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and Food Processing

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Tanzania's poultry prowess

Supporting smallholders

African nutrition security

Pathways to progress

Fertiliser focus

Blending technology and innovation



Technology-led transformation in agriculture. p32



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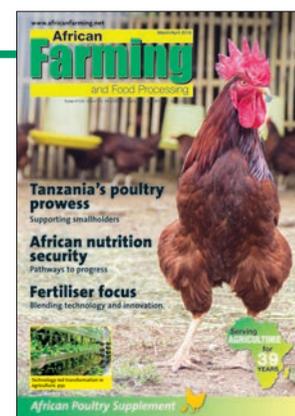


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Farming Calendar 2019

APRIL

03-05 NIPOLI Expo
www.nipoliexpo.com.ng NIGERIA

11-13 Agritech Expo Zambia
www.agritech-expo.com ZAMBIA

MAY

13-17 Panafrican Poultry Conference(PPC)
www.cersa-togo.org TOGO

JUNE

05-07 Fresh Produce Africa
www.hppexhibitions.com NAIROBI

12-14 VICTAM International
<https://victaminternational.com> COLOGNE

19-21 Agritec Africa
www.agritecafrica.com NAIROBI

AUGUST

14-16 Africa Dairy Conference and Exhibition
<https://www.dairyafrika.com/afda/> NAIROBI

SEPTEMBER

02-04 EuroTier Middle East
<https://www.eurotiermiddleeast.com/> ABU DHABI

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

AfDB pledges US\$25bn to climate finance for 2020-2025

THE AFRICAN DEVELOPMENT Bank is set to double its climate finance commitments for the period 2020-2025, the bank's president announced at the One Planet Summit in Nairobi. Akinwumi A. Adesina said that the bank would commit at least US\$25bn towards climate finance.

Considering Africa's high vulnerability despite contributing the least to climate change, the AfDB has successfully raised its adaptation finance from less than 30 per cent of total climate finance to parity with mitigation in 2018.

The required level of financing is only feasible with the direct involvement of the entire financial sector," said Adesina.

New shea butter processing centre for Ghanaian women

THE US AMBASSADOR to Ghana, Stephanie S Sullivan has led a ribbon cutting and inaugurated a shea butter processing facility that will support increased economic opportunities for 600 Ghanaian women who collect and process shea nuts.

The USA government, through the US Agency for International Development (USAID), supported the construction of the processing facility and warehouse located in Gizaa-Gunda, northern Ghana.

Shea is a primary source of livelihood for women in northern Ghana and is one of the few agricultural crops where women control the revenue. This event highlights efforts to promote women's economic empowerment through partnerships that connect Ghanaian women producers with the US buyers.

The partnership matches USAID funds with the private sector and donor funds to provide needed skills training and infrastructure to support women shea collectors.

Overall, SSI is expected to deliver 250 warehouses across West Africa, facilitating more than US\$150mn in shea exports and benefitting more than 137,000 women.

UK and Morocco partnership to build Africa's agricultural future

MOHAMMED VI POLYTECHNIC University (UM6P) in Morocco and two of the UK's leading agricultural research institutions Rothamsted Research and Cranfield University have announced an international academic partnership.

The partnership, to be supported by OCP Group, which is one of the largest exporters of phosphate fertilisers in the world, is in line with the growing relations between the UK and Morocco to strengthen collaboration in education, research and innovation fields.

Up to 20 early career researchers in the agricultural sector will be supported both in Morocco and in the UK through the partnership.

Mohammed VI Polytechnic University (UM6P) is a hub of education, research, innovation and entrepreneurship, aspiring to become a solid bridge of knowledge between Morocco, Africa and the world.

– With more than 175 years of heritage behind it, Rothamsted Research is a world-

leading, non-profit research centre that focuses on strategic agricultural science to the benefit of farmers and society worldwide.

– Cranfield University was awarded its fifth Queen's Anniversary Prize in 2017 in recognition of its global impact with large-scale soil and environmental data for the sustainable use of natural resources.

The initial phase of the partnership will focus on the delivery of seven agricultural research projects and the creation of a Centre for Doctoral Training, supporting the development of the next generation of Moroccan scientists and engineers.

During the signature ceremony, Hicham El Habti, secretary general of Mohammed VI Polytechnic University, said, "OCP, through its R&D programme and in close co-operation with the Mohamed VI Polytechnic University, is developing fertilisers that are specific to the needs of African soils and crops, as well as locally-appropriate service models for African

farmers to have reliable, affordable access to these inputs and related products."

The partnership is expected to support the acceleration of this strategy to help African farmers become not only more productive but also more prosperous, El Habti added.

Professor Leon A Terry, director of environment and agrifood at Cranfield University, commented, "This partnership brings together the very best in UK plant and soil science with the Mohammed VI Polytechnic University, an institution with the very highest of entrepreneurial and scientific ambitions for Morocco and wider Africa."

Professor Achim Doberman, director and chief executive of Rothamsted Research said, "By combining the cutting-edge expertise of Rothamsted and Cranfield, with the drive and vision of UM6P, we can play a major role in delivering this and we are excited about contributing our unique expertise."



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Worldwide journalism committee in the works

FORMER CHAIR LEADER of the British Guild of Agricultural Journalists and co-founder of the Rural Youth Project, marketing and communications leader Jane Craigie has been announced as the leader of the International Federation of Journalists (IFAJ) 'Vision 2025' committee. Speaking of her role as leader of the IFAJ, she said: "It is a real privilege to be appointed by the IFAJ executive committee as the chair for their 'Vision 2025' committee and it shows the high regard with which the British Guild is held within the IFAJ network." Craigie's group will be responsible for developing a strategic vision and plan of action for the federation, which represents agricultural journalists and communicators across 50 member countries all over the globe.

Trouw Nutrition tackles farm animal productivity

RESEARCH BY TROUW Nutrition has found the productivity of farm animals to be just 30-40 per cent of their genetic potential - a figure the company plans to quash through the introduction of animal nutrition solutions across the globe. By implementing solutions such as better early-life nutrition and speeding up the quality control of raw material feed ingredients, the food specialists intend to support farm animal health while improving animal performance overall. "More than ever, our world needs to embrace a more circular approach to food production. Innovations in animal nutrition can play a crucial role in improving the performance of farm animals and drive more sustainable food production for generations to come," said Leo den Hartog, director of animal nutrition producers Nutreco.

IOM pairs up with the EU on livestock-based migrant reintegration programme

WITH LIVESTOCK STILL standing strong as the cornerstone of wealth in rural Africa, the International Organisation for Migration (IOM) has collaborated with the government of Burkina Faso to provide 99 returning Burkinabé migrants with livestock in an attempt to restore their socio-economic stature within the country.

Through funding from the European Union, the organisation has provided a total of 500 sheep, rams, oxen and donkeys to migrants, many of which have been left penniless as a result of failed migration. These migrants will also receive training in business management, cooperative operation and livestock farming techniques, as provided by partners of the National Employment Agency and the Regional Directorates of Animals and Fisheries Resources. Through this training, migrants will be able to ensure their farming will be sustainable, while simultaneously re-developing their community and culture-based roots within the region.

Speaking of his experience with the IOM's Assisted Voluntary Return and Reintegration scheme, Iryassa, from the center-south region of Burkina Faso, said: "The training enabled me to learn the techniques of cattle fattening. Visiting the farms not only allowed us to put in practice farming techniques, but also to see that fattening, if conducted according to the techniques, is efficient.

"Farmers gave us useful tips, so now we can work in our country and, thank God, we will succeed."

Likewise Osseni, a Burkinabé local who returned to the central-east region of the country in September 2017 after a failed migration to Libya recalled how he managed to rebuild his cultural roots in the region through farming. "I started up my livestock farming activities with the support of IOM, which bought me oxen and equipment. I like livestock farming because I achieve success and it has helped



Image Credit: IOM/Alexander Bee

me to build my house. My parents are very happy to see me back home alive."

This is not the first time the IOM has partnered-up with the European Union in an attempt to improve the well-being of migrants in the region. Last year, 1,249 migrants received assistance under the EU-IOM Joint Initiative for Migrant Protection and Reintegration, which has contributed to the sustainable reintroduction of migrants to Burkina Faso.

Speaking of the initiatives, David Beasley, executive director of WFP, said, "International Women's Day reminds us about the immense and valuable contribution women make towards a more peaceful, prosperous and well-fed world. "All around the globe, WFP programmes help empower women so they can have more opportunities to not just improve their lives, but those of their families, communities and nations," he said.

World Food Programme (WFP) promotes gender equality in food development through sector-wide empowerment

IN KEEPING WITH this year's United Nations theme of International Women's Day (IWD) – think equal, build smart, innovate for change – WFP has placed gender equality at the forefront of their approach to food assistance, opting to remove barriers which exclude women from influencing development in all sectors.

This has been put into practice through a range of initiatives, including a school feeding programme dedicated to improving

female education while decreasing teen pregnancy and child marriage rates. Similarly, integrated programmes allow the non-profit organisation to empower women through reducing gender-based violence, strengthening women's decision making and increasing women's leadership in the workplace. The UN branch's Food for Assets projects have empowered women who are now able to work in their communities, feed their families and sell their produce.

Speaking of the initiatives, David Beasley, executive director of WFP, said, "International Women's Day reminds us about the immense and valuable contribution women make towards a more peaceful, prosperous and well-fed world.

"All around the globe, WFP programmes help empower women so they can have more opportunities to not just improve their lives, but those of their families, communities and nations," he said.

Imperial College London and MIT announce winners of first Africa-focused seed fund

IMPERIAL COLLEGE LONDON and the Massachusetts Institute of Technology (MIT) have announced the winners of the first Africa-focused seed fund.

