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Combine harvesters

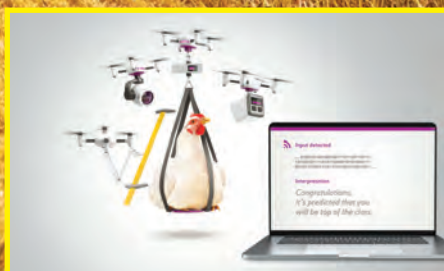
improving quality and performance

Cashew production

revival in East Africa

Bühler solutions

for food safety and quality



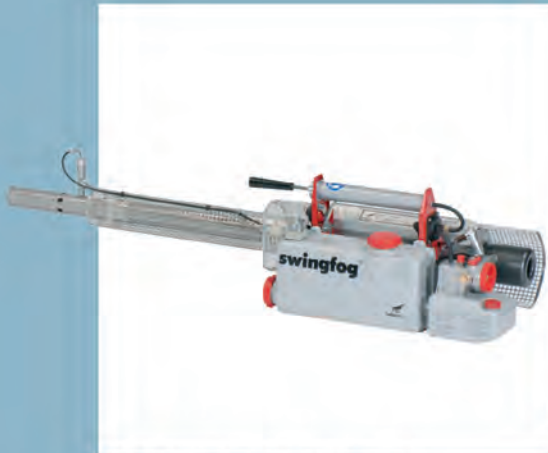
Digital insights for poultry management. p28



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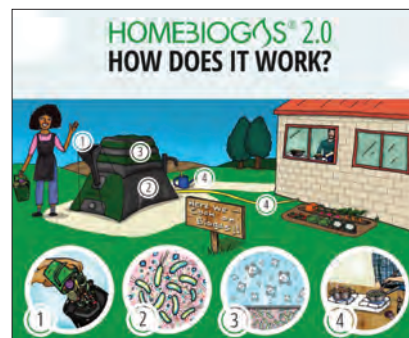
Wideblue designs camera for crop disease detection



Image Credit: Stockadrik / Adobe Stock



Delivering high standards in events and exhibitions. P20



Clean energy from waste. P22



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Farming Calendar 2020

JUNE

9-11	AVI Africa 2020 www.sapoultry.co.za/home/avi-registration.php	GAUTENG
17-19	Agritec Africa www.agritecafrica.com	NAIROBI

SEPTEMBER

15-17	HortiFlor 2020 www.hppexhibitions.com/hfz	HARARE
18-19	Horti Fair 2020 www.naivashahortifair.com	NAIVASHA

OCTOBER

1-3	agrofood & plastprintpack Ethiopia www.agrofood-ethiopia.com	ADDIS ABABA
4-7	Iran agrofood www.iran-agrofood.com	TEHRAN
14-15	Poultry Africa 2020 www.poultryafrica2020.com	NAIROBI

NOVEMBER

8-12	SIMA www.en.simaonline.com	PARIS
11-15	EIMA www.eima.it/en	BOLOGNA
24-26	agrofood & plastprintpack Kenya www.agrofood-kenya.com	NAIROBI

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

Nigerian government launches Fertiliser Control Act

THE NIGERIAN GOVERNMENT has launched the Fertiliser Control Act 2019 to protect the agricultural chain players, manufacturers, producers, blenders, importers, distributors and end-users, thus boosting the economy.

Alhaji Muhammed Sabo Nanono, minister of agriculture and rural development who launched the Act in Abuja, said that it would provide an enabling environment for fertiliser enterprises to grow and safeguard the investment in the agricultural sector and paved the way for return on investment.

The Act provides stiff penalties for offences in the value chain.

Abia seeks AfDB partnership to build agricultural base

NIGERIA'S ABIA STATE governor Okezie Ikpeazu met with African Development Bank (AfDB) president Akinwumi Adesina at the Bank's headquarters in Abidjan, Cote d'Ivoire to discuss investment for Abia to boost agricultural activities, job creation and enhance livelihoods.

Ikpeazu requested the Bank's support for the development of major agricultural value chains, including palm oil, rice, cocoa, cassava, maize and cashew, that would also create jobs for women and youth.

"Our vision is to leverage the capacity of our people to become the SME capital of Nigeria. Our people are industrious and innovative. For instance, our people are known as top players in the leather industry. We have a new shoe factory that is producing over 50,000 shoes. We particularly need the Bank's help to address the State's infrastructure deficit," the governor said.

Abia State is looking to the Bank to help make Enyimba Economic City (EEC), an ambitious economic hub, a reality. Other investment interests include a waste-to-energy project.

The Bank's support was also sought to facilitate the Abia State Integrated Infrastructural Project which is designed to develop massive infrastructure in the State, especially in the commercial city of Aba and the State capital of Umuahia.

AgriPay brings digital banking to Zambian farmers

ZANACO BANK PARTNERED with the UN Capital Development Fund (UNCDF) and Agrifin Accelerate (AFA)/Mercy Corps to develop and test the strategy for an account that offers farmers services to transact, save, send and receive money.

To bring the account – called AgriPay – to market, the partners undertook a research conducted by AFA to understand precisely what the farmers needed and what their specific financial challenges were. Once a product was available, strategies were designed to bring the product to the rural market. This strategy involved applying the Booster Team model – a concept adapted from UNCDF's work in Uganda with a coffee value chain.

The bank piloted the product in six provinces. The Booster Teams, comprising 15 – 20 youth, received adequate training in sales and product knowledge, and approached potential customers with a product they could demonstrate.

Zanaco will add features including agronomic information and financial literacy to help the farmers become more productive,

AgriPay brings digital banking to Zambian farmers- Smallholder farmers are an important segment of the Zambian economy.



Image Credit: Adwa/Adobe Stock

be financially included and better participate in the Zambian economy.

The AgriPay pilot achieved what it aimed

to do – increase access and usage of digital financial services by underserved segments of the population.

Western Cape Department of agriculture appoints new head of agriculture

DR IVAN MEYER, provincial minister of agriculture in the Western Cape, has announced Dr Mogale Sebopetsa as the head of the Western Cape Department of Agriculture (WCDoA).

Dr Sebopetsa currently holds the post of chief director: farmer support and development at the WCDoA. He started working at the Department in 2006 and has been working in the agricultural sector for more than 20 years.

Previously, he worked for the Gauteng Department of Agriculture, Department of Agriculture, Forestry and Fisheries (DAFF) and lectured at the University of Limpopo for some time.

He has played a pivotal role in establishing various policies to the benefit of farmer development - for which he has a great passion - and used this deep interest in improving the lives of farmers as the backbone for his PhD; his research focused on the developing an extension framework for smallholder farming.

Dr Sebopetsa has a clear vision for the Department and has hopes to improve farmer development and food security for the province in his five-year contract period.

"The Western Cape Government has a clear vision when it comes to its citizens, with a focus on bettering lives, this is further emphasised in the five important priority areas as set out by minister Meyer. This can be achievable through the continued goodwill between the Department and the industry. I hope to strengthen and deepen these already existing partnerships and collaborations," said Dr Sebopetsa.

He hopes to improve farmer development and food security for the province in his five-year contract period.



Image Credit: Darren Baker/Adobe Stock

"I would like to thank the outgoing HoD Joyene Isaacs for her continued guidance and support since 2006. She has done a sterling job in ensuring that the foundations are laid, making it easier for me to expand and build on this legacy," Dr Sebopetsa noted.

Joyene Isaacs, the outgoing HoD, commented, "Mogale has been a stalwart in the Department and I hand over the reins with confidence knowing he can and will take this Department to new heights."

Dr Sebopetsa will assume his duties as new HoD for agriculture in the Western Cape from 1 April 2020.

EIB study confirms boost in agricultural productivity

REAL GDP GROWTH in Africa is resilient despite global uncertainty, with small business, manufacturing and agriculture main focus of increased lending, according to the European Investment Bank (EIB).

The EIB's Banking in Africa series: "Financing Transformation amid Uncertainty" has noted that the African banks are optimistic about the future development of local markets.

It is the fifth edition of this economic report that analyses recent developments in the African banking sectors. Based on both macroeconomic and survey data, the report addresses structural issues and



The study expected that economic growth in Africa is projected to accelerate moderately in 2020.

Image Credit: Riccardo Niels Mayer/Adobe Stock

investment opportunities in Africa and frames policy options for all stakeholders.

"The EIB is committed to investment in Africa in partnership with countries and industry across the continent. The EU

Bank has been active in Africa since 1963 and provided a total of US\$51.26bn in financing since then," said Werner Hoyer, president of EIB.

"Our new report aims to share understanding and

knowledge of African investment trends, and contribute to debate about best practice in investment and financing. Investments are essential for sustainable growth, prosperity, and social progress in Africa. As the European Union's bank, we will continue to work together with our partners to support sustainable investments, foster inclusive and resilient growth, and reduce poverty," Hoyer added.

The report has discussed the financing of Africa's agricultural value chains and their potential to boost agricultural productivity, thereby supporting sustainable economic development.

Nigeria to kickstart agricultural mechanisation programme

ALHAJI MUHAMMAD SABO Nanono, minister of agriculture and rural development announced that the mechanised programme will cover cover all stages - from production, industrial processing and marketing - ensuring food security, job creation and economic growth.

The agricultural sector contributes 25 per cent of Nigeria's gross domestic product (GDP), accounting for 48 per cent of the labour force. The growth rate over the last five years averaged four per cent, according to the Nigerian Investment Promotion Commission.

However, around 70 per cent of Nigerian farmers are still engaged in subsistence farming, the reason for Nigerian agricultural providing low yields.

The programme will have a nationwide spread with all the 632

local government areas (LGA) covered. "Each LGA will have service centres with a brand-new tractor fully equipped. There will also be stores for seeds, fertiliser and excess produce. With these, we will link farmers up with processing industries especially clusters at the local governments."

He, however, pointed out that at the initial stage, around 10,000 tractors can be financed and solicited with the help of the private sector to fill in the gap.

The minister added that the mechanisation services would be driven by the people in the LGA's and encouraged individuals and groups to come up with proposals of managing the service centres, assuring them that the Federal Government will guarantee the facilities.

AfDB and Nigeria to implement special agro-industrial processing zones

THE AFRICAN DEVELOPMENT Bank (AfDB), in collaboration with the government of Nigeria, has held a meeting with stakeholders to discuss details around special agro-industrial processing zones in Nigeria.

A workshop was held in Abuja from 17-18 February to address the categorisation and location of the SAPZs, which are meant to kickstart the agriculture sector.

Speaking at the event, Nigeria's minister for agriculture and rural development, Alhaji Sabo Nanono, lauded the efforts of the African Development Bank and called for all hands to be on deck in the sustainable implementation of the initiative.

The senior special adviser to the president of the AfDB, Oyebanji Oyeyinka-Oyelaran, outlined the strategy for Nigeria, saying it

would focus on developing key value chains and select the most promising agricultural clusters.

"The strategy will also promote inclusivity, have a positive multiplier effect in the zones of influence, by increasing yields through the use of modern technologies – improved seed, fertilisers, mechanization, digitization, irrigation and maximise positive engagement of youth and women," he said.

The forum presented all stakeholders with the opportunity to follow up on outcomes of previous design interventions. The workshop was attended, among others, by Afreximbank, the International Finance Corporation, the Food and Agriculture Organisation, the Development Bank of Nigeria and the Small and Medium Enterprise Development Agency of Nigeria.

FAO's global action to control fall armyworm outbreaks



Image Credit: Nokhokno/Adobe Stock

Global action is designed to scale up efforts on coordinated mechanism to combat fall armyworm attacks.

FAO HAS ADVANCED global action to control the spread and damage of fall armyworm, a voracious invasive species that is ravaging crops in Africa, Asia and the Near East

"We will need to step up the alliance among major partners from all relevant sectors at the global level," FAO director-general QU Dongyu said while opening the first meeting of the Steering Committee of the Global action for Fall Armyworm Control.

As much as 18mn tonnes of maize are lost annually in Africa, enough to feed tens of millions of people and representing an economic loss of up to US\$4.6bn. Over the past three years, FAO has spearheaded 63 Fall Armyworm-related projects, mostly in Africa, establishing many good practices and

accumulating much valuable knowledge along the way.

