractor market in the world. With the new tech-driven generation, we need to focus

Massey Ferguson's telemetry system collects data through the TaskDoc and enables the farmer to make informed decisions every day. TaskDoc records data quickly and easily to create field records, makes job reports and keeps accurate records of inputs.

on the benefits from mechanisation and cost saving, from precision farming. The technology involved in precision farming fitted to the Massey Ferguson high spec machines will need to be highlighted to trigger the curiosity of the new generation and get them involved. When they realise the benefit of the technology fitted on our machines, we will be able to keep up with demand.

How is Massey Ferguson (MF) helping farmers bridge the gap between crop yield and food demand in Africa?

From the smallest of our machines, the MF 35, to the biggest – 8737S – we are working with African farmers to help them become more productive and limit the cost of production. On a high horsepower machine, MF limits the down time by monitoring the machines with the new telemetry system.

It collects data through the TaskDoc and enables the farmer to make informed decisions every day. TaskDoc records data quickly and easily to create field records, makes job reports and keeps accurate records of inputs. This information can be transferred simply, wirelessly from the terminal in a format compatible with most farm management software. With technology like section control and variable rate application fitted, we help the modern farmer to manage input cost and generate more yield per hectare.

Tell us about MF Connect and how it will aid farmers.

Massey Connect is the future in your hand today. Modern farm operations are very time sensitive and farmers can't afford a machine to be down. This is where Massey Connect comes into the picture. With Massey Connect, the dealer and customer are informed of any service related issues on the machine in real time, allowing them to be proactive and keep operations moving. It monitors all types of data from the sensors and stores it for dealers and technicians for remote diagnostics, in the unlikely case of a breakdown.

MF Connect assists in keeping tractors in optimal condition.



Image Credit: Massey Ferguson



Image Credit: Massey Ferguson

Massey Connect has a couple of different interfaces, a mobile phone app for the customer, an app for the dealer and a desktop interface.

Massey Connect has a couple of different interfaces, a mobile phone app for the customer, an app for the dealer and a desktop

interface. This enables Massey Connect to send notifications in real time to cell phones, warning the dealer and customer of services due and active error code.

When a farmer needs to visit the machine, a map link on the phone takes him/her directly to the spot, which ensures there is no time wasted in driving to different fields, looking for the machine.

The dealer app has a link to all the technical data required to get the machine diagnosed. The technician can even load a case and get remote support from the AGCO technical team.

The geo-fencing feature helps customers monitor the movement of their machines with just a glance at their phones. Geo-fencing is a feature in a software programme that uses the global positioning system (GPS) or radio frequency identification (RFID) to define geographical boundaries. It allows an administrator to set up triggers so when a device enters or exits the boundaries defined by the administrator, an alert is issued.

This feature enables the farmer to see where the machines are and where they have been throughout the day, the diesel level of the machine and the productivity. They don't have to wait hours for the diesel to arrive. On the customer's app, a link to the supporting dealer's phone number lets him/her call the dealer with a single push of the button.

What is your take on autonomous tractors?

As the cost of labour rises, there will definitely be autonomous tractors in fields not so far in the future. With GPS and radar technology available today, we can already produce an operational autonomous tractor. Will this be a good or bad change? That's up to people to decide. **1**

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Compact dimensions, operator comfort and advanced features of CASE IH's Axial-Flow 4088 combine, steal the show at a Sudan event.

Another breakthrough for Case IH Axial-Flow combines in Africa

CASE IH'S AXIAL-FLOW 4088 combine harvester was in the limelight at a recent demonstration day held in New Halfa in eastern Sudan. The event, hosted on the farm of the North African country's first Axial-Flow 4088 owner Kamal Hassan Mahmoud, was attended by 60 local farmers in the Kassala State region.

The new combine was put through its paces in a wheat field with a 2060 Series 20-foot (6.10m) grain header, with the straw being finely chopped and spread for integration into the soil. The new owner, while expressing his praise for the machine, said, "I have always been a follower of new technology. I am honoured and very happy to be the first owner of Axial-Flow 4088 in Sudan. I was convinced that this combine harvester would give my farm the opportunity to improve productivity like no other could – and after having seen the quality of the output, all my expectations have been met," Kamal explained.