The funded projects will bring scientists together from Imperial, MIT and partner institutions in Africa, to work on infectious disease, high energy physics and eco-friendly refrigerants.

The MIT - Africa - Imperial College London Seed Fund promotes early-stage collaboration between faculty and researchers at MIT, Imperial and institutions in Africa.

The funding, worth US\$100,000 in total, will be used for exploratory research, small-scale experiments and for exchanges between the partner institutions.

"Imperial's excellence arises from attracting talented people and working with leading institutions from across many different regions and we are eager to grow and strengthen our collaborations with partners in Africa."

The MIT - Africa - Imperial College London Seed Fund is one of over 20 Funds facilitated by MIT International Science and Technology Initiatives (MISTI).

Imperial's vice-president, Professor Maggie Dallman, said, "Imperial's excellence arises from attracting talented people and working with leading institutions from across many different regions and we are eager to grow and strengthen our collaborations with partners in Africa."

MIT-Africa initiative director Professor Hazel Sive emphasised the quality of MIT-Africa-Imperial collaborations.

"The funded projects bring together investigators of the highest calibre. We look forward to promoting this wonderful opportunity at top universities across African countries.

"MIT has set Africa as a priority region for global engagement, and such high-impact joint research programmes contribute to strengthening mutually beneficial connections with African colleagues," Sive said.

Ghana set to increase rice production



THE MINISTRY OF Food and Agriculture in Ghana has initiated a programme to assess the logistical needs of selected districts in the Ashanti, Bono and Ahafo regions to improve rice production.

Addressing a forum attended by municipal and district chief executives (MMDCE) and agriculture directors, Simon Osei-Mensah, regional minister in Ashanti, said that the project is geared towards increasing food productivity and ensuring food security for the country, thus reducing import bills.

The minister said that the planting for food and jobs (PFJ) policy is to address the declining growth of Ghana's agricultural sector. Over the years, Ghana had spent huge sums of money on the importation of rice and this had negatively affected the national currency.

He, therefore, urged all MMDCEs to give every support to their agricultural development units to make the special rice programme successful.

New branch manager to lead tna's African operations

FOOD PROCESSING AND packaging solutions provider tna has appointed Matthew Walters as branch manager to head up its African operations. Based in tna's Johannesburg (South Africa) office, Walters will be responsible to support food manufacturers across the African continent with tna's portfolio of cutting-edge equipment, such as fryers, conveyors, seasoning equipment, VFFS packaging systems and end of line solutions. At the same time, he will be tasked with driving the sales of tna's confectionery processing solutions, while helping to further develop tna's local service and support team.

With a degree in mechanical engineering, Walters started his career at one of South Africa's leading FMCG companies, where he was responsible for the successful implementation of a number of high profile projects. His experience in managing projects from start to finish, from



Matthew Walters.

strategy development and stakeholder engagement through to installation and commissioning will be instrumental in supporting tna's customers with the advanced food processing and packaging technology they need to make the most out of South Africa's snacks and confectionery sectors.

"Walters will be an excellent addition to the team here in South Africa," comments Jonathan Rankin, CEO at tna.

"Together with his project

Image Credit: tna

engineering skills, he'll not only be able find the most suitable solution for our customers, but will also ensure a smooth installation and successful project delivery, no matter how complex or challenging."

Walters added, "The South African population is expected to grow from 57.7mn in 2018 to 62.3mn by 2023. In particular, the middle class is expected to increase its share over the next few years, which will naturally lead to an increase in the consumption of snacks and confectionery. The general trend towards smaller packaging sizes means manufacturers need quicker throughput rates, which is exactly what tna specialises in.

"With tna's acquisitions over the last years, we are extremely well-suited to accommodate this need and serve the South African market with the high-performance start-to-finish solutions it needs to cater to this growing demand."

Malawi farmers benefit from Japanese project

FARMERS IN MALAWI'S Dowa district are enjoying profits with their crops following the implementation of a project called Market-oriented Smallholder Horticulture Empowerment and Promotion (MA-SHEP), which is being implemented in the district by Japan International Cooperation Agency (JICA) under the Embassy of Japan.

Mndila irrigation scheme chairperson Akimu Mangeni said that farmers have been empowered with skills of identifying markets for their crops.

"With the help of MA-SHEP Project, we have been trained to understand marketing of our farm products and we are now able to identify markets where we sale our harvest at a better price."

Valmont announces Prospera partnership

VALMONT INDUSTRIES, INC. – the parent company of Valley Irrigation – has announced a global partnership with Prospera Technologies Inc. in an attempt to provide customers with autonomous crop management technology featuring less production inputs and resources. This partnership hopes to integrate AI technologies with centre pivot irrigation, providing customers with real-time crop diagnoses and recommendations while simultaneously taking advantage of Valley Irrigation's 60,000 connected devices globally and yielding greater returns for the grower. As a result of this partnership, alongside the introduction of anomaly detection designed to lower risks in the field, Valmont hopes to deliver proper water, fertigation and chemigation; developing autonomous crop management into a self-learning machine.

Countdown begins for the Global Forum for Innovation in Agriculture

THE SIXTH GLOBAL Forum for Innovations in Agriculture (GFIA) is set to take place in Abu Dhabi National Exhibition Centre on 1-2 April, with a focus on how AI can increase food production and ensure food security in the Middle East and North Africa. Divided into five exhibition zones – indoor farming and hydroponics, livestock and animal production, date palm production, aqua tech and sustainable crop – the two-day event hopes to further progress in agriculture, save water and improve yields for growers. By showcasing products to an expected 7,000 food producers, policymakers and investors in the MENA region, GFIA intends to increase the efficiency of supply chains and prepare producers for the challenges of climate change.

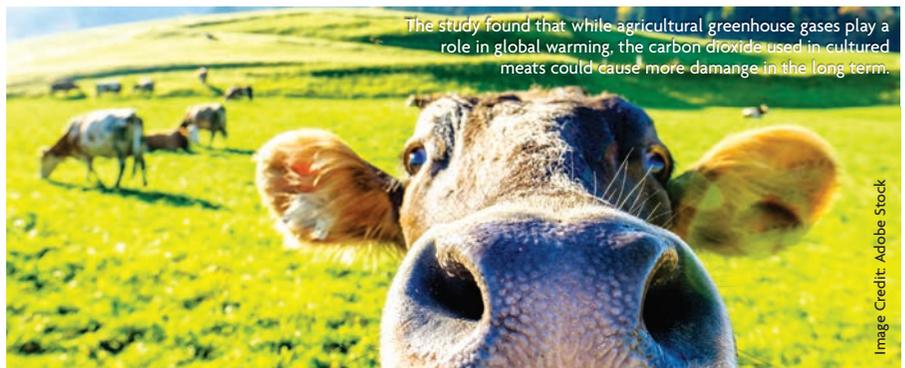
The exhibitors include solution providers to improve productivity, increase profits, save natural resources, or overcome the challenges of climate change.

The 'culture club' may be more responsible for climate change than cattle farming

A STUDY FROM the Livestock, Environmental and People programme (LEAP) at Oxford's Martin School has found that despite popular belief, lab-grown meat might not be the key to cutting the effects of climate change on our environment after all.

The study compared the greenhouse gases produced by lab-grown and farm-raised beef in the current energy system in order to see how these gases affected the atmosphere, taking into account their impact on temperature and how long they last in the air around us. As a result, the academics at Oxford found that certain cultured meat production methods require more energy inputs than their farming adversaries, meaning they could lead to higher temperatures at a faster rate than some types of cattle farming if energy systems remain dependant on fossil fuels. This being said, the study did maintain that some projections for the uptake of cultured meat could be better for the climate.

The findings, which were published in the *Frontiers in Sustainable Food Systems*, note that the benefits of cultured meats depend on the availability of low-carbon energy sources. Agricultural greenhouse gases emissions are currently responsible for around a quarter of current global warming; leading experts to



The study found that while agricultural greenhouse gases play a role in global warming, the carbon dioxide used in cultured meats could cause more damage in the long term.

Image Credit: Adobe Stock

suggest that replacing conventional farming cattle with meat lab-grown meat could reduce this environment impact. However, these estimates only take into account carbon-dioxide footprints, failing to take into consideration the impacts of other greenhouse gases.

Therefore, by modelling the potential temperature impact of each production method over the next millennium, the group found lab-grown meat may result in more warming as heat generated by methane gas only lasts a few decades, while carbon-dioxide can have more long-term effects on the environment.

"The climate impacts of cultured meat production will depend on what level of sustainable energy generation can be

achieved, as well as the efficiency of future culture processes," remarked lead author Dr John Lynch.

"While reducing methane emissions would be good – and an important part of our climate policies – if we simply replace that methane with carbon dioxide it could actually have detrimental long-term consequences."

The study also emphasises that both cultured meat and cattle farming have complex impacts which need to take into account their effect on the environment; for example, creating more grazing land for cattle could result in deforestation, increasing the carbon-dioxide footprint of cattle systems.

Agri-Business Capital Fund launched to create more jobs for rural youth in developing countries

AN IMPACT FUND as been launched by the member states of the International Fund for Agricultural Development (IFAD) in an attempt to create more jobs for rural youth in developing countries.

With support from the European Union African, Caribbean and Pacific Group of States (ACP) and Alliance for a Green Revolution in Africa (AGRA), the Agri-Business Capital (ABS) Fund will be introduced with a focus on helping rural entrepreneurs in the agricultural center access the finance needed to expand their business.

The fund also aims to generate private-sector investment in SMEs, farmers' organisations and smallholder farmers' groups which often find it hard to access finance from traditional institutions as they are deemed 'too risky' to invest in.