The global action is designed to support and scale up those efforts through a strong and innovative coordination mechanism. If Fall Armyworm continues to expand, the role of maize in the world's food system could be seriously affected, the director-general said.

Innovation has a big role to play

The director-general pointed to an updated smartphone app developed by FAO and known as FAMEWS (Fall Armyworm Monitoring and Early Warning System) as a major tool, available in 29 languages, that channels valuable real-time and field-level information about the pest's location and spread to a global data platform every two hours, while also giving

smallholder farmers specific tips on how to cope with and contrast infestations.

The steering committee brought together strategic leaders from governments, multilateral institutions, research institutes, civil society and the private sector, from five continents.

Its members' consultations are expected to help optimize the Global Action Plan ahead of a high-level conference planned to be held at the African Development Bank's headquarters in Abidjan in April.

The global action aims to reduce maize crop losses to three per cent from current levels often 12 times higher.

"It is an ambitious target because it has to be," said Bukar Tijani, FAO assistant director-general, agriculture and consumer protection department.

AfDB and DAL Group sign deal to transform Sudan's agribusiness

THE AFRICAN DEVELOPMENT Bank (AfDB) has signed an agreement with Sudan's DAL Group for the provision of up to US\$75mn to improve food security and household incomes in the country.

The climate and land of Sudan is suitable for agricultural development and offers potential for growth.

The agreement is the Bank's first private-sector loan to the East African nation.

DAL Group chairman Osama Daoud Abdellatif said that business in Sudan has suffered for years due to lack of finance for agriculture, noting the agreement marks the first significant financing DAL Group has received.

"At the end of the day, Sudan is an agricultural country, and there is so much we can do. I hope this is the beginning of many projects we can do together," Abdellatif said.

DAL Group is Sudan's one of the largest foods and agriculture business company. The Bank loan will contribute to DAL Group's Investment Programme, part of the company's strategic growth

initiative for Sudan and the East African region. Under this programme, DAL Group aims to reduce the nation's dependence on imports and increase its capacity to source and produce raw material locally.

The DAL Group employs more than 8,200 people and with the new support from the African Development Bank, the Group will be in a position to create more than 2,000 additional jobs over an eight-year period.

Jennifer Blanke, AfDB's vice-president for agriculture, human and social development, said, "This is AfDB's first private-sector loan in Sudan. I am delighted that it is in agriculture and agribusiness, which is so important for Sudan's development."

Additionally, the financing will support DAL Group initiatives toward creating a conducive work environment for women and promoting equal opportunities for employment, such as up-skilling and training, creating an adapted industrial working environment that accommodates the cultural needs of women, as well as

family-friendly work schedules and social benefits.

The transaction presents an opportunity for the Bank to leverage private sector investments which have considerable development outcomes and additionality, as well as opportunity to support an otherwise underserved Transition State.

Towards Africa's agricultural transformation

The Bank-DAL Group agreement is in line with the priority development objectives of the AfDB Group and consistent with the Bank's action plan for African agricultural transformation, known as Feed Africa. The Bank's Feed Africa strategy focuses on transforming African agriculture into a globally competitive, inclusive and business-oriented sector that creates wealth, generates gainful employment and improves quality of life.

The Bank is dedicated to assisting African regional member countries in their poverty reduction efforts and agriculture and rural development are primary building blocks.

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Unilever and BASF increasing proportion of women in leadership positions

UNILEVER HAS ACHIEVED 50/50 gender balance in leadership roles across its brands and BASF has committed to increasing the number of women at the top to 30 per cent by 2030 after achieving its 20 per cent by 2020 target a year ahead of schedule.

It comes after a WFA survey laid bare the challenges facing women in the agri-food sector, the differences in opinions between men and women, how women perceive their employers, workplace culture and what they believe are the barriers holding women back.

Out of more than 2,500 respondents, 50 per cent of women said they were well represented at the top of food and agricultural businesses.

Results of the survey, commissioned by WFA Summit organiser AgriBriefing, were revealed at last year's event in Amsterdam.

Delegates said the two-day event, sponsored by Alltech, helped them gain a better understanding of the key challenges facing the

sector, while also providing networking opportunities and a chance to develop leadership and management skills through a range of interactive seminars and workshops.

Mary Bowman of Galbraith Group said, "The content and workshops made for a highly motivational experience which made me think forward in my career and gave me a positive boost in confidence regarding the future, both personally and within agriculture in general."

"Not only was it informative regarding different agricultural practices globally, but it was also hugely inspirational. The plethora of different land-based roles women are undertaking all over the world is extraordinary, giving me some great new ideas about where my career might take me in the future."

Results of the survey, commissioned by WFA Summit organiser AgriBriefing, were revealed at last year's event in Amsterdam.

Germany contributes US\$18mn to combat desert locust upsurge in East Africa

FAO DIRECTOR-GENERAL QU Dongyu has welcomed a US\$18mn contribution from Germany to provide assistance to those directly affected by the desert locust upsurge in East Africa.

Germany's Permanent Representative to FAO, Ulrich Seidenberger, made the announcement at FAO headquarters in Rome. The new pledge comes after Germany already contributed US\$3.3mn.

Qu said, "We are working to curb the locusts' spread but we also need to safeguard livelihoods and promote early recovery."

FAO's Desert Locust Information Service said it is the worst outbreak to strike Ethiopia and Somalia for 25 years and the worst infestation that Kenya has experienced in 70 years. Djibouti and Eritrea have also been affected, and locusts have been reported in South Sudan, Uganda and the United Republic of Tanzania, although the situation there is less dire.

The director-general stressed the situation was extremely alarming in East Africa, a region where 20mn people are already considered food insecure. There, the swarms have laid eggs and in a few weeks' time, these will mature, and start to eat crops - right at the start of the region's main agricultural season.

"Fighting the locusts is half the battle. The other half is helping the people affected," QU said. "Germany's support will enable FAO to provide much needed support to the farmers and their families."

Pasture and croplands have already suffered damage in Djibouti, Eritrea, Ethiopia, Kenya and Somalia, and there are potentially severe consequences for the region where millions rely on agriculture and livestock rearing for their survival.

FAO has appealed for US\$138mn in urgent funding to assist the



Locusts are posing significant threat to crop output.

countries that have been impacted. Germany's announcement raises the amount pledged by donors to US\$69mn.

On 10 March, the Government of Japan decided to extend Emergency Grant Aid of US\$7.5mn in response to the damage caused by locusts in Kenya, Somalia and Djibouti.

locust aid. The grant aims to provide humanitarian assistance in the area of food through the World Food Programme (WFP).

In Kenya, the provision of support is to 80,000 people including children aged at 6-59 months and pregnant women to prevent malnutrition and improve their nutritional condition.

Implementation of resilience-building activities to 87,000 small-scale farmers is also provided for.

UK to fund five innovative businesses in Kenya

THE UK HAS launched the second round of a business innovation challenge fund that will see an additional five promising businesses receive grant funding and technical assistance of up to US\$128,309 each.

The call for proposals will seek to support initiatives that are innovative, sustainable and with the potential to stimulate job creation. The funding made available through the Kenya Catalytic Jobs Fund will focus on three thematic areas: agriculture and manufac-

turing; the informal sector; and people in marginalised groups and areas.

The first call for proposals was launched in April 2019 and saw five successful businesses receive awards, namely: TakaTaka Solutions; Ten Senses Africa; Lynk Jobs Limited; Savanna Circuit Technologies Limited; and BuildHer.

Supported by UKAid, the Kenya Catalytic Jobs Fund is a US\$641mn, four-year programme, which tests and support innova-

tions with the potential to stimulate large-scale job creation.

Julius Court, the Head of DFID Kenya, said, "The UK is delighted to be part of efforts to tackle such constraints and promote the growth of the private sector in a way that creates opportunities for youth. We are listening when Kenyans tell the world they want mutually beneficial partnerships that move beyond aid and attract quality investment and create millions of jobs."

Termotecnica Pericoli names Poulex International as best poultry dealer in Egypt

ITALY-BASED TERMOTECNICA PERICOLI has named Poulex International company as the best poultry dealer of 2019 in the Egyptian poultry industry.

Assem Halim, president of Poulex International, received the symbolic prize during his recent visit to Termotecnica Pericoli factories in Italy.

Poulex International has been conferred the prize for results recorded in 2019 and for the numerous projects carried out in Egypt's poultry sector.

Established in 1967, Termotecnica Pericoli provides 'Made in Italy' solutions for specialised in agricultural and livestock environment worldwide. The company manufactures heating, cooling and ventilation equipment, distributed across global markets through an extensive network of agents specialised in agricultural and livestock environment.

Poulex has been one of the leading companies in Egypt and the Middle East in the supply of turnkey projects for poultry and livestock, providing the latest technologies and concepts.

The poultry houses and livestock sheds manufactured by them adhere to the highest



Poulex has been conferred the prize for results declared in 2019.

productive standards, by ensuring the best environment to the animals, in any climatic condition.

Poulex International has been projecting and manufacturing pre-fabricated poultry sheds of any size and typology for the last 15 years.



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The availability of high-quality feed is critical for producers to remain competitive and emphasise on sustainability.

Innovative feed for poultry

CURRENT LIVESTOCK FARMING practices contribute to serious global challenges, including climate change, land degradation, and pollution. Therefore, more sustainable methods are urgently required to meet the increasing demand for meat, fish, milk and eggs.

With the livestock industry under increasing scrutiny for its environmental and social impacts, changing the composition of conventional animal feed can help farmers to trigger production, thus creating significant environmental benefits.

The nutrition or feed requirement of poultry birds depends on various factors such as age, weight, rate of egg production, growth rate and climatic condition.

According to the UN Food and Agriculture Organisation (FAO), feed is the most important input for poultry production in terms of cost. The availability of high quality and low-cost poultry feed is critical for producers to remain competitive and to meet increasing animal protein demand.

Impact of innovative animal feed

Evonik partnered with finance and sustainability professionals at KPMG member firms to measure and evaluate the impacts of using sustainable animal feed practices on a large scale.

The analysis, using the KPMG True Value methodology, compared the societal impacts of using innovative animal feed versus conventional feed. It covered the

economic, environmental and social impacts of meat production across the value chain, from the cultivation of crops for animal feed through to animal husbandry.

The Evonik/KPMG True Value approach assigns a financial value for each impact. Once this was established for each impact, the total value of impacts (referred to in the analysis as 'societal value') could be calculated for production using innovative animal feed and conventional feed. The two calculations revealed significant differences between the two types of feed in terms of their social and environmental impacts.

The innovative animal feed also improves the efficiency of the animals' digestion, reducing the amount of food and water consumed and the amount of waste produced.

The analysis valued the environmental and social impacts of poultry production in Brazil at US\$1483.29 per tonne of live weight (t/lw) when conventional animal feed is used. The most significant impacts are land use to produce crops for animal feed and air pollution from the chickens' waste.

However, when innovative animal feed is used, the negative environmental and social impacts of chicken production are reduced by one third. The biggest reductions are in land use and its effect on

biodiversity, air pollution and the potential for soil acidification and pollution of waterways.

"The results of this analysis could change perceptions within the livestock production industry. They could trigger meaningful dialogue across the value chain and help to shift farming towards more sustainable practices", said Dr. Emmanuel Auer, Head of Animal Nutrition, Evonik.

Conventional animal feed is high in protein, which leads to high levels of nitrogen in animal waste. Evonik has developed amino acids for animal feed that help to reduce animals' protein intake. This, in turn, decreases the level of nitrogen excreted. The innovative animal feed also improves the efficiency of the animals' digestion, reducing the amount of food and water consumed and the amount of waste produced.

"We see this analysis as a tool to guide decision-making in innovation and product portfolio management to develop new products and services with a positive effect on society," said Dr. Auer.

In conclusion

For optimal growth and good health, poultry business needs to pay attention to balanced nutrients.

Water plays a major role in the diet. Maintaining a constant supply and good quality of water is of great significance.

Feed additives are gaining importance in providing optimal well-being and comfort in poultry business. **E**

Innovative feed improves the efficiency of the animal's digestion.