Compared with conventional straw walker combines, the Axial-Flow, with its rotary threshing system, is straightforward and simple to maintain. It was reported that daily maintenance during the trial period was carried out in considerably less time than it would have taken for a conventional harvester.

Designed in the United States and built in Case IH's state-of-the-art manufacturing facility in Harbin, China, Axial-Flow 4000 Series combines incorporate a high level of US-made components for maximum reliability. The harvester offers both operator comfort and remarkable capability, with high harvesting capacity, thorough crop threshing, low grain losses, gentle grain

The Axial-Flow 4000 Series combines offers both operator comfort and remarkable capability, with high harvesting capacity, thorough crop threshing, low grain losses, gentle grain handling and superior sample quality.



Image Credit: Case IH

Case IH's Axial-Flow 4088 combine harvester was put through its paces in a wheat field with a 2060 Series 20-foot (6.10m) grain header, with the straw being finely chopped and spread for integration into the soil.

handling and superior sample quality.

Compact dimensions, operator comfort and advanced features are combined with high harvesting capacity, thorough crop threshing, low grain losses, gentle grain handling and unsurpassed sample quality. These benefits are characteristic of Case IH Axial-Flow single-rotor technology, which has become the benchmark for harvesting quality and performance since the first Axial-Flow combines were launched in the USA in 1977.

The 10 staff members from local Sudanese Case IH distributor, Central Trading Co. Ltd, who organised the day in New Halfa, were joined by Valerio Domenici, Case IH's business manager for Sudan and harvester specialist for Africa. "It didn't take long to explain the simplicity and versatility of the Axial-Flow 4088.

Everybody was very interested. But it was only when I showed them the technology under the hood of the harvester that they were totally impressed by the few moving parts of the incredible threshing design. And when they sampled the output grains, there were no more doubts. Another Axial-Flow has made its way to a new market," he said.

The team also displayed the new rugged yet economical Farmall 90JXM, as well as a strong representative sample of Case IH Africa's renowned tractor range including the powerful Puma 180, the versatile Farmall 110JX Rops, and the trusty JXT 75. **15**

For more information about Axial-Flow 4088 combines, or any Case IH equipment to suit your specific needs, speak to your local authorised Case IH dealer or visit www.caseih.com.

The project was specially dedicated to those areas where environmental conditions and economical or morphologic reasons make plant growth extremely difficult.

Underwater farming revolution

NEMO'S GARDEN, A startup focused on sustainable underwater cultivation of crops, has come up with an underwater greenhouse. Resembling a bloom of giant jellyfish anchored to the ocean floor, these large clear domes, or biospheres, are a unique new type of underwater greenhouse. These biospheres harness the positive environmental factors of the ocean – temperature stability, evaporative fresh-water generation, CO₂ absorption, and natural protection from pests – to create an environment ideal for growing all manner of produce.

The project was especially dedicated to those areas where environmental conditions, economical or morphologic reasons make plant growth extremely difficult.

Siemens Digital Industries Software has announced that Nemo's Garden has deployed Siemens' Xcelerator portfolio of software and services to shorten its innovation cycles and move more rapidly towards industrialisation and scale.

Over the past decade, Sergio Gamberini and the team at Nemo's Garden have been working to prove that cultivating fruit and vegetables under water is possible. They have not only successfully harvested a variety of crops from their prototype biospheres but also discovered that the plants grown in this environment were richer in nutrient content than those grown using traditional methods. The next big obstacle was to turn their prototype into a solution that could be installed globally – but they knew they did not have another 10 years to make this happen, and that they needed to find a way to employ new technology.

The brainchild behind Nemo's Garden is Gamberini, president of diving equipment manufacturer Ocean Reef. Nemo's Garden turned to TekSea, a consulting firm focused on applying industry 4.0 technologies to help organisations deliver sustainable solutions. TekSea's Matteo Cavalleroni identified Siemens Software as a technology partner who could help transition the prototype into a viable alternative agriculture solution that could be manufactured and installed anywhere in the world. Nemo's Garden began to implement the Xcelerator portfolio of software and services, and the collaboration expanded from the automation of sensor





Image Credit: Ocean Reef Group 2022

Siemens Digital Industries Software has announced that Nemo's Garden has deployed their Xcelerator portfolio of software and services to shorten its innovation cycles.


monitoring to developing a digitalisation strategy centered on a Digital Twin of the biosphere.