Discussing the fund, Patrick I. Gomes, secretary general of ACP, said, "Our African, Caribbean and Pacific members have great expectations of the ABS Fund. We look forward to having the fund respond to specific needs in the three regions and supporting the implementation of our new approach to structurally transform the ACP agricultural sector."

Based in Luxembourg, the ABS Fund will be managed by two investment companies – Bamboo Capital Partners and Injaro Investments – and both IFAD and AGRA intend to work closely with the fund manager in order to identify investment opportunities with SMEs on the ground in rural communities. Commitments to the ABS fund include US\$50.7mn from the ACP, US\$5.6mn from Luxembourg and US\$5mn from AGRA, with a mission to raise US\$225.7mn for SMEs over the next 10 years.

PAP sets sight on zero hunger target for 2030

FORTY MEMBERS OF the Pan-African Parliamentary Alliance for Food Security and Nutrition (PAPA-FSN) met with the Food and Agriculture Organisation (FAO) in Midrand to discuss food security and nutrition at the Pan-African Parliament, ahead of committee sittings.

The two-day event held from 1-2 March 2019 focused on prioritising the right to adequate food within political and legislative agendas at both regional and national levels in order to keep on track with the global target of achieving zero hunger by 2030, as outlined by the United Nations General Assembly’s Sustainable Development Goals back in 2015.

“If we are to meet the challenges of the Sustainable Development Goals and achieve zero hunger by 2030, cooperation among different actors is mandatory,” remarked FAO representative Francesco Pierri. “With their legislative, budgetary and oversight roles, together with their unequalled influence on public opinion, parliamentarians have a fundamental role in ensuring people are able to feed themselves with dignity.”

Hon. Stephen Julius Masele, the vice president of PAP, explained approximately one person in four in sub-Saharan Africa have suffered from chronic food deprivation in 2017, with the issue affecting one in five people across the continent.

Dedicated to improving the stability of Africa’s food market, the event also focused on nutrition and sustainable food systems for healthy diets, gender and social policies; access and control of productive resources; responsible investments in agriculture and food systems; budgeting to achieve zero hunger and partnering for resource mobilisations; as well as provisions for a model law on food security and nutrition in the region.

USA donates US\$15mn to fight food insecurity



USAID also hopes to improve long-term food security in Zimbabwe.

Image Credit: US embassy in Zimbabwe

THE UNITED STATES Government has announced a further US\$15mn in additional funding to respond to the critical food security situation in Zimbabwe, bringing the US allocations to the World Food Programme (WFP) through the US Agency for International Development (USAID) to US\$38mn.

This money is dedicated to maintaining the nutritional status of locals, alleviating suffering experienced by those affected by food security, and ensuring nearly 600,000 rural Zimbabweans across 19 districts have access to adequate food supplies before the next harvest.

Speaking of the funding, United States ambassador Brian A. Nichols said: “The United States is proud to work with the UN and non-governmental organisations to deliver assistance quickly and efficiently to the communities and people who need it most.”

Poor weather conditions have contributed to increased humanitarian needs across Zimbabwe, with around 1.9mn Zimbabweans facing food insecurity.



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The South African Poultry Association highlights the potential of the poultry industry in the country for job creation.

Poultry sector in South Africa poised to create new jobs



Image Credit: Adobe Stock

Measures have already been taken by chicken companies in developing a successful model for the empowerment of farmers.

IF THE RIGHT support measures are put in place by the government, including curbing cheap chicken imports, the SA Poultry Association (Sapa) says the sector can immediately create 30,000 new jobs.

According to a report in *Business Day*, the sector employs about 130,000 people. However, it has shed hundreds of jobs in recent years, blaming this on an influx of cheap chicken imports particularly from the EU and Brazil. Brazil is the world's largest poultry exporter.

The local industry and unions argue the EU and Brazil sell chicken meat below cost and have called on the government to intervene. But the EU and producers in the South American country have said their farmers are simply more competitive than their counterparts in South Africa.

Sapa recently approached the International Trade Administration Commission — the organisation tasked with customs tariff investigations, trade remedies, and import and export control — calling for an increase to the ad valorem tariff on

bone-in and boneless frozen chicken portions to 82 per cent from existing levels of 37 per cent and 12 per cent, respectively.

Izaak Breitenbach, Sapa general manager, said one of the biggest challenges facing the broiler industry at the end of 2018 was the impact that dumping has had on the sector.

"Producers in Brazil, for instance, have financial incentives to export and there is great concern over the traceability of certain imports that are repackaged in SA, since some importers flout the legal requirements," he said.

"This is an industry that is immensely competitive internationally in terms of those elements of the value chain that it can manage or influence directly."

It is essential for both small and big farmers that the macroeconomic environment is managed successfully to grow the industry.

However, the country's semi-arid climate puts pressure on local producers' competitiveness, said Breitenbach, as drought pushes up the cost of feed and grain and necessitates expensive grain imports.

"Chicken prices are established by the price of individual portions, but due to phytosanitary restrictions preventing South African producers from exporting, they are unable to participate in the lucrative EU and US markets for white breast meat, which would in turn allow them to subsidise their own 'brown' meat, as happens in other countries," he added.

Measures have already been taken by chicken companies in developing a successful model for empowerment of black farmers. It is essential for both small and big farmers that the macroeconomic environment is managed successfully to grow the industry; and if that were to happen the industry could expand by 30 per cent and create 30,000 new jobs virtually immediately, according to the Sapa general manager. **E**

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A worker with adult Cobb 500s in Irvine's Kiliwest.

Image Credit: Irvine's

Poultry farming and production across East Africa is in a dynamic state, with new, large-scale breeding and hatching facilities that have smallholder interests at heart. Tim Guest speaks with an organisation intent on playing its part across the region.

Tanzania's growing poultry prowess

FOR MANY YEARS, African countries have imported large quantities of predominantly frozen chicken products from overseas markets such as Brazil, the United States and the European Union to make up for shortfalls in local production. While this has helped meet increasing national consumer demands, the consumption of chicken in many sub-Saharan and east African countries still falls well short of more sophisticated markets, like those of Europe and South Africa. According to the US Department of Agriculture, the consumption of poultry meat in South Africa, for comparison's sake, increased by more than 80 per cent, from 22kg per person per year in 2000 to 40kg per person per year in 2016. This, according to industry sources, compares with approximately 1-2kg per person per year, today, in a typical sub-Saharan country, like Tanzania.

However, while keeping consumers satisfied, importing chicken products for retail undermines smallholder poultry farmers in the live chicken market. There are, however, changes afoot aimed specifically at supporting the smallholder, as some countries in Central and Eastern Africa, like Tanzania, set about establishing new poultry breeding facilities using high-productivity breeds to supply the live chicken market.



Irvine's Tanzania Kiliwest facility.

Image Credit: Irvine's

Large-scale farming

In Tanzania, large investments in production facilities by foreign companies are helping to increase productivity. Africa's Irvine's group partnered with Donnie Smith's Acacia Foods and US-based Tyson Foods with their newest investment being the new breeding farm, and hatchery-the Kiliwest farms in the Siha district of Kilimanjaro and the Kerege hatchery in the Bagamoyo district – which are now operational. [Irvine's Group confirms Acacia Foods, B.V. and Tyson Foods, Inc. have committed to a long-term strategic investment in the group's holding company, Buchan Ltd., which owns and controls Cobb Africa, Irvine's Botswana, Irvine's Mozambique, and Irvine's Tanzania.]

“We create a business opportunity for small-scale farmers in Tanzania and forecast that our growers can potentially generate US\$32mn in sales from growing 13mn chickens.”

According to Patrick Murphy, chief sales officer at the Irvine's Group, the company went to market in Tanzania at the end of November last year, considering this low-consumption, high-population nation as an opportunity to produce day-old chicks on a larger scale to supply and support the small-holder, live-bird market.

“Across Africa Irvine's estimates we supply 60,000 small-scale farmers, of whom 10,000 are in Tanzania,” Murphy said. “We help them develop into sustainable businesses producing protein for low income communities. We create a business opportunity for small-scale farmers in Tanzania and forecast that our growers can potentially generate US\$32mn in sales from growing 13mn chickens. This equates to approximately US\$4.6mn in disposable income.

“These smallhold farmers are our key target clients. They're who we're producing these day-old Cobb 500 chicks for. We've built a

large, state-of-the-art breeder farm and a state-of-the-art hatchery; the product that comes out is the day-old chick specifically for the smallholder, small-scale farmer. We make the chick available to them to grow, they then supply the live bird market," Murphy said.

The Cobb 500 is the genetic line produced purely for its meat. These chickens convert feed (accounting for 70-80 per cent of input cost to produce a fully-grown chicken) as efficiently as possible. This efficiency is vitally important in a marketplace where people and stock feeds compete for maize. Animal feed is extremely important and Irvine's will purchase 18,000 tonnes of maize and 10,500 tonnes of soya, the majority from small-scale farmers. For such a modern-day broiler as the Cobb, it is essential they have a good feed conversion rate and low mortality, and they do. Irvine's facilities use high levels of technology, improved housing, and provide a totally environmentally /climate-controlled growing environment, although the company has not yet developed all the amenities in Tanzania that it has in Zimbabwe, where its business is more than 60 years old.

November, when Irvine's went to market first, is a month when day-old chick sales typically spike before December's holiday-induced slump. What is now apparent, through January and February, is steady growth, which Murphy sees as promising. In sub-Saharan Africa, Tanzania ranks behind several players in terms of domestic poultry production, though this is not a contentious issue. "I don't see the industry as having goals to be the biggest or best. Tanzania is not setting out consciously to be number one, but simply to improve its domestic poultry industry to meet the needs of its population. If in doing that it happens to achieve a solid placing among regional peers, that's a well-deserved bonus."