Optimising flock efficiency with artificial intelligence

THE MONITORING AND efficient handling of different shell qualities can have a surprisingly positive result for the business.

To detect the shell strength of every individual egg, the Netherlands-based Moba had, almost a year ago, launched an innovation based on acoustic analysis enabling customers to:

Monitor flocks based on average shell quality and uniformity within a supply of eggs

Grade eggs based on shell quality. This means that from a flock of relatively low quality, the stronger shells (which still often represent 80–90 per cent of the eggs) go to retail products, while the worst is downgraded to an industrial product.



Harnessing digital technologies help improve efficiencies.

Image Credit: Kristina / Adobe Stock

After testing this function at various test sites, it is set to become a standard feature of Moba's crack detection function.

Moba has announced a futuristic development programme to incorporate AI into a vision system for detecting cracks.

Paul de Schouwer, commercial director of Moba, explained, "Where most market segments focus on optimising profits and squeezing the highest possible yield out of the logistical balancing act between supplies and products, other market segments are dealing with unheard hygienic challenges, to such an extent that simplicity prevails over the yield of the operation."

"In such a situation, the new technology using AI will certainly help with simplifying things," de Schouwer added.

In a lot of ways, artificial intelligence and machine learning are integrating into agriculture and livestock production.

Harnessing these technologies offer several ways to respond to the growing demands on poultry production and to improve the efficiencies. They have an impact on maintaining poultry health, disease management as well as ensuring food safety.

Apart from farmers or processors, technologies such as those involving artificial intelligence, provide greater transparency to customers. **E**

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Dairy manufacturers are looking at innovative ways to measure and lower the carbon emissions from their farms.

Reducing the carbon footprint of milk

EMISSIONS FROM MILK production can be reduced in many ways. One of the most important methods is carbon farming that maximises the carbon sequestration capacity of fields. The carbon footprint decreases by increasing the per-hectare harvest of grass for feeding cows.

Cow welfare has a big climate impact. Emissions per litre of milk are reduced when cows live longer and produce milk well. The proper handling of manure reduces emissions: tilling manure into the soil rather than spraying it reduces nutrient runoff, and less industrial fertilizers are needed. Some dairy farms are already using their own biogas plants. The energy they produce from manure can be used to heat the farm and to power the milking equipment, for example.

Over the decades, Finnish dairy farms have done a lot of work to reduce their carbon footprint. The global average carbon footprint of raw milk is currently 2.5 CO₂e per litre. In Finland, the figure is estimated around one CO₂e per litre.

Using Valio's calculator, emissions reductions can be measured and verified at the farm level.

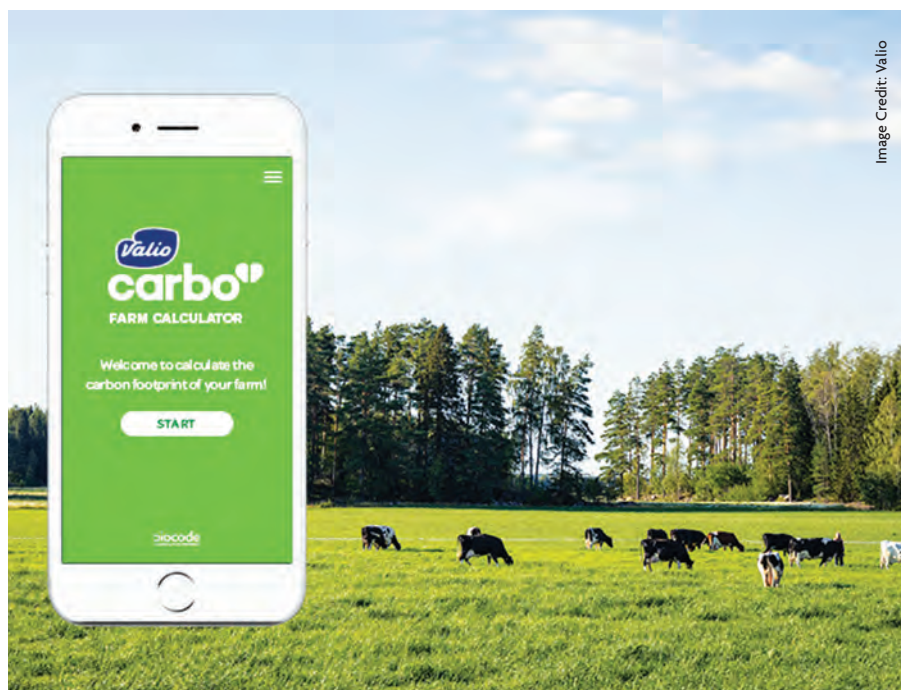
Valio, Finnish manufacturer of dairy products, has unveiled a calculator for the farms to measure own carbon emissions

Using the calculator, emissions reductions can be measured and verified at the farm level. The methodology behind the tool is certified by global climate and sustainability experts, the Carbon Trust.

Finnish cows' methane emissions per litre of milk have halved in 50 years as a result of improved animal productivity, health, and nutrition. Cows today can produce more milk with the same amount of feed. Despite this development, the climate impact on Finland is still significant.

Actions reducing emissions are savings actions.

Rami Rauhala and his wife Johanna



Using the calculator, emissions reductions can be measured and verified at the farm level.

operate a 65-cow dairy farm in Sievi, western Finland. The carbon footprint of the Hilliaho dairy farm was calculated as part of the work to develop the calculator.

Climate-smart milk production is also resource-efficient, that is, it makes good sense economically. Most of the fields on our farm are either grass silage or grazing pastures. We have also over-seeded to make the vegetation as thick as possible. In our area, the significance of reparation is also big. Parcels that have over time become fragmented have been reparationed into feasible parcels among landowners.

When fields are closer to the farm centre, tractors use less fuel. It has been great to notice that we, milk producers, are part of the solution to climate change.

Valio's goal is that all its farms are using the tool within the next five years. So far, data has been collected from 100 farms.

"We have scheduled a training roadshow for dairy farms and we are providing them with online support, too. The calculator is easy to use and the farmers already have most of the data at hand. I estimate that the

average farm can lower its emissions by 30 percent by 2025. At the same time, we are of course working to reduce emissions from Valio's factories, transportation and in packaging," said Aleksi Astaptsev, Valio's scientist who developed the calculation model.

Milk production and emissions

As global warming becomes an increasingly alarming issue, reducing the environmental impact of impact of carbon emissions is of utmost urgency.

Cows convert the energy and nutrients in grass into and its price is the methane that is generated in the animal's rumen.

Most of milk production's emissions are created in the cow's rumen as well as in manure storage. The second largest share of the carbon footprint is generated in feed production, which releases nitrous oxide. The carbon dioxide generated in different stages of the production chain, such as in energy production for factors and in transportation, also play a role in the carbon footprint. **E**

ASC Shrimp Standard recognised by Global Sustainable Seafood

THE GLOBAL SUSTAINABLE Seafood Initiative (GSSI), a seafood certification industry benchmark, has officially endorsed Aquaculture Stewardship Council's (ASC) Shrimp Standard.

To become recognised, schemes must demonstrate alignment with a number of essential components including the robustness of the standard itself, as well as how it is applied, managed and audited. In addition to the essential components, the ASC Shrimp Standard met an additional 16 supplementary components, covering issues including antibiotic restrictions, survival rates, and waste management.

Michiel Fransen, head of standards and science at the ASC, said, "As part of ASC's mission to drive up standards across aquaculture, we are working to continuously review and revise our own standards. A review of the Shrimp Standard is currently underway, looking at strengthening a number of aspects including requirements around mangrove forests, minimising impacts to areas around farms, and the sourcing of broodstock."

The ASC programme was developed according to the UN FAO guidelines and is the only aquaculture certification scheme to



Image Credit: Adobe Stock

The Shrimp Standard was developed by the Shrimp Aquaculture Dialogue Steering Committee.

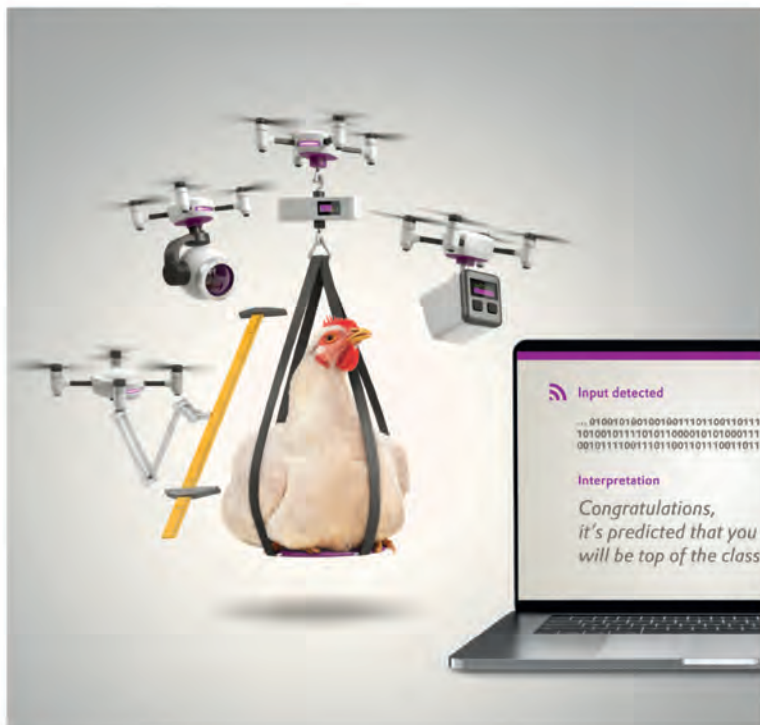
be recognised as a full member of the ISEAL Alliance, which requires an inclusive and transparent standard-setting.

The Shrimp Standard was developed by the Shrimp Aquaculture Dialogue Steering Committee, a multi-stakeholder group made up of NGOs, academics, and industry representatives.

The majority of certified farms are in Vietnam, Ecuador, Indonesia and Honduras. The current review of the standard is looking

at antibiotic-related requirements, and those regarding mangroves, farm management, broodstock and the species-scope. The public consultation will begin this year, and ASC is currently gathering farming and research data on a number of shrimp species to help set metrics for the standard.

The Shrimp Standard includes more than 100 performance indicators that farmers must meet to show that they are protecting the environment and respecting their workforce.



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Despite many challenges, there are several initiatives contributing to improve production and value addition. *Mwangi Mumbo* reports.

Cheer for the cashew sector in East Africa

Concerted efforts in Africa are helping to revive the cashew nut sector.

Image Credit: Adobe Stock

INCREASED GLOBAL DEMAND coupled with the need for a healthy lifestyle, has stimulated the revival of cashew nut production in Kenya as well as in neighbouring Tanzania.

Industry players, governments as well as donor organisations such as the European Union (EU) have also invested in the revival of local cashew nut production.

However, low prices and exploitation by intermediaries affect farmers.

"Farmers need a strong guarantee to move back to cashew nuts as many have switched to cotton, mangoes and coconuts," observed Joseph Mutuko, a farmer in Msambweni, Kwale County, near the Tanzanian border.

The global demand has increased by 53 per cent since 2010.

Research has established that cashew nuts have high levels of iron, magnesium, zinc, copper, phosphorus and manganese.

They are also rich in mono-unsaturated fatty acids that promote healthy levels of good cholesterol.

"Local men believe cashew nuts boost virility as well as stomach discomfort. It is high in demand in Kenya," observed Ali Hussein, a regular consumer of the nuts in the Kenya's coastal town of Mombasa.

In Kenya, production currently stands at

about 25,000 tonnes annually, far below the 1978 peak production of 38,000 tonnes. This production represents a meagre 0.6 per cent of the global production.

Yet, the industry still employs at least 68,950 farmers in the Kenyan coast.

A report by Kenya's Nut and Oil Directorate noted that land under cashew nuts decreased from 28,758 hectares in 2015 to 21,284 the following year.

The production also went down from 18,907 to 11,404 tonnes in the same period.

Progress in Tanzania

Tanzania on the other hand, has experienced a tremendous growth in the cashew nut sub-sector in the last few years.