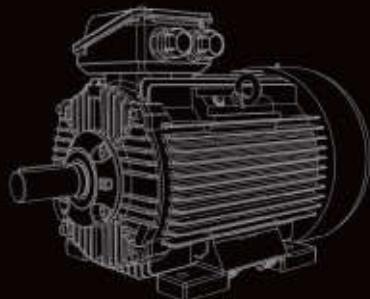
Using 3D design and simulation software, including Siemens' NX and Simcenter software in the virtual environment, the team was able to push the limits on the design and construction of the biospheres and imagine better biospheres. Previously, changes needed to be made incrementally so all involved could accurately measure the impact. But by leveraging the digital twin of the biosphere with a simulation of the Bay of Noli, the team is now able to make much more impactful changes, more quickly. They are modelling elongated domes to fit more plants per enclosure and reducing thickness of the material to reduce weight, which also makes transportation and installation easier. **E**

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Smallholder farmers often have limited access to the technology to crack key areas of the process that brings enhanced productivity.

Mixing technology with the age-old practices of agriculture has been vital for a continent that looks to take a step in the right direction.

Integrating technology to reap results



Image Credit: Adobe Stock

TIME TICKS BY and the world has experienced a shift in agriculture practices like never before. Data from Statista, a research company, shows that nearly 18% of the world's population lives in Africa. Massive population and rapidly growing economies within the region demand robust solutions from technology, directly aimed at increasing food production.

Integrating smart farming technologies into traditional practices has proven to be a good way to boost production by monitoring different aspects that are involved.

iSDA, a self-sustaining social enterprise aimed at carrying forward the work done by African Soils Information Service (AfSIS), defines smart farming as harnessing data collection, analytics and machine learning to help farmers make precise decisions about crop growth and maximise profit. The organisation further claims that this is also an answer to solve the sustainability issues that modern agriculture practices bring.

The organisation is co-founded by three research institutes – Rothamsted Research, the World Agroforestry Centre (ICRAF) and the International Institute of Tropical Agriculture (IITA). It aims to enable smallholder farmers across Africa with advanced technologies while improving profitability and community well-being.

According to the organisation, smallholder farmers have limited access to the technology to crack key areas of the

process that brings enhanced productivity. Conditions are unique to different land areas across the continent and farmers lack reliable information needed to make decisions that can affect overall output.

iSDA said it recognises the need for a spatial agronomy platform that helps deliver advisory which is both economical and completely digital.

iSDA has partnered with a science consultancy, EnvirometriX to develop iSDAsoil, a satellite soil-mapping system that offers a spatial resolution of 30 metres for the entire continent.

iSDA has partnered with a science consultancy, EnvirometriX to develop iSDAsoil, a satellite soil-mapping system that offers a spatial resolution of 30 metres for the entire continent. The organisation plans to implement the technology in its advisory services for low-income farmers by offering recommendations on fertiliser and other agriculture-related aspects.

The programme also comes with another major component, an online tool which is interactive with the representation of soil data in the form of visualisations. The tool

also predicts uncertainties and the entire application is said to have based on cloud-based infrastructure, known for its safety and low lag times.

Climate-smart is key

The World Bank's Africa Agricultural Productivity Program (WAAP) involves 13 countries and multiple partners, helping develop climate-smart varieties of staple crops, such as rice, plantains, and maize. Farmers also gain access to technologies such as efficient water-harvesting systems.

According to the World Bank, the project has directly helped more than 9.6 million people and more than 7.6 million ha of land be more productive, resilient, and sustainable. Beneficiary yields and incomes have grown by an average of around 30%, improving food security for around 50 million people in the region.