"We based our decision to come to Tanzania on factors such as its large population (57.31mn, World Bank 2017) and low chicken consumption, highlighting an opportunity for growth, although that growth will go hand-in-hand with an improving economy." Murphy added that consumption figures are always a challenge as there is still a large percentage of indigenous breeding going on. At its peak, the demand for day-old chicks in Tanzania can be anywhere from 800,000-one million per week. Seasonal fluctuations in the live-bird market – most chickens produced in Tanzania go through this market – also lead to weekly-demand troughs, down 400-500,000 per week.

"Irvine's places 'Parents'*(known also as breeders) in Tanzania. These will produce hatching eggs, which are put through the hatchery in Dar es Salaam and hatch broiler chicks. This is what we sell to our mix of small and medium-sized producer clients; the majority are small-scale producers taking 100 -500 broiler chicks per order. We can produce approximately 220,000 broiler chicks per week once we reach full capacity."According to Murphy, the Tanzanian industry estimates 39 mn broiler chicks were produced in 2018.

Sensible protections

According to Murphy, in Tanzania, what is produced in the country stays in the country at this time. But this makes sense in the face of threats from over-importing of poultry products. Though not in East Africa, Angola is an example cited by Irvine's chief sales officer, where the import of frozen products from Brazil was allowed, to the extent that it resulted in very little domestic industry. Ghana is another example where a thriving local poultry industry was wiped out because imports were not properly controlled. "I'm not advocating imports be banned, but if allowed, how to control them is the important question governments must ask themselves."

Acting as it does, Tanzania is protecting local industry so it has a chance to grow; without protections, global players would enter the space and stifle local production. Through its efforts, Irvine's



Image Credit: Irvine's

aims to help enable Tanzania become the lowest cost producer of chicken in East Africa. ^{1b}

* Pedigree and great grand parents are where a company like Cobb Vantrass brings the improvement to the system through research. Irvine's and its clients reap the benefit of this at Parent and broiler level.



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Setting up right poultry housing

Suitable housing can make considerable difference to the poultry business.

Every part of the poultry farm must be easy to access and clean.

WITH 45 PER cent of the world's unused agricultural land in sub-Saharan Africa, there is great potential for the poultry industry to grow, according to Nan-Dirk Mulder, global animal protein specialist, Rabobank, offering a macro perspective of the African poultry market.

Mulder said the African poultry market is currently worth US\$15bn and named 10 countries - Nigeria, Ghana, Cote d'Ivoire, Uganda, Senegal, Angola, Malawi, Rwanda, Kenya and Ethiopia- as the growing markets on the continent, all with expected year-on-year growth in the range of six to 10 per cent between 2015 and 2025.

Poultry farming in Africa is certainly one of the biggest business opportunities for the continent. A poultry house should provide the birds with a comfortable environment and protect them from the extremities of the prevailing weather (rain, wind and sunshine). Suitable poultry housing is very important for successful poultry farming business.

Having a good housing system for poultry is one way to ensure that things run smoothly and also that the animals are able to grow healthy.

The temperature in chicken houses varies as heat is produced by the chickens and enters the house through the roof and walls.

This includes the following considerations:

Biosecurity

It is important that the poultry housing system should be designed in such a way that workers can move easily, unrestricted by obstacles. However, the design should make the birds not easily accessible to visitors and unauthorised people.

As every grower ought to know, just one breach in biosecurity could make the difference between a healthy flock and a disastrous one — which is why successful growers rigorously enforce their biosecurity protocols, including carefully monitoring who comes on their farms and who goes near or into their chicken houses.

Temperature

The temperature in chicken houses varies as heat is produced by the chickens and enters the house through the roof and walls. In production set-ups where artificial heating and cooling are used, insulation will help save energy and electricity costs in the heating process. Good airflow is also a tool to control temperature.

Temperature spikes and falls have a very detrimental effect on chickens, especially young chicks. Extreme heat or cold affects production and may cause mortality.

Convenient to clean

A poultry housing system should be built in a way that makes every part of the farm easy to access and clean. In poultry

production, hygiene is key and may determine the success or failure of the poultry farm business. A good and well-planned poultry housing system is easy and convenient to clean to minimize the death of birds.

Easy egg collection

The safety and ease of egg collection should be considered in poultry housing system. If eggs production is the main purpose or part of the purposes for a poultry farm business, then the way eggs are collected to prevent cracks and damages should be given thought when building the poultry housing. Eggs must be collected in good condition to avoid loss to the business.

Good lighting and heating system

A good heating system ensures that the birds are provided with adequate warmth, essential for their good health. A good lighting system enables the birds to find water and feed. Like humans, poultry's lives revolve around a regular day-and-night cycle. When this is taken care of, they develop the proper diurnal rhythms — that is, a routine of typical activities during the day. This is important for functions like melatonin production.

Commitment to air quality

Humidity and high levels of ammonia are two of the biggest impediments to good air quality in a chicken house. High levels of

Image Credit: Adobe Stock

ammonia make birds susceptible to a host of diseases, including respiratory problems and eye damage.

Ventilation of poultry houses serves several functions including removing excess heat and moisture, providing oxygen while removing harmful gases, reducing dust, hence improving the air quality.

Good litter management

Successful poultry producers are adept at managing litter and reducing humidity and moist conditions in the house

Poultry farming must respond to growing demand by harnessing new digital technologies.

An effective waste disposal unit reduces the risk of exposing the birds to diseases. Incorporating an effective waste disposal unit in the poultry housing will help manage waste.

In summary, the key to a good poultry business relies largely on the house systems and it is always better to choose the right one from the beginning.

There are latest innovations such as



The key to a good poultry business relies largely on the housing systems.

thermal imaging technology to monitor poultry house heat issues. Without adapting to the constant innovations it would be impossible to keep pace with the growing global demand for poultry.

A prototype for a new poultry ventilation system has been created at Harper Adams University to help improve the welfare and production of broiler chickens.

Such technological developments aim to reshape the poultry industry in the coming years.

With the global population constantly on the increase, poultry farming must respond by harnessing new digital technologies and information to improve efficiencies and respond to the growing requirements of proactively engaged consumers. ¹²

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Livestock enhance human health not only by providing nourishing foods but also by supporting viable livelihoods, which allow people to make better dietary and health choices.



Image Credit: Yasir/Adobe Stock

Published under the World Economic Forum's *Shaping the Future of Food* initiative, which focuses on how to develop inclusive, sustainable and nutritious food systems, ILRI's paper addresses opportunities for the livestock sector to sustainably meet the growing demand for animal source foods in developing and emerging economies till 2030 and beyond.

'Meat' the new opportunity

AGGREGATE DEMAND FOR livestock-derived foods is rising fast across Africa, driven largely by population growth. For example, the average per capita consumption of meat in Africa is less than one-sixth that of the Organisation for Economic Co-operation and Development (OECD) countries (other estimates place it as low as one-tenth).

In the developing world, livestock are much more than just food – they are central to local economies, contribute significantly to agricultural GDP, provide critical protein and nutrients otherwise unavailable, and support viable livelihoods for nearly a billion people, allowing them to make better dietary and health choices.

Livestock are raised in widely different ways around the world. This diversity can be a source of strength, enabling farmers to develop livestock/animal production, processing and marketing systems that are safer and more sustainable, responsible and efficient.

For emerging and developing nations, where farms of less than 20 hectares supply most of the livestock-derived foods as well as the cereals consumed in these countries, four main options are available for increasing production – intensification of existing systems; development of western-style, industrial farms; importation of more livestock-derived foods; and possibly in the longer-term future, use of alternate forms of protein, such as lab-based meat.

The diverse roles of livestock in developing and emerging countries create opportunities to meet nutrition, income, livelihood

and ecosystem needs while mitigating livestock related threats to human and environmental health. But these opportunities must be managed to add to the positive aspects livestock provide while mitigating the negatives.

Globally, transforming food systems to meet demand in inclusive, sustainable, healthy, nutritious and efficient ways is recognised as one of the world's biggest challenges.

As the access to and availability of milk, meat and eggs increases for poorer populations, policymakers will need to promote sensible, balanced consumption as well as messaging that incorporates dietary, environmental, public health and animal welfare dimensions. Governments will face a plethora of trade-offs in implementing policies that support a vibrant transformation of the livestock sector.

More than one billion people are involved in livestock value chains globally, with more than half of these dependent on livestock for their livelihoods. Meat, milk and eggs make up five of the world's top 10 highest value agricultural commodities, and the livestock sector contributes 40 per cent to global agricultural gross domestic product. While this share varies from 15 per cent to 80 per cent across emerging and developing economies, it is rising

fast in many countries and will need support from a range of technical, policy and institutional enablers.

Around 200mn people herd livestock in regions too dry for crop production. With the right support, many could improve their livelihoods by helping to meet the rising local demand for meat and milk. Other pastoral herders will need support in transitioning away from herding livelihoods altogether or in reducing their vulnerabilities to climate and other shocks.

Over the coming decades, livestock will certainly remain a central part of the future of protein, according to many experts

Concurrently, they can enhance their livelihoods through opportunities such as wildlife conservation and storage of carbon in rangeland soils.

Food-producing animals not only provide high-quality and bioavailable protein as well as many other nutrients, but also play important roles in cultivating food crops and serving as living assets and income sources, particularly for the world's poorer populations and for rural dwellers in higher-income countries. Considerable, largely untapped opportunities exist to increase the food, nutritional and economic security of mixed crop-livestock farmers. Particular opportunities would be through jobs and improved livelihoods for women and youth, as well as in reducing the risks livestock can pose to the environment and public health.

Developing and emerging nations may choose to increase their imports of livestock derived foods produced by industrial systems in developed countries. While increased imports could improve access to the meat, dairy or eggs many consumers increasingly demand, they could also reduce local job opportunities and increase threats to the environment, public health and animal welfare.