For instance, the government projects a 33 per cent increase in production in the year ending September 2020: mainly due to favourable weather conditions and increased planting.

Output over the period is seen reaching 300,000 tonnes from 225,000 tonnes in the 2018-19 period.

In 2019, the government intervened and ordered a 94 per cent hike in farm gate prices to protect farmers from exploitation by middlemen of one of the country's most valuable crop exports.

Sector revival in Kenya

Efforts are currently underway in Kenya with the EU contributing US\$2.4mn to boost the planting of new trees in Kilifi, Kwale and Lamu counties.

Through the Ten Senses Africa company, the EU is propagating cashew nut seedlings, providing extension services and buying nuts for processing on a factory to be established in three years in Kilifi County.

"The seedlings are being procured by the county governments on behalf of farmers. A seedling costs KS 100 (US\$1)," observed John Amatole, the company's business development manager.

Launched in June 2018, the project has made remarkable progress, having distributed 450,000 high-yielding seedlings to farmers in Kwale, Kilifi and Lamu counties and obtained the fair trade certification of 15,000 smallholder farmers to enable them access high-value markets.

Ten Senses Africa in collaboration with Farm Africa, an international non-governmental organisation active in Kenya, is assisting in establishing three cashew seedling nurseries, training farmers on fair trade and organic certification and in providing incentives to youth and women to supply services to the value chain in a sustainable way.

Through a joint partnership with Slovakia, the Czech Republic, Poland and Hungary, the EU is funding the project to enhance livelihoods in the Kenyan coastal region by supporting organic and fair trade certification of smallholders.

This action is funded under the EU Emergency Trust Fund for Africa and is implemented by the Slovak Agency for International Development Co-operation along with V4 partner organisations which are actively engaged in training farmers - 45 per cent of them women, and promoting their products abroad.

Through the programme, young people and women are being trained in skills like pruning, controlling biological pests and diseases. Pruning has boosted production of existing trees, according to local farmers.

"I have noted a considerable increase in production from pruned trees. So far, I have harvested 400 kgs of cashew nuts and sold to Ten Senses at Ksh75 (US\$0.75) per kilogramme," said Anna Jeremiah Nduku, a farmer in Kwale County.

The Government, through the Ministry of Agriculture, has subsidised the distribution of over 350,000 seedlings to various counties at the Coast in order to boost the supply of improved, grafted cashew nut seedlings.

The Kenya Agricultural and Livestock Research Organisation (KALRO) has also been active in reviving the crop and recently issued about 400,000 seedlings to farmers

in the region.

"With new varieties of seedlings, we believe in a span of three years, the crop will be on its way for sustainable economic production," observed Francis Muniu, KALRO's head of horticulture and industrial crops research.

Pruning has boosted production of existing trees, according to local farmers.

Local processors have decried low production among farmers even as global demand continues to rise.

"Our biggest markets are Europe and the US but our raw material is little. Local market is too small even as global prices continue to rise to over US\$8 per kilo. Locally, a kilogram of cashew nuts is only US\$1," said Bobby Thomas, a director of Wondernuts Limited, a cashewnut processing firm based in Kilifi county.

Other firms dealing in cashew nuts in Kenya include Agro Group Limited which sells nuts at US\$7000 per metric tonne and Wyzer Cashews. Chinese e-commerce giants Alibaba.com retails a small bag of Kenyan cashew nuts at US\$1.20-2.50.

Among Tanzanian firms dealing with cashew nuts is the MeTL group. The company has one of the largest cashew nut processing facilities in the country.

Other companies include Tranax

Investment Limited, Ruhuru Enterprises Company Limited and Connect India (Tz) Limited. On its part, Tanzania has also been seeking partners and investors to boost production and value addition.

The Tanzania Investment Centre (TIC), supported by the USAid, has drafted a strategy for cashew nut production and processing in four regions of Lindi, Mtwara, Tunduru and Pwani.


Investors are being sought for new plantations aimed at increasing production and total tonnage, suppliers of machinery, equipment and spare parts.

Other investors to put up industrial parks and cashew processing industries are also in demand in Tanzania, which accounts for 75 per cent of East Africa's total production.

Investors in value addition to produce cashew nut butter, cheese, sweets, fruits drinks, lubricants, waterproofing and paints are equally in demand.

Across the African continent, production is expected to grow by 4.5 percent, according to Mordor Intelligence, a market research firm.

Côte d'Ivoire, Benin, Tanzania and Guinea Bissau are the largest producers.

Available data shows that in 2017-18, global cashew nut production stood at 3.9 million tonnes with Vietnam, India and Cote d'Ivoire leading the pack at 22 percent, 19 per cent and 18 per cent of the total world production, respectively. 



Across the African continent, production is expected to grow by 4.5 percent, according to Mordor Intelligence.

Research by Global Market Insights, Inc. provides insights into the growth of the edible insects industry.

'Nutritional benefits of edible insect products growing market demand'

GLOBAL MARKET INSIGHTS, Inc., headquartered in Delaware, U.S., is a global market research and consulting service provider, offering syndicated and custom research reports for industries such as chemicals, advanced materials, technology, renewable energy and biotechnology.

In its edible insects market report the company, the company says that the global edible insects market is projected to achieve more than 47 per cent CAGR from 2020 to 2026, supported by rising consumer awareness about nutritional benefits of edible insects and willingness to explore new dietary trends.

A rapid shift of consumers towards high protein and low-calorie ingredients and rising competition to introduce innovative edible insect products is likely to boost the industry demand.

Industry players are utilising cricket and mealworm powders rich in protein and nine essential amino acids to prepare snack bars, energy and protein bars. Industry players are experimenting with various ingredients and flavours to make their product edible in raw form which is likely to encourage consumption. Rapid shift towards adopting high-quality protein powders in daily dietary needs is likely to boost edible insects industry growth.

Edible insects market set to cross US\$1.5bn by 2026

Beetle and ant powders are widely used to fortify snacks such as potato chips, wedges, chocolates and other confectionery products. These powders contain a pure and high concentration of branched amino acids such as lysine and valine which aid in increasing immunity and muscle growth which should boost the outlook for the edible insects market.



Beetle and ant powders are widely used to fortify snacks such as potato chips, wedges, chocolates and other confectionery products.

Image Credit: Adobe Stock

Edible insects are roasted, dried, and powdered to form high protein and low-calorie flour. Most common edible insects available for consumption in market includes beetle, locusts, cricket, and ants.

Also, easy availability, protein extraction, high nutritional profile, and economic processing techniques is making edible insects popular among consumers which is likely to boost market demand.

Major findings of the edible insects market report include:

Changing dietary patterns towards low calorie and high protein sources owing to increasing consumer inclination to consume nutritious diets should propel the global industry trends.

Rising awareness on potential benefits of edible insects products and increasing

demand for naturally fortified ingredients should boost market demand.

Major edible insects market players include Exo Protein, Gathr Foods, Crowbar Protein, Crik Nutrition, Cricket Flours, Crickets and Bugsolutely.

Companies are rapidly investing in R&D to capitalise on changing dietary needs and shift towards edible insect preparations.

Industry players are developing novel techniques to market their products by offering free samples, discounts, and attractive packaging.

Manufacturers are rapidly adopting new product development by introducing beta glucan-based food items such as bakery preparations, snacks and beverages.

Rapid adoption in the baking industry to include edible insects flours to prepare high quality and nutritious bread products to boost product demand.

Increasing prevalence of livestock diseases is making consumers opt for safe, economical, low calorie, and protein-rich alternative sources which are likely to boost the edible insect market share. **E**

The report by Global Markets Insights, Inc points out that a rapid shift of consumers towards high protein and low-calorie ingredients and rising competition to introduce innovative edible insect products is likely to boost the industry demand.

Technology is helping farmers gain better control over decisions in planting and paving the way for sustainable production.

Enabling better planning for planting

PRECISION AGRICULTURE IS empowering farmers to plan in advance and optimise crop production.

These are a few ways in which planning decisions for planting get impacted:

Data for better planning - With the help of sensors, everything from air and water quality to soil and plant health are monitored at a greater accuracy level. Organisations such as the Global Open Data for Agriculture and Nutrition (GODAN) promotes the proactive sharing of open data to make information about agriculture and nutrition available, accessible and usable. Increased data availability and access to smart technologies empower farmers and companies, throughout the worldwide food production chain to better plan and execute food production and farming.

Intelligent equipment - Automation in agriculture is now a necessity. Precision seeding equipment helps control the depth of seeds planted and the appropriate spacing. Equipment such as smart irrigation systems monitor moisture and temperature, aiding in watering and planting decisions.

Drones - Drone technology makes a huge contribution to agriculture. Equipped with field-level imagery, they help complement precision farming techniques for agriculture.

Artificial intelligence - The predictive power of artificial intelligence can help



Precision farming is empowering farmers to plan in advance.

farmers become more accurate in their planting and planning decisions.

Weed control - Precise weed and pest maps serve as an input for modern large-scale sprayers which are designed to spray with decimeter precision. This has an

impact on cost and the environment. In conclusion

Through efficient use of resources and emphasis on the benefits to the environment, precision farming offers sustainable ways of crop production.

Harnessing technology for optimising production to support everything from weed identification to crop health and yield estimation, precision agriculture relies on precise data to help feed the growing population. **E**

Precision farming is offering sustainable ways of crop production.





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A case study on a farm in Kenya uses a novel solid separation process for increased efficiency in irrigation.

Water solutions for optimised irrigation

WITH TECHNOLOGIES HELPING farmers manage the use of resources, the need for better water quality at the inlet to the irrigation systems is gaining significance.

One of the main impurities that need to be removed to ensure the optimal functioning of irrigation systems are the particles that are present in the water. Particles might be present in the water from natural sources or from man-made pollution. While filtration might be a suitable solution for removing particles, a solid separation step will be needed either as pretreatment or a single process if turbidity levels exceed 50-100 Nephelometric Turbidity Unit (NTU) or for the treatment of fine particles, such as algae.

Traditionally, most solids separation processes that are being done are based on the density difference between the water and the particles. Particles might have higher density than water and will settle in a settling basin or will have lower density than water and will float and will be skimmed from the surface of the water. This results in either very large and expensive solutions, such as clarifiers, or costly and complex such as Dissolved Air Flotation.

AquaHD has developed the Natica, an innovative hydrodynamic separator that is a significant leap forward from conventional solid separation processes. Natica creates centripetal hydrodynamic forces to separate



Image Credit: AquaHD

particles under low pressure (1 bar). In Natica, water flows through a dedicated circular structure. The flow of the water in the circular structure allows the creation of high centrifugal forces (6-8 G) under low pressure. The unique geometry and flow patterns of the liquid inside Natica allows for the creation of laminar flow and for effective solids separation from the water stream. Due to the high centrifugal forces, particles will be concentrated in the outer perimeter of the separator. A specially designed outlet structure, will separate the stream rich in particles (near the outer perimeter) and the clean water stream. Particles that had been removed from the water will either go a further sludge thickening and dewatering treatment or will be sent back to the environment.


Case Study: Water treatment for Kenyan farm

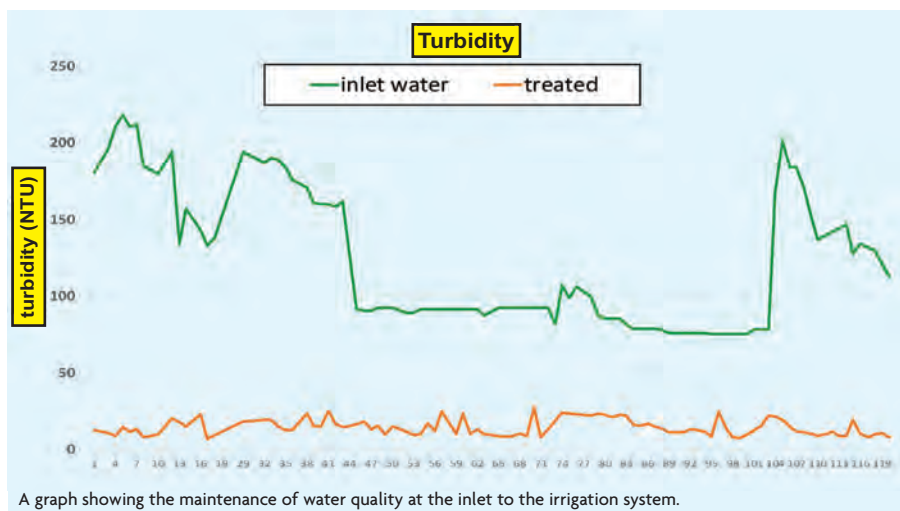
The Golden Tulip company in Kenya, is a producer of vegetables, herbs and flowers in greenhouses. Water supply for the agricultural activities is from a nearby river. Water in the river is characterised by high turbidity (up to 500 NTU).