Climate-smart agriculture (CSA) is also proving to be a very important aspect while being an integrated approach to managing landscapes such as cropland, livestock, forests and fisheries. The World Bank says that the practise addresses the interlinked challenges of food security and accelerating climate change. The bank's CSA aims to simultaneously achieve three outcomes:

Increased productivity: Boosting incomes and improving nutrition to feed 75% of the world's poor from rural areas, whose sole income comes from agriculture.

Enhanced resilience: Reducing impacts caused by natural calamities, pests, diseases and capacity building to ensure food security.

Reduced emissions: Agriculture is one of the major contributors to the world's issues with emissions. The sector can experience a big shift in sustainability with practices that involve technology.

Advisory is vital

Crop Nutrition Laboratory Services Ltd (Cropnuts) from Kenya, one of Africa's leading independent laboratories for agricultural and environmental testing, has launched AgViza, a disruptive AI-based soil testing and digital crop advisory service for smallholder farmers.

According to the company, the livelihoods of smallholder farmers rely on resilient farming systems, and this requires

The livelihoods of smallholder farmers rely on resilient farming systems, and this requires good soil management and the correct use of fertility inputs.



Soil management is important when it comes to achieving the desired results.

Image Credit: Adobe Stock

good soil management and the correct use of fertility inputs. This change can only be achieved with accurate field-level soil information, derived from soil testing.

As reported by *AfricaBusiness.com*, the AgViza bundles soil testing, farmer training and specific agronomy advisory into an affordable digital service for smallholder farmers. AgViza is said to be a B2B service model that works through business partners such as fertiliser companies, produce aggregators, public sector extension, development organisations, digital market platforms and financial institutions and addresses key challenges within the

smallholder agriculture sector. These include access to quality advisory services for smallholders, youth employment for graduate agronomists, and access to finance and sustainable use of natural resources.

The product is aimed at smallholder farmers who can sustainably maintain healthy soils and achieve long term productivity even when exposed to extreme weather events, such as droughts and floods, which are being accelerated by climate change. Agviza aims to become a valuable service to value chain business partners who are working to build climate-resilient supply chains. **B**

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Mitigating fire risks in food processing industries

WITH GRAIN SA'S NAMPO Harvest Day taking place from 16 to 20 May, fire engineering specialist ASP Fire is highlighting its specialised expertise in the agri and food processing industries.

ASP Fire CEO Michael van Niekerk said, "We install the best systems possible and ensure compliance with national and international fire safety standards. In creating a bespoke system for any new or operational businesses, we look at each risk area and ask what it is we need to do to mitigate this particular risk."

The company's track record includes completing rational designs for two solvent extraction plant clients operating sunflower and soya seed processing facilities in the North West and Mpumalanga respectively. Both clients create an initial mash and then extract the oil using

hexane. This highly flammable solvent that separates the oil content from the meal is then removed from the oil by a drying process.

The two major risk areas here are the preparation and solvent plant buildings, each around six storeys high, which makes escape for any occupants in the event of a fire a massive challenge.

When the product starts to burn, it does so rapidly, which calls for fast-acting fire suppression. The last part of the process is storing the dried meal, where there is a lot of airborne dust. This creates an explosive atmosphere that can be ignited by a single spark, posing a far greater fire risk than the hexane plant itself. There is also crude oil storage that is not flammable but combustible.

Another project at a leading Mpumalanga macadamia nut processing company called for compartmentalisation, safety distances, access routes, and installation of a fire-detection system. Macadamia nuts have a high fat content of 70%, which is a major fire risk in any processing facility. Macadamia nuts are supplied in bulk by farmers and go through an initial drying process. Thereafter, the nuts are shelled and sorted before a second drying process and reaching the packaging area. The processing facility is large, meaning product must be moved from section to section by conveyor belts.

Having the opportunity to design the system from scratch allowed ASP Fire to take all factors into consideration without having to remove existing systems.

Interlocking, the ability to shut off certain processes, is used to control the spread of any potential fire. The bulk conveyors that move from one section to the next generally pass through the firewalls, which means the firewalls themselves must be sealed off in the event of a fire to stop any combustible product moving from one enclosure to another.

"We design the most comprehensive set of solutions, using the most advanced methods and equipment available," added van Niekerk.

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