Enablers of transformation

The diversity of livestock systems and the multitude of enablers for transformation mean that there will not be an immediate solution. But making use of that diversity along with the many 'enablers for transformation' creates opportunities to make rapid progress in sustainable and equitable development.

Some of those opportunities are already coming into view. Sustained cooperation and consultations, guided by wise investments from donors, policymakers, the private sector – and not least, farmers themselves – will move the sector forward along multiple paths. As with all dimensions of the food system, transformation of the livestock sector in emerging and developing countries must balance trade-offs and grasp opportunities to address some of the world's most pressing challenges.

- Decision makers will need to assess priorities in relation to trade offs in specific contexts
- Governments will need to support livelihood transitions
- Innovative modes of stakeholder engagement must be promoted at all levels
- The power of technology must be harnessed to address production, information and bioeconomic challenges
- Enabling policies must be implemented and incentives provided to support equitable, affordable, safe and sustainable livestock sector transformation
- Informing and supporting consumer choices about livestock derived foods is necessary
- Greater investment is required to transform smallholder production 

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Fall Armyworm attack the crop at their larval stage sometimes moving in masses to new areas in search of food.



Image Credit: Adobe Stock

Around 500 South Sudanese farmers to train on the use of Fawligen to control Fall Armyworm and protect maize crop yields.

South Sudan gears up to combat Fall Armyworm

A NEW PARTNERSHIP IN South Sudan is combating Fall Armyworm, an insect that can cause significant damage to crops, including maize and sorghum. With more than half of South Sudan's current population—nearly 6.2mn people, in need of life-saving food assistance in January, Fall Armyworm threatens to exacerbate food insecurity that is already severe.

South Sudanese agriculture extension agents will receive training in Nairobi through the partnership between USAID; the Food and Agriculture Organisation of the United Nations (FAO); the International Maize and Wheat Improvement Center (CIMMYT); Centre for Agriculture and Bioscience International (CABI), an organisation that supports agricultural development; and AgBiTech, a company based in Fort Worth, Texas, that developed Fawligen, a biological product to control Fall Armyworm.

Fall Armyworm has destroyed maize, sorghum, and other crops in South Sudan and across 43 other countries in Africa. Maize yield losses in 12 other African countries could range from 21 per cent to 53 per cent of annual maize production, according to CABI.

The partnership will train and support almost 500 South Sudanese farmers to use Fawligen to control Fall Armyworm and

protect maize crop yields. If the product performs according to results in other African countries, farmers will safely protect 1 metric tonne of maize per hectare, enough grain to provide food security to a family of 12 for one year or 6,000 people overall.

Fawligen is a biological pesticide product used for caterpillar pest control that is suitable for organic farming. It is being used widely in other African and developed countries. In Nigeria, crops treated with Fawligen since 2018 recovered well after an infestation of Fall Armyworm, and continued to perform better thereafter.

Fawligen is a biological pesticide product used for caterpillar pest control that is suitable for organic farming.

Armyworm attack

There are a number of species of Armyworm caterpillars, many with a distinct taste for a particular plant or vegetable. Some will eat anything green. They attack at night and hide in plants and under garden debris during the day.

They attack the crop at their larval stage, sometimes moving in masses to new areas in search of food.

In dry season the larvae stay close to the ground feeding on grass species but in rainy season when farmers have planted their maize, they move up to feed on the leaves and fresh maize cob causing 100 per cent yield loss.

Almost all sub-Saharan countries have reported infestations, which have affected millions of hectares of crops. Sustainable management practices that are used in the Americas need to be adapted to Africa's socio-economic-environmental context.

The researchers and scientists trying to forecast the spread of the then call for vigilance from farmers and programme managers alike. They remind that early detection of small larvae is crucial, since it is only at this stage that chemical insecticides would work effectively.

Several preventive methods are in use and the farmers are also advised to avoid using harmful pesticides or practices that would inadvertently destroy beneficial insects.

Fall Armyworm was first detected in Central and Western Africa in early 2016 and has quickly spread across virtually all of Sub-Saharan Africa. Due to trade and the moth's strong flying ability, it has the potential to spread further. Farmers will need great support through integrated pest management to manage Fall Armyworm in their cropping systems. 

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Pathways to Africa's food and nutrition security

Image Credit: Adobe Stock

ACROSS AFRICA PEOPLE continue to battle the burden of undernutrition and improvements depend on production, delivery and access to healthy foods and essential nutrients.

The World Health Organisation's Africa region has warned that unless the quality of food that Africans eat is addressed, the continent will not be able to tackle undernutrition and obesity related diseases or meet global nutrition goals.

Scorecard on nutrition

The African Union Commission, the African Development Bank and global partners recently launched the Continental Nutrition Accountability Scorecard to raise awareness and reinforce commitments by African governments to help end malnutrition.

His Majesty King Letsie III of the Kingdom of Lesotho and African Union Champion for Nutrition, and Dr Akinwumi A Adesina, president of the African Development Bank co-hosted the scorecard launch on the sidelines of the 32nd ordinary session of the assembly of heads of state and government of the African Union in Addis Ababa, Ethiopia.

"The nutrition accountability scorecard offers an opportunity to lay a solid foundation to aid African leaders to act strategically and deliberately in implementing policies and investing in nutrition programmes that tackle malnutrition in our respective countries," King Letsie III told attendees.

"As responsible leaders, the onus is on us to take action for the well-being of the African people. We need to take

appropriate and decisive actions now rather than later," he added.

The scorecard launch presented key findings and recommendations, including calls for governments to increase budgetary allocations for multisectoral nutrition plans. The scorecard also calls for the enhanced empowerment of women and adolescent girls and the provision of nutritional support at the most critical time of a child's life - during pregnancy and early childhood.

United Nations data indicate the number of stunted children in Africa increased sharply from 50.6mn in the year 2000 to 58.7mn in 2017.

Food for growth

United Nations data indicate the number of stunted children in Africa increased sharply from 50.6 mn in the year 2000 to 58.7 mn in 2017. A growing body of evidence recognises that malnutrition and economic development are closely interlinked.

Poor nutrition is responsible for stunting children's growth, harming children's educational development and future economic prospects.

The 2018 Global Nutrition Report, the world's foremost publication on the status of malnutrition around the world, highlights that solutions already exist but finds effective ideas are not being adopted at scale. Governments are showing commitment and stepping up to lead

action. For instance, the Ethiopian government's commitment to end child undernutrition by 2030 has taken a significant step forward with the recently developed National Food and Nutrition Policy. We see examples of countries building multisectoral plans to deliver on their targets. New data published by various journals also proves useful.

However, the report outlines the following steps to translate solutions to actions-

Breaking down existing silos to tackle malnutrition in all its forms; Prioritising and investing in data to identify key areas of action; Scaling up and diversifying funding for nutrition programmes; Immediately taking action on healthy diets by making healthy foods affordable across the globe; Implementing more ambitious commitments that are designed for impact through SMART targets.

Multisectoral cooperation

Working with Big Win Philanthropy and Aliko Dangote Foundation, the African Development Bank has unveiled a new Multisectoral Nutrition Action Plan that aims at raising investments towards reducing stunting by 40 per cent in African children aged under five by the year 2025.

Through the Multisectoral Nutrition Action Plan, the bank commits to scale up the proportion of investments that are 'nutrition-smart' in agriculture, water, sanitation and hygiene, social and health sectors.

"To realise its human and economic potential, Africa must invest in nutrition - particularly during the 1,000 days between



Image Credit: Adobe Stock

Poor nutrition is responsible for stunting children's growth.

conception and the age of two - as a crucial foundation for productivity later in life," said Oley Dibba-Wadda, the African Development bank's director, human capital, youth and skills development department.

"The African continent has the potential to become a powerhouse of productivity in the 21st century but cannot sustain rates of economic growth and at the same time integrate its burgeoning youth population without addressing these high rates of stunting."

In order to end hunger and undernutrition while accelerating economic growth, agricultural transformation must become a reality.

The bank is strengthening political engagement and building partnerships by enlisting heads of state, ministers, and eminent leaders as champions to spur and build a high-level political movement and leadership for nutrition, known as the African Leaders for Nutrition (ALN), which was endorsed by the assembly of heads of state and governments of the African Union (AU) at the 30th ordinary AU summit, held in Addis Ababa, Ethiopia on 31 January 2018.

Role of agriculture

Agricultural development has enormous potential to make significant contributions to reducing poor nutrition and associated ill health. In order to end hunger and problems related to nutrition while accelerating economic growth, agricultural transformation must become a reality.

Most Africans reside in rural areas and agriculture remains the main income source for a large part of the population. Improving agricultural productivity also

leads to higher incomes.

Diet quality, food safety and reduced exposure to disease in food production are some of the measures that require attention in agriculture, along with the use of technological developments.

In addition to specific food security and nutrition policies, this year's report from the United Nations Economic Commission for Africa, reviews four important cross-cutting topics, namely, youth employment, remittances, intraregional trade, and climate change. It highlights their interplay with the food system and their role in food security and nutrition. **B**

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A case study of the largest capacity fertiliser blending plant in Africa.

Blending technology and innovation

Image Credit: Bagtech



Westfert bulk blending plant,
Hoopstad, South Africa.

IN 2018, BAGTECH International, a bulk material processing service provider and equipment supplier based in South Africa's Durban, commissioned the highest capacity continuous fertiliser blending plant in Africa, capable of blending at up to 200 tonnes per hour and bagging out at up to 240 tonnes per hour. Additionally, the relatively low labour resources required to run the plant affords flexibility to the owners to serve a market that is driven by unpredictable forces. The project was completed in collaboration with automation specialists Festo, who are at the forefront of the inception of the Industry 4.0 movement. The facility owned and run by Westfert, has presented new and exciting opportunities related to the application of machine learning technology and artificial intelligence to the challenges that fertiliser processing presents.