Aside from clogging the irrigation piping, the reaction between the particles in the water and the fertilisers had created sediments in the irrigation piping which required frequent replacements of all the irrigation system which resulted in high maintenance costs and long downtime in production.

Due to the light weight of the particles, sedimentation of the particles in a sedimentation pond had been proven ineffective even at very long residence time.

During the month of July 2019, the AquaHD team had completed a comprehensive demonstration project to test the ability of the Natica system to effectively treat the river water for particles removal and to maintain water quality at the inlet to the irrigation system at 20-30 NTU (over 95 per cent removal). As can be seen from the graph below, the system had exceeded the design requirement and continuously supplied water below 20 NTU.

Aside from the high efficiency of the system, the system is modular and thus additional separation units will be added in short period, based on the farm expansion plans. Installation of the system is very fast and it can be installed in as little as two weeks' time. 



The Dangote fertiliser plant is helping to improve the ecosystem in Nigeria.

Dangote commences pre-testing of urea plant

DANGOTE FERTILISER LIMITED has started pre-testing of its US\$2bn granulated urea fertiliser complex before inauguration urea complex plant. The current consumption of urea estimated at a dismal 700,000 tonnes per annum by Nigerian farmers.

The complex is located in the Dangote Free Zone.

With a capacity of three million tonnes per annum, the plant has been classified as the biggest project in the entire fertiliser industry history in the world. Siapem of Italy is the engineering, procurement and supervision (EP) contractor for the project, while Tata Consulting Engineers (India) is the project management consultant (PMC) for the project.

At this time, several critical sections of the plant are going through various stages of pre-commissioning and test-run. Virtually all the sections of the plant such as Central Control Room, Ammonia and Urea Bulk Storage, Cooling Tower, Power Generator Plant, Granulation Plant, have all been completed and are going through pre-testing.

Dangote Fertiliser has started receiving gas supply from the Nigerian Gas Company and Chevron Nigeria Limited under the Gas Sale and Purchase Agreement to supply 70 million scf per day of natural gas to Dangote Fertiliser Limited.

The project, which will create thousands of direct and indirect jobs in construction and related fields, will provide a major boost to the agricultural sector by significantly reducing the importation of fertiliser in Nigeria and ultimately removing the need for imports when plant is in full production.

Devakumar Edwin, group executive director, strategy, portfolio development and capital projects, Dangote Industries Limited, said that Nigeria will be able to save US\$500mn from import substitution and provide US\$400mn from exports of products from the fertiliser plant.

He stated that the Dangote fertiliser project, which is estimated to gulp US\$2bn, is the largest granulated Urea fertiliser



The goal is to reduce the importation of fertiliser in Nigeria.

Image Credit: Singham/Adobe Stock

complex to emerge in the entire fertiliser industry history in the world, with its three million tonnes per annum capacity.

"The current consumption of urea estimated at a dismal 700,000 tonnes per annum by Nigerian farmers is said to be due to very poor usage and is believed to be the cause of poor product yield, which threatens food security in the country."

"By 2020, the Nigerian population is projected to increase to about 207mn which would lead to increased food production. Estimates point out that around five million tonnes of fertilisers are required per year in Nigeria in the next five to seven years bifurcated into 3.5mn tonnes of Urea and 1.5mn tonnes of NPK while current production levels in Nigeria are at 1.6mn tonnes by 2019."

With a capacity of three million tonnes per annum, the plant has been classified as the biggest project in the entire fertiliser industry history in the world.

About Dangote

Dangote fertilisers, is a component of the Dangote Group, one of Nigeria's most diversified business conglomerates owned by businessman Aliko Dangote. The group products from cement, sugar, salt, food seasoning, vegetable oil, tomato paste, petrochemicals, package materials, logistics, real estate, food and beverages.

The group is supporting the farmers in a large measure and have a team of trained agronomists as well as agricultural engineers, who go into the farms to help farmers.

Dangote is involved in seeds distribution, as well. Further, it is helping with soil testing, so the farmer is working with the right soil and fertiliser plant.

"With the potential of increased yields, the farmer will employ more hands. With increased yields and processing of the farm products, the employment potentials will be enormous," said Devakumar Edwin.

He added that the focus of Dangote in agriculture is on how to grow the economy of the country, not just in employment but in adding value.

Dangote Industries is active in strengthening the agribusiness environment across Nigeria. **E**

The organisers elaborate on their mission for the Agritech Expo Zambia which was postponed two weeks before the event was scheduled to take place.

Delivering high standards in events and exhibitions



The AgriTech Expo team in the field. Wayne Krull, Operations Director, Christopher Armstrong, Marketing Manager, Simunji and Zulu from the GART team of agronomists, Rae Ferguson from Rooney's Supply.

Image Credit: DLG

ON 16 MARCH 2020, exactly 15 days before the seventh edition of the AgriTech Expo in Zambia was to kick-off at the GART Research Centre in Chisamba, Zambia, the organisers, the local representation of the German Agricultural Society (DLG Agriculture Limited) and Zambian National Farmers' Union (ZNFU) received an official communication from the Ministry of Health of the Republic of Zambia to postpone the event.

The week before this official announcement was received by the organisers, the outbreak of the new coronavirus (SARS-CoV-2) was given the status of a pandemic

by the World Health Organisation (WHO). This resulted in a number of countries putting in to effect many precautionary measures such as closing of borders, nation wide lockdowns as well as cancellation or postponement of large gatherings to combat the spread of the virus.

In 2019, the sixth edition of AgriTech Expo Zambia hosted more than 18,000 visitors, 300 exhibitors and seven international pavilions from the Czech Republic, European Union, Italy, China, Sweden, Finland, Germany and the United Kingdom.

Therefore, it was clear to the organisers as soon as the situation started to deterio-

rate and the official communication was received from the government of Zambia, that the exhibition had to be postponed without any question. As with all event organisers who have had to deal with this situation, the safety and wellbeing of all the stakeholders is of paramount importance.

Preparations for event

One of the most popular features of the AgriTech Expo Zambia is the crop trial area. In 2019, 26 companies demonstrated their seeds, chemicals and fertilisers on their designated trial crop plots. For this to work seamlessly, exhibitors, organisers along with the agronomists at the host venue of

AgriTech Expo Zambia, the GART Research Centre, have to work on tight planting, irrigation and maintenance schedules for a period of five months before the exhibition is to take place.

Field preparation is one of the most critical operations for a show like AgriTech Expo Zambia. It requires meticulous planning, preparation and coordination and it is highly rewarding when everything comes to fruition, to see 70,000 square meters of land ready to receive visitors and delegates the day before the event is to take place.

As can be imagined, there are many commercial impacts when an event has to be postponed due to unforeseen circumstances. In the case of AgriTech Expo Zambia, the ability not to exhibit the 30,000 square metres of trial crop plots with perfectly grown crops is one that has had a financial as well as an emotional impact.

The objective now in the mind of the organisers is to look to the future and gear up to deliver an impactful high quality event as well as reduce the financial impact to exhibitors, sponsors and supporters of the exhibition.

The first step for the organisers is to agree on the new dates for the event with all the officials and concerned stakeholders. Following that the organisers look to maintain the quality of the various popular features of the show, such as the Bayer Networking Zone and High Level Panel Discussion which aims to bring about a more inclusive agricultural policy making process in the country where the farmer's voice is taken into consideration. The Bayer Networking Zone follows the high level panel discussion, where the key topics discussed can be taken in to a more casual setting with the leading policy



Image Credit: DLG

Billboards for Agritech Expo placed at high footfall locations to attract visitors now obsolete due to the postponement of the exhibition.

makers, top commercial farmers, suppliers and distributors of the latest technology and innovation in farming, media and other critical stakeholders with the aim to take the next steps in shaping the future of farming in the region.

In addition to that, the organisers look to ensure the participation of as many international exhibitors through the country pavilions which was at high risk due to the coronavirus outbreak.

The organisers will refine the content of the free to attend workshops for farmers. Content will be tailored to the region and customised to topics such as agri-finance and affordable technology that have been impacted due to the economic impacts of the coronavirus outbreak. The organisers will use the additional time to curate new features to add to the exhibition to engage the attendees. Some of these include livestock and future affordable technologies in agriculture.

Finally, the organisers look to engage


and secure the participation and support of all the exhibitors, sponsors and visitors to guarantee a lucrative business networking platform which AgriTech Expo Zambia has built a reputation to deliver over the past years.

About Agritech

AgriTech Expo Zambia is the business-to-business buying platform for agricultural professionals, from small-scale farmers to commercial enterprises, to engage and conduct business with some of the world's leading suppliers to the agricultural industry.

It is presented by the Zambian National Farmers Union and hosted by Golden Valley Research Trust (GART).

The organisers, DLG Agriculture, offers international expertise in setting up trade fairs and providing project management and consultancy services.

The organisers will be announcing the new dates for AgriTech Expo Zambia soon. 



Fully prepared crop trial plots from different exhibitors intended for demonstration to the visitors at AgriTech Expo 2020 that was scheduled for the 2-4 April 2020.

Image Credit: DLG

Biogas technology has proved to be instrumental in transforming lives by producing clean energy from waste.

Improving lives with biogas

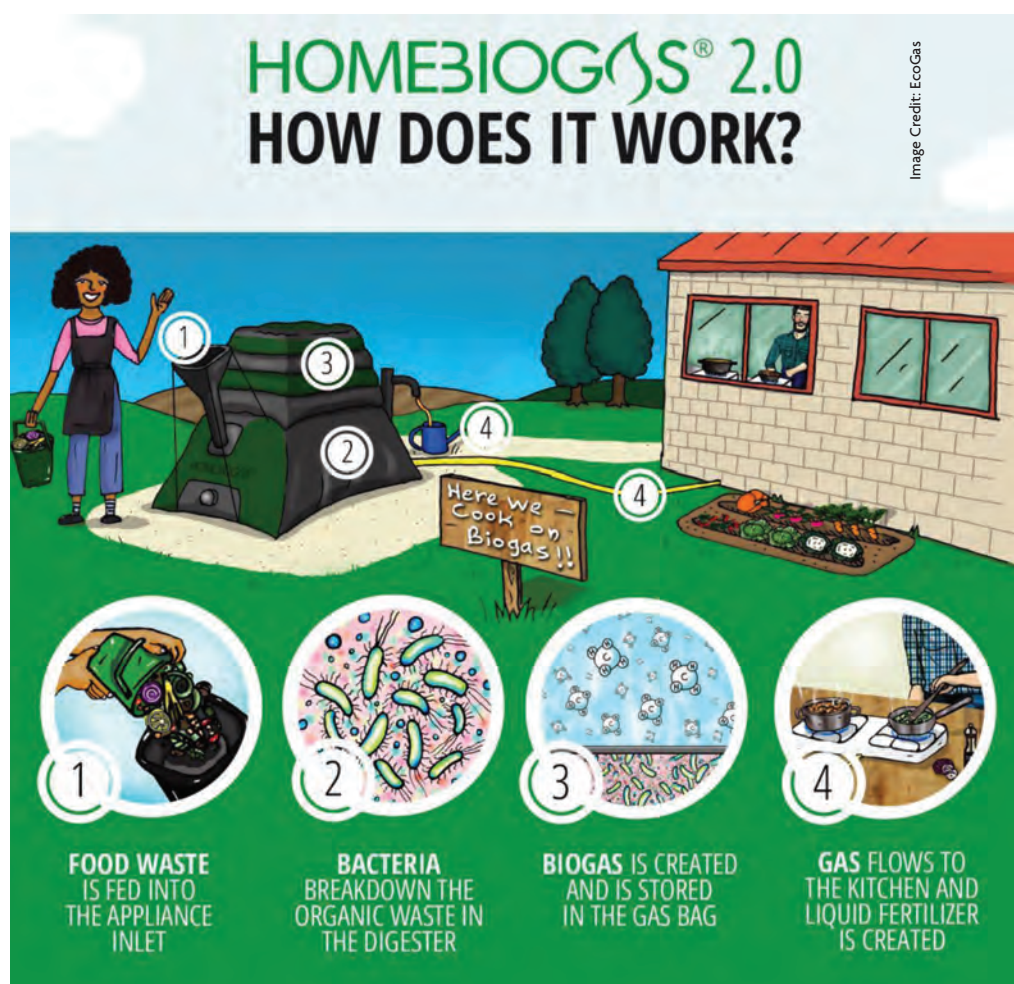
THE VAST MAJORITY of sub-Saharan Africa is experiencing an energy crisis, living without clean fuels and technologies for cooking. As a result, four million deaths are caused each year due to indoor air pollution from cooking with inefficient, polluting and harmful fuels, according to the World Health Organisation. Each year, millions of cubic metres of wood from forests are lost due to unsustainable charcoal and wood fuel use, which is a major contributor to the deforestation rate and climate change. Off-grid communities are in dire need of a clean cooking solution.