In this case study, we take a look at the functioning of this facility to provide insights into the process of setting up and running a processing facility in Africa, while making use of developments in technology, to bring outstanding products to the market at optimal cost and time to suit customer needs.

This case study aims to provide insights into the process of setting up and running a fertiliser processing facility in Africa.

Setting up the facility

Constraints in any project - whether greenfield or brownfield, often lead to innovative solutions. This facility allows for a quick turnaround time on blends since it processes only one-tonne bags and no downtime is involved when changing from one bag size to another. The use of single purpose equipment requires less training to run as well as maintain and can be designed with fewer of the

compromises necessary in multipurpose equipment.

A good facility layout also provided a sound footing to build the plant function. In this case, the owner had the opportunity to start from scratch with an existing blending facility nearby to smooth over the run-in of the new facility. Unique features such as a parabolic girder system ensure that all internal space is available for movement of wheel loaders and lift trucks as well as for the storage of raw materials. A one way material flow in the facility reduces the risk of cross contamination of products as well as of a stoppage at the bulk intake affecting the blending, bagging and loading processes or vice versa. The flow also gives definite advantages for process quality control as any waypoints are not shared by other processes.

Another factor in favour of the facility is that it is an infrastructure based solution. In this facility, since the intake hoppers are sunken into a pit, the dump height is accessible to even the smallest of loaders. As the equipment height from the warehouse floor is low, the hoppers, wheel loaders and tripper conveyor can be viewed accurately from the ground level control room.

As warehouse space is not devoted to the storage of bagged goods, it lowers the amount of touch labour and double handling, as all goods are made to order. This also ensures that raw materials are available in bulk for any blend at any time, increasing the availability of storage space for raw materials while ensuring that the production capacity is ready for any unforeseen demand or downtime.

The process

The journey of the product in the making starts with the raw materials brought in by tipper trucks entering into the bulk intake system where it is pre-screened and coated outside the bulk storage facilities. The product is then fed on to a central overhead conveyor inside the bulk storage building. A tripper conveyor moving along

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- ⊙ TVR Evaporator
- ⊙ Exhaust Vapor Evaporator

the overhead conveyor allows the discrete raw materials to be discharged into their allocated bins below. These bins can be adjusted in size to hold the raw material quantities at hand, based on market demand.

From the bulk bins, the various raw materials are fed into designated macro and micro blending hoppers by the payloader, where the product is regulated into the blend by the underbin extraction (servo radial gates and screw conveyor). The blend travels through the process equipment where it is screened for fine and oversized lumps. All components are then homogenised in the continuous blender and end via a diverter valve in one of the two bagging machine product hoppers. The flow of the product is then regulated by a valve, which is part of a closed loop control system with the readings from the load cells of the weigh bins controlled by the PLC (programmable logic controller). This assures precise and accurate control of the weight of the product discharged into the bags from the weigh bins. The product is then dosed into bulk bags to make up the required bag weight. The bag weights are spot tested on a check scale calibrated with certified weights

In high capacity continuous blending, it is an important consideration to maintain the precision of the blend.

Adapting for functionality

In order to aid with production, all start up and shut down sequences were adjusted and the client advised to turn down blending to a point that matches the bagging out speed for a more stable blending run. In addition to this, an automatic change-over function was added in to switch between the two bagging machines to be fed by the blend. The client has the option to turn this function off to suit running production with only one bagging team located at one of the bagging machines.

In high capacity continuous blending it is an important consideration to maintain the precision of the blend and to be able to regulate the mass flow rate of each of the blend components near instantly, in order to adjust the blend for accuracy even when the flow characteristics of the raw materials may be unpredictable due to humidity and irregularities in the product. The plant at this facility takes readings to act upon six hundred times a second, self-correcting in half steps to keep the flow of the plant stable.

The radial gates which regulate the flow of the free-flowing materials into the blend are sized to suit the capacity of the plant and are opened by a servo motor which allows very precise and accurate control of the discharge. The gate outlets are shaped

to allow a higher degree of control over the tonnes per hour discharged at the bottom of the feeding range, without completely sacrificing the upper end of the discharge range.

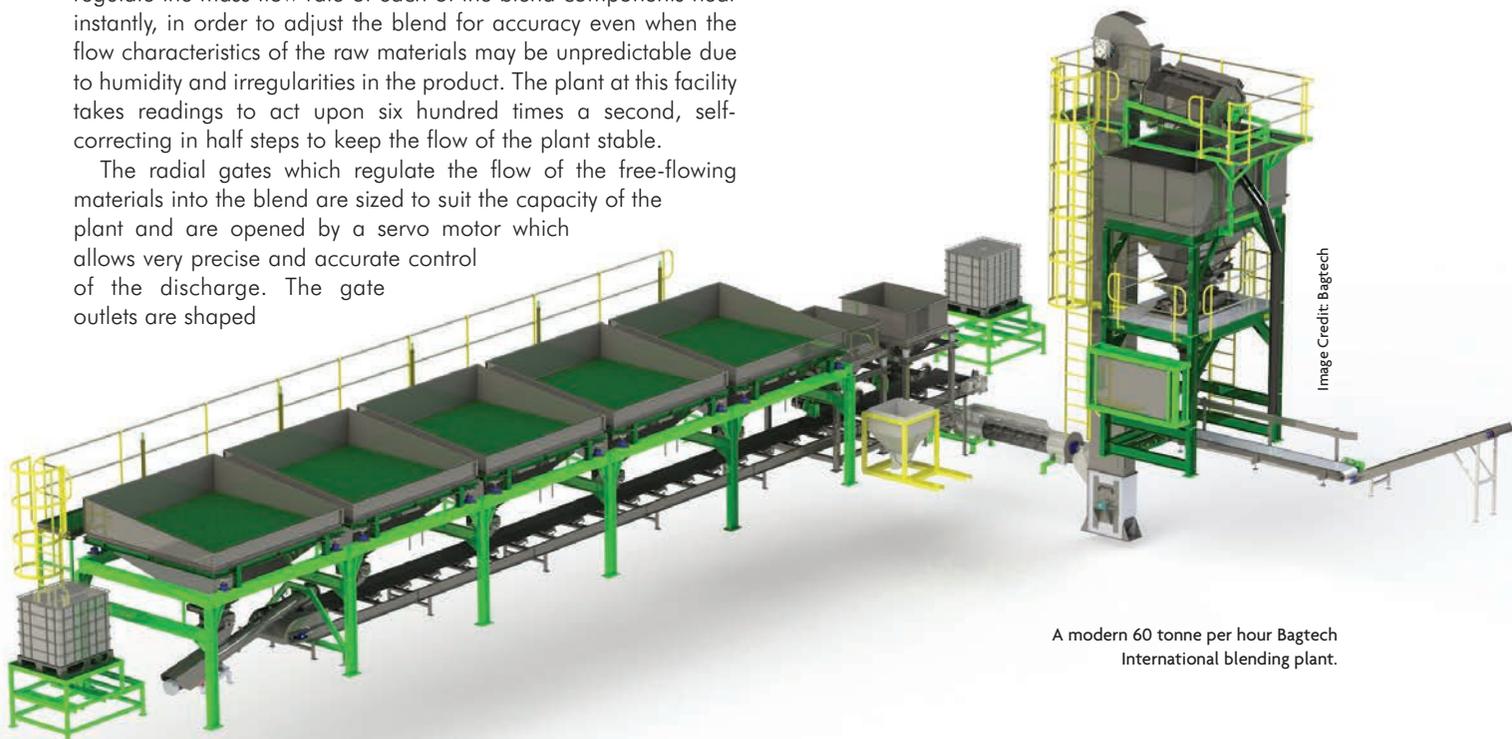
Having a wide discharge range allows for increased accuracy of small blends by slowing the plant's blending speed and running the gates nearer the bottom end of their discharge range where there is higher resolution.

Industry 4.0

The chief characteristic of production under the fourth industrial movement is the strong customisation of products under conditions of highly flexible production. In the operation of this plant, we can see how the production of multiple blends of widely varying sizes are easily accommodated during the course of a day with little downtime. The fourth industrial movement also helps in aggregating and visualising information comprehensively for making informed decisions and solving urgent problems on short notice. In this plant the motor drives can be accessed and set remotely allowing feedback and adjustment. The procedure for finding the mass flow rate of a raw material and changing the value to be in line with the bulk discharging at that moment is also now automated to reduce repetitive work for the automation engineer and to make this a task that can be done in house by a supervisor.

The case of the Bagtech facility highlights some factors affecting the future of fertiliser supply in emerging markets:

- The increasing buying power and acumen of individual clients through cooperatives.
- Increased quality demands on product granulometry for modern planters which cannot tolerate dust.
- The addition of specially formulated liquids as a method of adding trace elements homogeneously with controlled nutrient release is set to continue to grow.
- The supply of water soluble fertilisers for arid regions.
- Industry 4.0 as proliferated through the Industrial Internet of Things (IIoT) throughout the value chain. 



A modern 60 tonne per hour Bagtech International blending plant.

Image Credit: Bagtech

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The 6th edition of Agritech Expo Zambia returns to the GART Research Centre in Chisamba from 11-13 April 2019.

Boosting the Zambian agricultural industry

THIS YEAR, THE event is expected to bring more than 20,000 visitors from some 39 countries, over 220 local and international exhibitors, including country pavilions so far from Germany, China, Czech Republic, the European Union, Italy and the UK, with 3500 VIP and large-scale farmers and 150 members of the media. Agritech Expo Zambia is free to attend for all visitors that pre-register.

The goal of the expo is to establish a marketplace for regional and international industry professionals, young agripreneurs and farmers of all scales, to come together in one location to conduct exclusive agribusiness transactions while being educated on the latest global industry trends to advance into the next generation of food production.

Agritech Expo is simply the only professional business led event servicing the needs of the entire agricultural value chain in Zambia and its neighbouring countries.

"Mechanisation is the key to the farming business of the 21st century and will definitely have positive effects like higher outputs, generate more income for the farmer itself and the society." This is according to Martin Botzian, head of communication, DLG International GmbH, and conveners of the German pavilion at Agritech Expo Zambia.

The goal of the expo is to establish a marketplace for regional and international industry professionals, young agripreneurs and farmers of all scales.

The German pavilion has been part of the event since its inception six years ago, which "clearly shows our interest in the Zambian market and that of the exhibitors", says Martin, adding "the country still has a stable policy environment, which means the government supports the agricultural sector and promotes commercial farming. Commercial or emerging farmers are more



Agritech expo services the needs of the entire agricultural value chain in Zambia and its neighbouring countries.

likely to invest in a country with stable policies. Zambia is still a good place to grow crops and raise animals. There is enough fresh water for irrigation."

"The CNCIC has organised a Chinese delegation to participate in Agritech Expo Zambia" says Allen Li, deputy exhibition department manager at the China National Chemical Information Center (CNCIC). He adds, "The CNCIC is an authoritative provider with comprehensive service in the chemical industry and relevant areas, including information consulting, exhibition and conference, e-commerce, IT service, publication, etc. This year, we'll bring four to five Chinese top class, high-tech agrochemical manufacturers in our pavilion and present their brand products which are specifically developed for Zambia's agricultural conditions."

As in previous years, Agritech Expo enjoys extensive support from the agri industry with well-known suppliers Agriserve, SARO and Zamseed already confirmed as gold sponsors.

The exciting new features to expect at the expo this year include Livestock demos and workshops giving farmers a first-hand experience on how best to care for their

livestock, live planting demos to feature the best way to plant seeds with the right mix of agrochemicals and technology to attain solid yields, live crop trials with visitors given an opportunity to view the yield of seeds from a variety of seed producers and respective agro chemicals companies.

The Construction Park is a welcome addition to Agritech Expo Zambia and offers visitors a selection of quality construction equipment to suit their agricultural needs.

The Irrigation Zone displayed a variety of irrigation systems and farming solutions, including centre pivot displays for commercial and small-scale farmers from leading industry suppliers.

Jervisimba, president of the Zambia National Farmers' Union (ZNFU) says the huge success of last year's Agritech Expo in the face of numerous challenges, "showed that the organisers, the local partners and the government always manage to work together towards excellence year after year to deliver an outstanding product that has proven to be valuable and indeed unmissable for regional farmers of all scales, exhibitors and sponsors alike." 

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agrofood Ethiopia is set to return with the 3rd edition from 9-11 May 2019 in Addis Ababa.

Enhancing the Ethiopian agrofood industry

ETHIOPIA, ONE OF the fastest growing economies of the world, is expected to grow by 7.8 to 10 per cent between 2019 and 2023. Rain-fed agriculture (accounting for almost 50 per cent of the GDP) remains Ethiopia's main source of employment and export earnings. FDI is set to continue growing, through investments in agriculture and manufacturing.

agrofood Ethiopia consists of the three sub-brands: agro AgroTech Ethiopia, food + bev tec Ethiopia and food + hospitality Ethiopia. It will place this year based on an ever-increasing interest in the market, covers the entire value chain – from field to fork.

First timers

Germany, the Netherlands and Turkey are in for the very first time with national pavilions while China, France and Italy renew their official pavilions once again.

The exhibitor profile includes agricultural machines, farming tractors, harvesting equipment, analytical equipment, dryers, cleaners, silos and storage systems, packaging technology, food and beverages as well as the hospitality, hotel, shop and catering equipment sectors.

Dieter Rohlf, feed and biofuel technologies area sales manager Africa – ANDRITZ, who attended the fair last year remarks, "Ethiopia is an important market as there is a large population, thus a huge potential. The level of knowledge of visitors here at agrofood Ethiopia 2018 ranges from real trade visitors to visitors to whom we have yet to pass on our know-how. The highlight of the fair for us was to be able to present our technology to the experts."

The visitor profile of the fair includes farmers, food and drink manufacturers, companies in food or drink packaging, food



Exhibitors at agrofood Ethiopia.

Image Credit: agrofood Ethiopia

traders, hotel, bar and cafe professionals, caterers and F&B professionals.

Bigger event

A hundred global technology leaders from 13 countries will present their solutions, products and technologies tailored to the needs of the Ethiopian agrofood and plastprintpack business community.

The event features a strong presence of international market leaders in food, beverage and packaging technology and ingredients.

The interactive agrofood and plastprintpack portals allow exhibitors and visitors to communicate as well as to arrange business meetings before, during and after the event, all year round. 



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The Pan-African Poultry Congress (PPC) will take place from 13-17 May 2019 in Lome, Togo.

Gaining the edge in poultry production

SEVERAL POULTRY EXPERTS, researchers, scientists and industry experts from different parts of the world are expected to attend the conference. The main focus is on the challenges of poultry industry in Africa.

According to the World Poultry Science Association, five main themes will be addressed during the conference - environment and poultry production systems; nutrition, feed and metabolism; reproduction and incubation; product quality, processing and safety; economics of production.

The Regional Centre of Excellence for Poultry Science (CERSA) successfully organised a symposium in 2017 on poultry



Poultry experts, researchers, scientists and industry experts from different parts of the world are expected to attend the conference.

Image Credit: Adobe Stock

science. The conference is based on the experiences acquired from this.

CERSA in collaboration with the World Poultry Science Association-Togo (WPSA-

Togo), has invited people involved in poultry science and production who will be able to provide valuable expertise for the success of this conference. **E**



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The 2nd edition of Poultry Africa, designed for the poultry meat and egg sectors of countries in sub-Saharan Africa will be held from 2-3 October 2019.

Enhancing Africa's poultry industry

Image Credit: Adobe Stock

POULTRY AFRICA will be bringing networking and trade opportunities, exchange of knowledge and information for the suppliers and buyers, industry experts and all stakeholders.

According to Poultry Africa manager Diána Tóth, this year's event for October 2019 looks likely to be bigger than before. It is on course to achieve a 30 per cent growth in exhibitor numbers compared with 2017.

Also confirmed by the organising team at VIV worldwide is that this business-oriented biennial event is returning to Kigali in Rwanda, as a direct result of the positive feedback received from exhibitors and visitors at the 2017 edition.

A preliminary list of exhibitors prepared at the start of the year includes major international suppliers of products and services for poultry enterprises and will feature companies from Africa as well as Asia, Europe and North America.

"I am delighted to report that we are continuing to add African exhibitors to that early list," Diána comments. "One of the most recent additions is a supplier from Mauritius."

"However, I think one of the main points about the expo at Poultry Africa 2019 is that it will have new exhibitors, and also a wider variety of products and services. As two examples of this, the stands this time will include more manufacturers and distributors of systems for slaughtering and

processing poultry and more companies offering animal health products."

"Our first edition demonstrated beyond any doubt that Rwanda was the right choice for location," says Diána. "It is politically stable and a safe, neutral place to visit, as well as being at the geographic centre of our primary focus countries in Eastern, Western and Southern Africa and having direct flights from and to all parts of the region."

"I think one of the main points about the expo at Poultry Africa 2019 is that it will have new exhibitors, and also a wider variety of products and services."

The relatively small size of the poultry business in Rwanda itself is therefore outweighed by the country's position in a part of the world that has enormous potential for further increasing its production of chicken and eggs. On latest estimates, the countries of West and East Africa together produce almost 2 mn metric tonnes of poultry meat and 27 bn eggs per year, with some forecasters expecting up to a 10 per cent increase in output by 2025.