Innovations for a better life

Combining waste management with making available clean and affordable fuel to the masses, HomeBiogas has introduced small-scale, off-grid systems that offer a comprehensive solution for waste management, renewable energy creation, clean-cooking, natural liquid fertilisers and sanitation for households and farms in peri-urban and rural areas.

The HomeBiogas systems are the most efficient and user-friendly small-scale biodigesters available. While being safe and easy to use, it is affordable as well -- improving livelihoods and saving money, while helping to fight deforestation and climate change. Company Vision and Success HomeBiogas were established in 2012 with an aim of reducing organic waste, to transition to clean and renewable energy sources, and improve living conditions for the millions of families who are still cooking with unclean fuels. Distributors and aid organisations around the world have joined HomeBiogas in raising awareness about the benefits of biogas technology.

Ecogas works closely with HomeBiogas to create tailor-made solutions for small, mid and large-scale farmers with a mix of livestock farming systems.



An illustration of HomeBiogas 2.0

Together HomeBiogas has proudly provided thousands systems to families and farmers in more than 106 countries and aims to continue to help in establishing biogas in the Zambian market.

BioGas in Zambia

Over the years, Zambia has faced an ever growing energy crisis and is especially feeling pressure in the agricultural sector. Losing nearly 250,000 hectares of natural forests every year for charcoal and with climate change being an ever increasing threat to daily lives, a renewable source for cooking and heating is a priority.

With the help of HomeBiogas, EcoGas is

working to help change minds and encourage usage of renewable sources for cooking and heating.

EcoGas, in conjunction with Homebiogas helps create tailor-made solutions for small, mid and large-scale farmers with a mix of livestock farming systems. The energy can be used for multiple uses on the farm such as warming newborn piglets and chicks, sterilising dairy equipment and mechanisation power of small-scale milking equipment and for chilling milk. **E**

EcoGas Zambia is one of the exhibitors for AgriTech Expo Zambia, which has been postponed due to the coronavirus outbreak.

Pöttinger's CCI 1200 ISOBUS terminal set to ease field operation

PÖTTINGER HAS LAUNCHED the CCI 1200 ISOBUS terminal, with an aim to monitor site-specific recording of all field operations with greater efficiency.

The CCI 1200 ISOBUS terminal aims to enable professional operation of all ISOBUS-compatible machines including NOVACAT X8 and A10 mowers, TOP 1252 C rake, FARO, EUROPROFI, TORRO, JUMBO and JUMBO COMBILINE loader wagons.

The new 12-inch CCI 1200 ISOBUS terminal is set to provide the user with a comprehensive function package. It has a touchscreen and the user can use it as a tablet.

According to Pöttinger, the menu system is straightforward and a few taps of the screen are needed. The integrated light sensor automatically adjusts the brightness of the display so that it is easy to read in direct sunlight or at night.

The flexible screen layout helps to position the display either horizontally or vertically. Several applications can be displayed simultaneously in different sized windows, thus enabling a seed drill with several metering units to be monitored easily and conveniently in a large format.

A camera image can be displayed alongside the machine data. For example, the user can keep an eye on unloading in the clamp or the wrapping sequence on a baler/wrapper combination.

The terminal is equipped with a help system



CCI 1200 with seed complete.

that enables the user to find out more about applications that are open.

Pöttinger's precision farming packages include:

Variable Rate Control: Site-specific application of seed/fertiliser, taking the site soil conditions into consideration

Section Control: Automatic switching of the whole or partial working width during operation supported by GPS

Documentation: Site-specific recording of all field data during operation. For documentation purposes, this data can be imported into field indexing software as standardised ISO-XML files

Agrirouter connection: Wireless manufacturer-independent data transmission from the terminal directly to field indexing software in the office and vice-versa

Multi Boom: Independent control of all the different functions on a machine.

Increasing crop protection with GRIMME WG 900

GRIMME, DAMME (GERMANY)-BASED agricultural machinery manufacturer, has launched the new web grader WG 900.

Effective grading surface

GRIMME's WG 900 is set to increase the effective grading area by 15 per cent compared to the previous model. However, the overall length of the grading web has remained the same, so that the available grading webs of the previous model can be used. In addition, the drop step from the grading web onto the grading cross conveyor could be reduced by 60mm.

Reducing downtime

The QuickConnect system aims to reduce downtime by up to 70 per cent compared to conventional web-joiners. Thus grading webs can be adapted to the desired tuber size more quickly and easily.

To join the two ends of the grading web, the hook elements are clicked onto the connecting rod. To open, the quick-change system can be disconnected by hand.

Increasing crop protection

Due to a permanent contact between the redesigned eccentric agitator and the rubber fabric grading web, a uniform undulating web movement is generated, which contributes to a significant improvement of the grading performance. Furthermore, the



The new web grader WG 900 in modern design.

Image Credit: GRIMME

continuous contact of the eccentric agitator gently lifts any wedged crop out of the meshes.

Integration into the storing line

The new 800mm wide grading cross conveyor enables the sorted crop to be transferred to subsequent conveyor belts without any bottleneck. For an easier integration into the storing line, the machine can optionally be equipped with a height-adjustable chassis.

Smart technological solutions are paving the way for improved quality of life for the rural population of Africa.

Image Credit: Mohamed/Adobe Stock

Digital ecosystems improving lives of smallholder farmers in Africa

TECHNOLOGICAL INNOVATIONS FROM cloud computing, robotics, big data, artificial intelligence (AI), IoT to sensor technology and self-driving tractors, are contributing in a big way to increase efficiency, improve farming management and optimise farming processes.

In the African continent, the impact of various technological developments are being experienced.

There are several initiatives in Africa that are helping to bring the benefits of digital technologies to the rural farmers and others.

Mobile phone applications

As mobile phone usage spreads rapidly across sub-Saharan Africa, the revolution of digitalisation for agriculture in Africa is being fuelled. Entrepreneurs and development organisations are making use of mobile phones to create applications for profitable ventures in areas including agriculture.

To promote meaningful financial inclusion, the UN Capital Development Fund (UNCDF) is engaging with the rural population.

Space-related programmes for agriculture

Applications are helping Africans work towards Sustainable Development Goals (SDGs), with satellite data already in use by Kenyan maize farmers to monitor crop pests and reduce losses. This Pest Risk Information Service (PRISE), which is backed by the UK Space Agency and the Global Challenges Research Fund, is already operational in Malawi, Rwanda and Zambia. The objective is to identify

pests like maize stalk borer before dispatching text message alerts to Plantwise plant doctors. These officials pass on relevant information to farmers in the field.

Doctors pass on advice via their network of plant clinics PRISE also aims to empower input suppliers to predict demand more accurately and provide suitable products where they are most urgently needed. Insurance and financing companies should have a more detailed risk assessment picture.

A similar project, AfriCultuRes (supported by the European Commission and the Group on Earth Observations), extends the concept to improved monitoring of water availability and productivity, soil moisture detection and crop water requirements assessment and, as well as livestock grazing and rangeland monitoring. AfriCultuRes aims to achieve market readiness quicker than the typical 10 years for this type of technology.

Digital services boost rural financing opportunities

To promote meaningful financial inclusion, the UN Capital Development Fund (UNCDF) is engaging with the rural population.

More than 75 per cent of Ugandans are employed in the agricultural sector.

In the context of rural digital finance, the concept of a “booster team” is a dedicated team that supports one or several organisations to distribute their products and services to the last mile population. These products can range from financial services, energy products, digital and financial literacy content or any other sectors.

The booster teams are deployed to rural areas to simultaneously register customers, sell mobile handsets, recruit agents,

educate value-chain stakeholders on the benefits of a digital payment ecosystem and train users on the operation of a mobile phone and mobile money. The basic structure of a booster team is detailed in the report.

The pilot began in Uganda in 2018 and evolved organically through three main phases. It helped UNCDF to analyse usage data and identify additional gaps and improve approaches for the hardest-to-reach demographics.

This approach significantly increased penetration in rural areas. These hard-to-reach areas often have low population densities, poor roads and scattered economic activities. Nevertheless, UNCDF has made one of the most concerted efforts in the industry to determine what it takes to breach the rural frontier and to make sure no one is left behind in the digital era.

Digital ecosystems for utilities

Creating a digital ecosystem in rural areas is crucial to provide access to essential utilities such as water and power to the people, thus improving the quality of life

This requires collaboration with local suppliers if long-term success is to be achieved, according to Jeremy Potgieter, regional director for Africa at Eseye, a global IoT cellular connectivity and hardware company.

According to Potgieter, people living in the rural areas of developing countries face a range of challenges that threaten to isolate them from the benefits that are enjoyed by the rest of their populations.

Two major examples include accessing essential utilities such as water and power, as well as the challenges associated with accessing financial services and payment credit. “In an urban area, utilities are

delivered from a central source. In rural areas, however, it's not quite as simple. To achieve sustainable, long-term solutions, these utilities must be delivered locally."

He said that the economics of delivering electricity to small villages of only 50 people, for example, make them far more difficult to implement. It is here that with technological developments in areas such as water purification or solar energy, this can be overcome.

IoT is contributing to drastically improve the quality of life in rural areas.

"We have seen some great examples of how IoT has transformed the capabilities of these rural areas. With locally generated electricity, for example, paving the way for the emergence of phone-charging shops and even stories of people charging entry to their homes to allow visitors to watch major sporting events. The supplier of the equipment is allowed to manage and maintain their assets because of the integration of IoT technology, which provides them with constant performance updates," commented Potgieter.

Central to the success of any IoT project in a developing country is its ability to be globally connected and highly available.



Image Credit: Adobe Stock

Technologies such as IoT help improve the quality of life in rural areas.

To achieve sustainable, long-term solutions, these utilities must be delivered locally, Jeremy Potgieter, regional director for Africa at Eseye.

Potgieter noted that it must be straightforward for non-IoT experts to construct on a ground level.

At the point of deployment, Eseye can securely and quickly enter a device into the cloud. This helps locals who are setting up the IoT equipment to easily achieve quick configuration.

"As a result of this approach, Eseye is experiencing some success in developing countries, with life-changing projects through partnerships with suppliers such as SolarNow and eWater."

The digital revolution in agriculture calls for more sustainability and thus turns to the environment. There is greater emphasis on the responsible use of the planet's resources, animal welfare, ecological breeding methods and environmentally friendly cultivation. There are several challenges related to the use of digital technologies in rural Africa. Creating greater awareness and providing adequate training to help the rural people feel confident in using the equipment, becomes important. Concerted efforts are needed by government and private organisations in making available the benefits of technology to the rural population in Africa. **E**

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The combine harvester models of Case IH continue to help farmers around the world to optimise production and efficiency.

Case IH Axial-Flow harvesters combine quality and performance

CASE IH IS making high technology grain harvesting affordable and attainable for more farmers and contractors across China, Russia, Uzbekistan, Kazakhstan, as well as parts of Africa and South East Asia with three Axial-Flow 4000 Series combine models; the 4077HD, 4088HD and 4099 available, or soon to be available in these countries.

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. Since their launch in the USA in 1977, these benefits are characteristic of Case IH Axial-Flow single-rotor technology.

"The Axial-Flow 4077HD, 4088HD and 4099 are the most productive combines in their class," said Massimiliano Sala, product manager for combine harvesters in Asia, Middle East and Africa.

"Their simple design allows them to be adapted quickly to suit changing harvesting requirements, field conditions and crops,

"Axial-Flow 4000 Series combines are easy to use, so even operators who are new to the Axial-Flow concept can quickly learn how to harness their full potential," said Massimiliano Sala, product manager for combine harvesters in Asia, Middle East and Africa.

making them the perfect choice for contractors and farmers with multiple crops."

"Owners can move from corn, to wheat, to sorghum, to rice in hours, compared with almost two days for conventional or hybrid combines, so more time is spent harvesting and seasonal output is increased."

"Axial-Flow 4000 Series combines are also very easy to use, so even operators

who are new to the Axial-Flow concept can quickly learn how to harness their full potential," said Sala.

Designed in the USA, Axial-Flow 4000 Series combines harvesters are built at CNH Industrial's manufacturing facility in Harbin, China, the largest of its kind in the region. It produces a range of tractors, combine harvesters, headers, and other equipment for Case IH, and other CNH Industrial brands.

Last year in May, the plant achieved bronze status in the World Class Manufacturing (WCM) programme proving CNH Industrial's commitment to the pursuit of world-class manufacturing excellence.

Product enhancements

All three models are powered by FPT Industrial 6.7-litre, six-cylinder, in-line engines which meet Tier III emission standards, are turbocharged and air-to-air after-cooled to provide proven, dependable performance in all conditions.

All engines provide excellent torque characteristics, deliver optimum fuel



consumption and transmit their power through a three-speed hydrostatic transmission, with a 500-litre fuel tank featuring on all 4000 Series models.

The grain-on-grain threshing action that the Axial-Flow rotor provides limits grain losses through more effective separation and ensures that grain which goes into the tank is of the highest quality to generate maximum value.

All models feature a Cross Flow cleaning system which uses chevron-shaped fins to create a uniform, high volume of air, just enough to achieve the cleanest possible grain sample but minimise grain loss. Unlike conventional systems, air is distributed

evenly across the underside of the sieves to eliminate air pockets, while fan speed is fully adjustable to cater for finer-seeded crops, resulting in higher cleaning capacity.

Large grain tanks feature on all models to maximise the time spent harvesting. The 4077HD is fitted with a 5000-litre grain tank and 4.1m auger which unloads at the rate of 63 l per second, while the 4088HD and 4099 models have 6000-litre and 6500-litre grain tanks, together with 5m augers which unload at the same rate.

To optimise their performance potential, Axial-Flow 4000 Series combines are fitted with a spacious, comfortable cab which incorporates more than 3.74 square metres

of glass area, providing the operator with a panoramic view and excellent visibility over the header.

Operator comfort is enhanced by the A-pillar monitor, ergonomic control layout and suspended, individually adjustable seat, together with a high-capacity air filter and the standard heating/ventilation system. Air conditioning can be specified as an option to provide the ultimate in-cab environment.

Axial-Flow combines incorporate fewer moving parts than either conventional designs or more complex rotary and hybrid machines, so they are simpler to operate, more reliable and less costly to maintain. **B**

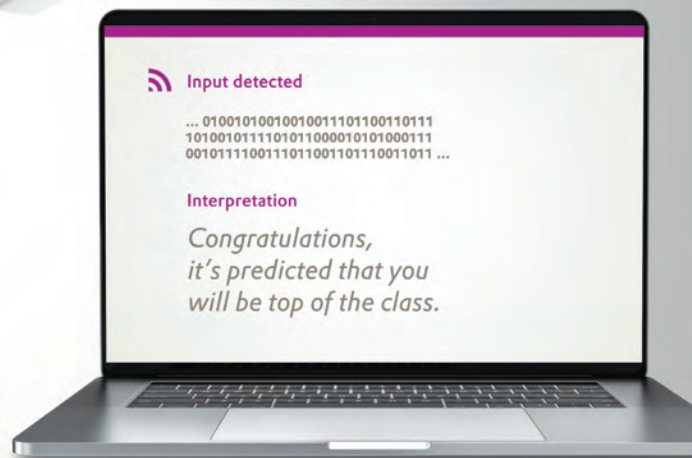


Image Credit: Case IH

Axial-Flow 4000 Series.



Martin Smith, technical service director, Middle East and Africa, Evonik, discusses the company's latest precision livestock technology enabling optimal poultry production.



Digital insights driving poultry management

Image Credit: Evonik

How is Porphyrio helping the poultry business deal with challenges such as disease management and consumer demand for greater transparency?

By collecting all available data on performance, feed consumption, water consumption, veterinary intervention, customers rapidly build up a picture of the unique characteristics of their business. This is then used to create personalised performance profiles, down to an individual house level.

Using these standards, clients get automated early warnings of deviations; which means timely interventions can be planned. So disease impact is reduced, use of medicines is reduced, and a complete record of flock health is maintained.

By including crucial elements of production such as feed, climate, health and welfare, Porphyrio enables the poultry business to control performance in accordance with its long-term strategy.

How is the software enabling Evonik to stand out among others in precision livestock farming?

Evonik is in the unique position of having unrivalled expertise in animal nutrition and gut health maintenance; products to support both of these important components in health and efficient livestock production; and now tools to help

customers monitor animal performance, so that Evonik expertise and products can help in maintaining productivity and profitability. At the same time, use of a combination of these products and tools has consistently resulted in profound reductions in environmental impact.

Insight from Porphyrio allows collaboration with Evonik to formulate nutritional solutions fine-tuned to the requirements of each farm.

Precision livestock farming technologies from sensors to big data can help farmers improve productivity and decrease costs, while at the same time reduce their environmental footprint. Ultimately, moving to the next stage of optimisation within the boundaries of sustainable production requires a better understanding of the needs of the individual animal, along with a further integrated approach to farm management.


Precision livestock farming goes beyond just gathering data. It combines science-based know-how with proven amino services, and innovative nutritional and health concepts. These are all embedded into specific digital solutions allowing for a

better understanding of the status of the animal.

What has been the success of the technology in bringing customised, creative solutions for businesses?

Insight from Porphyrio is so flexible it produces a tailor-made solution for each and every client. This in turn allows collaboration with Evonik to formulate nutritional solutions fine-tuned to the requirements of each farm. Examples might be reduction in crude protein levels; or changed nutrient supply to meet a challenge; or using Insight to evaluate different gut health strategies. The Porphyrio software enables the poultry business to move from accurate predictions to optimal planning and will help deliver the right product at the right time in order to meet customers' needs.

What are the benefits for environmental protection and sustainability?

The more accurately and precisely we can feed our livestock, the less waste is produced and the environmental impact reduced. Early warning of pathogen challenge also allows rapid and lower-level interventions, reducing medicine use. To achieve this precision requires the "feedback loop" of real-time performance monitoring which is supplied by insight from Porphyrio. 

Hyperspectral imaging has helped the industry to better monitor plant health, and adopt ways to combat crop threats.

Wideblue designs camera for easier crop disease detection

WIDEBLUE, GLASGOW-BASED PRODUCT consultancy, has designed a low cost camera to test the early onset of disease in various crops including potatoes and soft fruits.

The Hyperspectral Crop Camera (HCC) takes images across a wide continuous spectrum of wavelengths of light. The technology can be applied to non-visible wavelengths such as short wave infrared, as well, though the HCC prototype used the visible wavelength region.

The device uses a linear variable filter (LVF) rather than a traditional diffraction grating (similar to a prism). The LVF allows light to pass through it linearly along its length. By moving this component rapidly

across a standard image sensor (camera), the HCC can capture images in real-time across the full visible spectrum of light, one wavelength at a time.

According to Wideblue, this is useful for imaging crops as this can highlight drought stress or disease that are difficult to detect with the human eye. Equipped with feature extraction and classification algorithm, the proposed system can be used to determine potato plant health, for example, with approximately 88 per cent accuracy.

Besides, this algorithm is capable of species identification and is demonstrated as being capable of differentiating between crops such as rocket, lettuce and spinach.

Russell Overend, managing director,

Wideblue, said, "The HCC demonstrates that by applying alternative technologies to new areas of research, in this case agricultural imaging, a low cost solution can be developed. We have lowered the cost by a factor of 10 but the device offers comparable performance to traditional machines."

"This market disruption model is being applied by Wideblue to a variety of industries including medical, scientific and satellite applications," he added.

Led by Wideblue, the project was a collaboration between Wideblue and the University of Strathclyde, University of the West of Scotland, the James Hutton Institute and Galloway and Macleod. The project was funded by Innovate UK. **E**

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From food to mobility and the technologies that touch our everyday lives, Bühler innovations contribute to create a better world.

Bühler solutions: Improving food production in Africa

BÜHLER IS COMMITTED to overcoming inefficiencies, particularly in African value chains - this was the message given at the company's Annual Results event, held in Uzwil, Switzerland in February.

According to the Bühler management, sharing knowledge with African partners, producers and farmers to find new, sustainable ways to improve the entire value chain is a priority, along with empowering women who constitute 70 per cent of the entrepreneurs that Bühler works with in Africa.

The continent is an important market for Bühler and progress, especially in regard to improving processing, has been made in the past five years. With more than one billion Africans needing access to nutritious food, the potential is enormous.

Reducing waste along the value chain is particularly important, with the example of maize being cited, with 20 per cent losses often reported in the post-harvest stage. This level of wastage makes it more difficult to ensure products are affordably priced, and a way to reduce waste is to introduce optimal sorting processes to get the most out of every maize crop.

Bühler technologies

High-end technology has incredible potential to help African value chains become more productive and ensure millions of people can access safe food. This includes optic technology for sorting grains, which can be a cheap processing solution for Africa's rural economies.

Bühler's LumoVision, an optical sorting application is able to identify and sort corn contaminated with aflatoxin faster and more accurately than has ever been possible. The team designed a hyperspectral camera and powerful LED-based UV lighting system to cut contamination rates by 90 per cent. With these, each kernel is analysed as it passes the machine's sensors. Contaminated grains that glow brightly under the UV light are blown out of the product stream by air nozzles that deploy within milliseconds of detection.

By connecting LumoVision to the cloud



Image Credit: AdobeStock

High-end technology has incredible potential to help African value chains become more productive.

via the Bühler Insights platform, which was developed together with Microsoft, it is possible to make a real-time risk assessment of the grains as they are processed. The data collected is securely transmitted to the platform, where it is compared to other data such as the weather conditions under which the corn grew. This data is combined to calculate the risk of contamination for each grain. By comparing the data collected by LumoVision to the data stored in the cloud, it is even possible to assess the risk of aflatoxin occurring in each batch from a certain provider and optimize sorting accordingly. This predictive technology will bring food safety to new levels.

Bühler's innovative food fortification solutions, such as NutriRice, add an extra

level of quality to this staple food by mixing broken kernels for rice flour production with vitamins and minerals, then adding them to natural whole rice kernels at a set ratio. As a partner in the Food Fortification Initiative, alongside UNICEF and the CDC Foundation, Bühler is working to bring simple, affordable grain fortification processes to mills around the world.

The GrainiGo grain analyser, which uses cloud and IoT technology to enable customers to cut costs, boost yields, and improve quality.

SmartPro, introduced in 2018, is Bühler's digital service for the wet-grinding process. Through continuous observation of important process parameters, it enables increased traceability, better process control, and benchmarking, which results in significant production optimization. Another innovation, which was prototyped in 2018, is the QuaLiB digital quality management system for lithiumion battery (LiB) electrode slurry production. It monitors the process and product parameters of continuous mixing, enabling the system to immediately respond to changes. QuaLiB increases production yield, improves product consis-

**High-end technology
has incredible potential to
help African value chains
become more productive and
ensure millions of people can
access safe food.**

tency, enhances traceability, and reduces operational costs for LIB electrode manufacturers.

Investing in the future

Education and training is another strategic priority for Bühler in Africa with examples including a cocoa training school based in Abidjan, Côte d'Ivoire, and the milling school in Nairobi, Kenya. Although two thirds of the world's cocoa beans are grown in West Africa, most chocolate processing still takes place in Europe. Many major chocolate producers – several of them Bühler customers – have plants in the region. Bühler's new chocolate training hub in Abidjan enables trainees to learn everything they need to know about operating and maintaining Bühler machinery, helping them to create high-quality products, increase yield, and meet Ivory Coast's target of increasing the local processing of raw cocoa to 50 per cent by 2020.

Bühler's ongoing involvement in the Partners in Food Solutions is also helping to bring technical and business expertise to millers and food processors in developing countries, while its African Milling School in Nairobi, Kenya – the first facility of its kind on the continent – has been providing trainees with the skills to significantly improve quality, safety, and output since 2015.

Supporting local food production

Today, it is astonishing that 80 per cent of all food in Africa is still imported, though Africa has the climate and land needed to grow. However, major food producers such as Dangote in Nigeria have been changing the value chain across Africa. For instance, Dangote, a major food producer in Nigeria has been investing to strengthen the local farming and processing of rice. The process technology from Bühler, including optical



Image Credit: Billionphotos/Adobe Stock

sorting, ensures the safety and high quality of food products. will be safe and high-quality.

In Lekki, on the outskirts of Lagos, is the Kellogg's factory which has developed processes to significantly reduce waste, energy and water consumption, in conjunction with Bühler technologies.

Bühler commits to technology to improve world

Ian Roberts, Bühler's chief technology officer, addressed the Annual Results event on the topic of "Innovations for a better world"

He said that issues such as 70 per cent of maize being used to feed livestock rather than people; and a one per cent global temperature increase has the potential to reduce crop yields by 3.7 per cent, need to be addressed.

"By 2050, we need to produce more food with less land," Roberts said, explaining that 25 per cent of the world is land, 79 per cent of this is arable and 32 per cent of the arable land is being used for

agriculture, and the challenge is to maintain food production for a growing world population using 35 per cent less agricultural land.


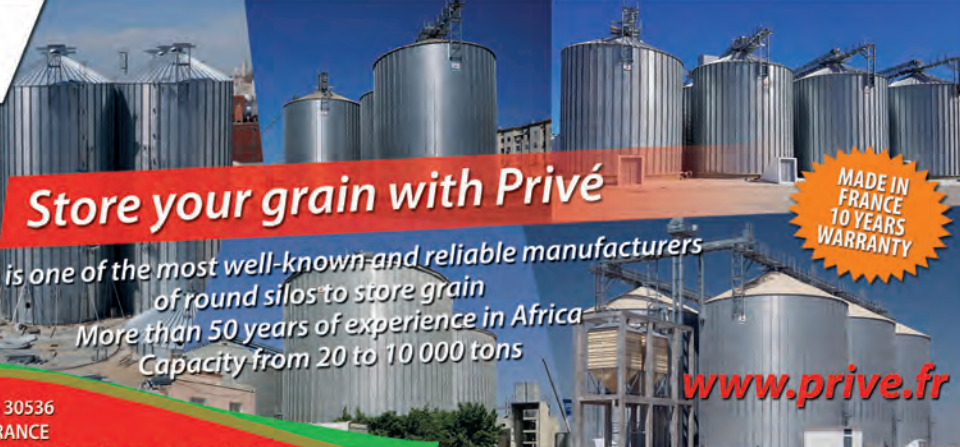
"Only 40 per cent of protein from fields lands on a plate," he told the event.

Transitioning to more plant-based diets is part of the solution, Mr Roberts said, as this will use 50 per cent less energy and water and produce 50 per cent less waste.

He said that Bühler is setting "new, measurable targets" to meet by 2025 and that the company's customers will hold them to account.

Bühler and Givauden will be joining forces to research plant-based food development at a Singapore-based innovation centre, described as "the Tesla of the food industry".

Roberts said that "systemic change is needed to move towards plant-based proteins", with the time being right for developing this sector because of sustainability concerns as well as "huge consumer demand". **E**

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Hoogendoorn Growth Management's Harvest Forecast module uses sensor generated data and a more statistical approach for greater accuracy in predicting horticulture harvests.

Data-driven technology enhancing yield prediction



Greenco has applied data-driven growing principles to maximise yields.

Image Credit: Hoogendoorn

THE USE OF artificial intelligence and machine learning in horticulture has enabled more accurate predictions of yield results to help growers around the world.

As a significant step in digitalisation of tomato harvests, Hoogendoorn has made it possible to provide yield prediction with an accuracy of 83 to 93 per cent.

Since its release, multiple large tomato growers in the Netherlands have successfully utilised the harvest forecast module.

The latest version using new techniques such as AI and Machine Learning, was launched in 2018.

Driving Greenco's cultivation strategy

Hoogendoorn Growth Management's Harvest Forecast module is set to enable the

international snack vegetable grower Greenco to calculate a harvest forecast one week in advance for the following four weeks.

By applying data-driven growing principles, Greenco has developed a new strategy to optimise potential climate conditions in the greenhouses, thus maximising yields.

With the data-driven growing strategy, Greenco discovers new insights in plant conditions and plant health.

With the data-driven growing strategy, Greenco discovers new insights in plant conditions and plant health.

By combining technology with plant physiology, accurate harvest

forecasts are obtained.

Every year more data can be used by the model, which makes the model even more precise than it already was.

Supply and demand

There exists an increasing need for a better balance between supply and demand in the horticultural process-chain. Lack of balance between supply and demand causes a disruption in the market. Sometimes the production is too high, other times too low. This results in a not optimal pricing of the product. This can be coordinated much better with a reliable prognosis, which ultimately leads to better pricing. This will lead to fewer mistakes in the market. Besides that, labour efficiency and planning can be optimised, if harvest is predicted accurately **E**

The technological advancements provided by the Symaga group have been strengthening its product improvements.

Growket's feed silo optimisation for 2020



Image Credit: Growket

Silo 2020 Growket

GROWKET HAS LAUNCHED an optimisation of its feed silos in compliance with the Eurocode standards. The technical project that has been developed over the last months, has reached an optimised structure, with design conforming to the EU 1.4 norms.

In 2017, the company's feed silo offering was redesigned according to the Eurocode 1.4 norms. Symaga is the first silo manufacturer to obtain EU certification. Its range of silos was validated from 180-380 metre diameter through the MEF methodology (a method of calculation based on the development of a Finite Element Methodology).

The Symaga Group is working to position Growket, as one of the main feed silo manufacturers of corrugated steel and transport system.

Its range of silos was validated from 180-380 metre diameter through the MEF (Finite Element Methodology). In 2014, the range was extended, offering 380 meters diameter with 45° and 60° hoppers and increasing the capacity up to 85 cu/m.

Growket increased the steel coating,

setting the standard to Z600 designation, providing 37 per cent more protection than other manufacturers.

Further, the Symaga Group manufactures industrial and feed silos in compliance with EN-1090 standards, guaranteeing complete reliability.

In order to complete the feed silo line, Growket offers a line of accessories and flex auger, chain, and auger transport system.

Growket is a part of the Symaga Group, a leading manufacturer of industrial silos made of galvanised corrugated steel. The Symaga Group is working to position Growket, as one of the main feed silo manufacturers of corrugated steel and transport system. **E**

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Mauritius building fishing port at Fort William

MAURITIUS PORTS AUTHORITY (MPA) will construct a fishing port and breakwater structures, improving fishing operations and rationalising the parking of idle fishing vessels.

A budget of US\$40mn has been earmarked for the project which will provide a sheltered basin to ensure a secure mooring place for approximately 120 ocean fishing vessels. The facility will include a service quay of 50 metres.

CWP Engineering Ltd FZ LLC, which is providing the consultancy services, has completed the preliminary planning and is proceeding with the detailed design of the preferred development option.

The bids have been launched geotechnical investigations and survey works which are necessary for firming up the detailed designs.

Compostable cling film for fresh-food packaging

GERMAN CHEMICAL COMPANY BASF and Italy-based industrial manufacturer of machines and films for food packaging Fabbri Group have developed a sustainable solution for cling film used in fresh-food packaging.

Based on BASF's certified compostable ecovio, Fabbri Group produces the transparent stretch film Nature Fresh. Meat, seafood, fruits and vegetables can be wrapped manually or with automatic packaging equipment, along with industrial stretch packaging.

The film helps to keep food fresh for a longer period of time when compared to polyvinyl chloride (PVC) alternatives used for cling film such as polyethylene (PE).

After using, Nature Fresh can be composted together with other food waste in home compost or industrial compost according to national legislation. It enables organic recycling and helps to close the nutrient loop towards a circular economy.

Carsten Sinkel from global business development biopolymers at BASF said, "PE films are lacking in performance, often leading to the reduced shelf life of packed fresh food. This results in considerable greenhouse gas emissions from food waste."

Stefano Mele, CEO at Fabbri Group, commented that the Nature Fresh solution is combined with the Automac NF wrappers. With this, the food packaging industry is benefitted.

"In this way, our certified compostable cling film can be used together with trays and labels of the same kind in order to have a complete compostable packaging," he added.

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Digitally-enabled platforms help farmers market their produce better.

Selina Wamucii integrates its platform to agribusiness groups and cooperatives helping farmers from any African country reach buyers across the globe.

Enabling direct market access for African farmers

SELINA WAMUCII, A platform that helps businesses around the world to buy and import food and agricultural produce from any African country has announced that it is opening up its platform to organised farmers groups and cooperatives to sell or export directly to markets worldwide.

"Selina Wamucii now welcomes farmer groups, associations, processors and cooperatives based in any African country to sign up by visiting selinawamucii.com and start selling their produce directly to a large selection of interested buyers from around the world who are already using our platform", said John Oroko, the company's CEO.

Farmers can sell directly on the Selina Wamucii platform as registered, organised

"The platform uses technologies including artificial intelligence, data and algorithms to streamline the extremely fragmented agricultural supply chains across entire Africa," said John Oroko, CEO, Selina Wamucii.

groups. The platform enables farmers to control the entire process from growing, harvesting to supplying directly to local markets right in their countries, within Africa (intra-Africa) or even export directly by themselves to any market worldwide.

Among the requirements for farmers to sign up is that the farmers need to be organised in groups of active members with the group having a clear leadership structure in place.

"At Selina Wamucii, we believe all farmers and other producers should be seamlessly connected to markets anywhere in the world regardless of geographical limitations, size of farm, facilities or resources. That is why we are building the first truly pan-African platform for food and agricultural produce. The platform uses technologies including artificial intelligence, data, and algorithms to streamline the extremely fragmented agricultural supply chains across entire Africa," Oroko added.

"Our platform is now accessible to farmers in every corner of the African continent who will now be able to easily take to market a wide range of Africa's food and agricultural produce. From Cape Verde's mackerel sourced by local fishermen to Madagascar's vanilla grown by family farmers, we are building a market-

place that connects producers to market opportunities regionally and globally, ultimately unlocking opportunities that fuel economic prosperity for millions of farmers and other food producers across the African continent," he said.

About Selina Wamucii

Selina Wamucii is a platform that helps businesses from anywhere in the world to easily source, buy or import food and agricultural produce from any African country with ease. It simplifies sourcing, payments, and logistics while guaranteeing trust for buyers and producers. The platform now integrates with cooperatives, farmers groups, agro-processors and other organizations that work directly with family farmers including smallholder farmers, pastoralists and fishing communities to form a valuable link to markets around the world.

Selina is putting all Africa's producers and their products in one platform where buyers can reliably find and buy produce from Africa.

Technology has touched every aspect of life and agriculture has been no exception. For smallholder farmers, platforms such as these offers plenty of opportunities to market their produce to wider markets and increase the profit margins. **E**

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