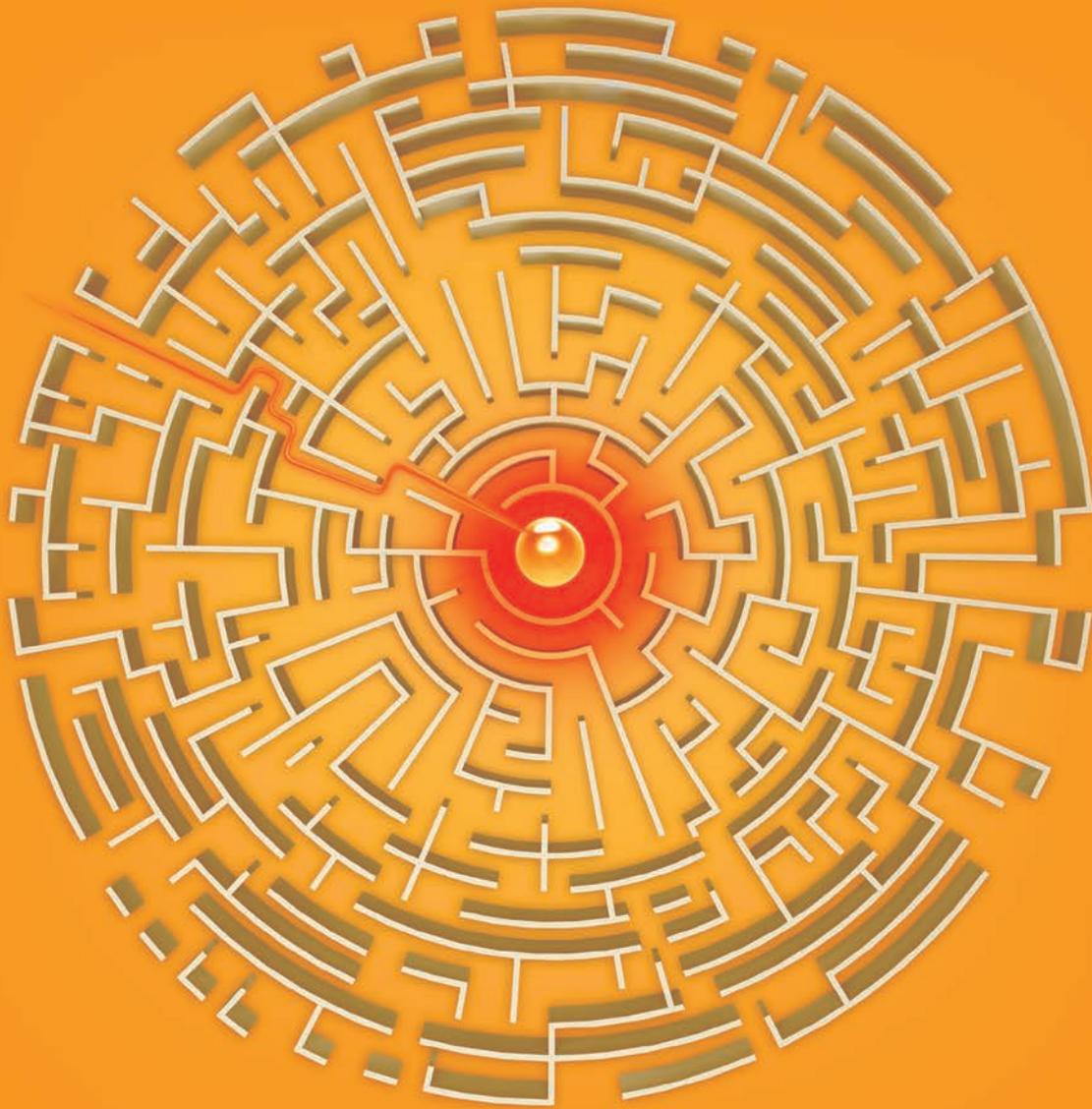
One of the successes of Poultry Africa 2017 was its inclusion of a leadership

conference - in effect, a regional summit that looked specifically at important issues affecting the poultry markets of sub-Saharan Africa with a panel of speakers drawn from within the region and global authorities.

So a conference along similar lines is a core part of the programme for Poultry Africa 2019, with the important change this time that it is being held on the day before the expo opens. The organisers explain that staging the conference before the show in 2019 means that visitors can make the most of the knowledge sessions on offer while also having the maximum opportunity to network with the exhibitors during the expo.

"The arguments in favour of coming to the event are clear," Diána comments. "Let us say you are involved in the management or technical operation of a poultry business in one of the countries of sub-Saharan Africa. Here you have an event which is exclusively about your business interests, at a convenient and comfortable location and with the hallmark of professional organisation that is such a feature of all VIV shows around the world."

"We look forward to welcoming you to Kigali, offering a great opportunity to network with other poultry leaders from Africa and with distinguished international suppliers. This concept is a very cost-effective investment in meeting sub-Saharan Africa's top poultry professionals." **E**



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Improved farming techniques could be a game changer in boosting agricultural productivity and resilience.

Tech-ing the next step forward



Vertical farming uses water and fertiliser more efficiently

Image Credit: Aisyaklumar/ Adobe Stock

TECHNOLOGY CONTINUES TO play a prominent role in the development of agriculture globally while helping the industry to break into new frontiers.

Dawie Maree, head of information and marketing for FNB Agriculture, says agricultural technology innovation is evolving at an unprecedented pace, leaving farmers with no choice but to adapt and reinvent themselves in order to compete, grow and sustain their businesses.

"The agricultural industry globally is successfully overcoming some of its prominent environmental and food production challenges through the use of new and advanced technologies, and South Africa is no exception," said Maree.

He points out key tech trends to shape agriculture in 2019:

Big data

The industry is increasingly using data analytics to improve operational efficiency and yield prediction.

Farmers are now able to implement complex systems that assist them with equipment management. This is also

combined with data on weather patterns, soil conditions as well as crops to be planted, to develop a formula to determine the best time and place to plant and harvest.

The barrier of entry into farming technology has dropped, as cloud computing, computing systems, connectivity, open-source software, and other digital tools have become increasingly affordable and accessible.

Big data is also useful for forecasting demand for crops, yield on crops, as well as potential land size and usage of land.

According to a Bloomberg report, information collected by farmers – yields, fertilizer use, crop rotation, rainfall, and dozens of other data points – is catnip to the likes of Bayer, Syngenta, DowDuPont, and BASF. The companies feed it into software that predicts combinations of seeds, fertilizers, and sprays to maximise

yields. That can boost sales of their products while also padding the bottom line from subscription fees farmers pay for recommendations on what to sow and when to spray.

Big Data can also aid in accurate crop predictions, stronger seeds, automated agriculture and environmental awareness.

Drip irrigation

Given the recent drought conditions which cost South African farmers billions of Rands in losses, there's a lot of investment in the development of advanced drip irrigation technology, which allows farmers to limit wastage by efficiently delivering the exact amount of water to the soil, needed by their crops to grow.

Specifically, most women smallholder farmers do not have access to irrigation technology. With climate change phenomena having a growing impact on weather patterns – more drought, more floods – this is having a particularly negative effect on women farmers. Drip irrigation is a solution that is relatively inexpensive and, when coupled with a solar powered pumping system, also allows for

the securing of sub-soil water, even if the farm is not located close to water sources.

Vertical farming

This modern form of farming used to produce food in a smaller controlled environment through vertically stacked layers to save on water and fertiliser – is no longer just a ‘buzz word’, but reality. A number of farmers in South Africa are already successfully using this technology as part of their farming practices.

Throughout Africa, technology-led transformation of the agriculture sector is already underway, from farm to fork

Vertical farms use sophisticated technology and climate-controlled buildings to grow crops. Because it is a closed system, vertical farms use 95 per cent less water than farming on land. Vertical farming in cities can help to deal with the problems of rapid urbanisation. It also offers urban residents pesticide-free food and provide employment.

Vertical farming has its own set of unique



Drip irrigation system is very popular in Africa

Image Credit: Adobe Stock

problems, especially in Africa. These include unreliable sources of energy and water and startup costs are high. But establishing partnerships that include the government, the private sector, universities, research institutions and civil society can counteract these obstacles.

Mobile apps

Smartphones are no longer just used for multimedia purposes and accessing information through the internet. Farmers are now actively using apps to monitor their crops via GPS, calculate feed, save water,

get access to networks and markets, etc.

Maree says mobile apps have become a major disruptor in the agricultural industry. Developers globally are working around the clock to introduce app innovations that were once unimaginable – there are now apps that are able to spot over 430 weed species and identify their characteristics, at a click of a button.

“Farmers are urged to regularly research and educate themselves on new technological developments in the industry to avoid being left behind. Those who are still pessimistic, do so at their peril,” concludes Maree. [Ⓔ]



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Compact telehandler from Bobcat for Africa and Middle East

BOBCAT, GLOBAL PROVIDER of heavy lift handling applications for agriculture and construction markets, has launched the TL43.80HF telehandler in the Africa and Middle East region.

With the TL43.80HF, Bobcat aims to provide a range of 15 different rigid frame telehandler models, covering maximum lifting capacities between 2.6 tonne and 4.3 tonne and maximum lifting heights from six to 18 metres.

The TL43.80HF focuses on ensuring that customers can benefit from highly efficient loading productivity and lift capacity.

"Bobcat machines are made for tough jobs, whilst still providing all the agility and versatility any application would require," said Olivier Tracucci, senior product manager for telehandler at Bobcat.

"Unlike any other manufacturer on the market, all Bobcat telehandlers are covered by a three year/3000 hour warranty as standard, with the option of extending the warranty to five years/5000 hours," said the company.

High lift capacity in a compact telehandler

The TL43.80HF provides a solution for the heavy-duty, high-productivity segment of the agricultural market, taking lift capacity, lifting height and breakout force to unprecedented levels in this area, meeting different levels of farming expectation in terms of ease of use and level of comfort.

Due to a high lift capacity of 4.3 tonne and a maximum lift height of almost eight metres, the TL43.80HF is a compact telehandler offering an impressive package, which brings together robustness, rough terrain ability and ease of use for the operator in the same machine.

The very high stability of the TL43.80HF is



The TL43.80HF from Bobcat

Image Credit: Bobcat

due to the box welded frame, the low load center, the long wheelbase and the new massive rear counterweight, allowing Bobcat to minimise the overall dimensions of the machine, resulting in a width of only 2.30 metres and a length of less than five metres from the rear to the fork face.

"The rough terrain capability of the TL43.80HF has been optimised for applications such as working and digging in piles of materials with the incorporation of new heavy-duty Dana Spicer axles with limited slip differential and the outstanding tractive force available of up to 90 per cent of the machine

weight," according to Bobcat.

In addition, the TL43.80HF provides as standard automatic functions that allow the operator to focus entirely on the work at hand, such as boom cushioning, the parking brake and the reversible fan which helps to keep the cooling system (radiator) clean in dusty environments.

The TL43.80HF further aims to optimise work on site including a speed limiter system that controls speed regardless of the engine RPM, boom speed adjustments and the Eco mode, providing a fuel saving of up to 15 per cent.

Azuri's award-winning solar irrigation solution to benefit Ugandan farmers

GROWFAST, THE PAY-AS-YOU-GO solar irrigation solution from Azuri Technologies, was named a winner of the Uganda renewable energy fund launched by the UN CleanStart programme and Embassy of Sweden.

More than 200,000 people across Uganda are set to benefit from the energy fund and clean energy solutions including Azuri's GrowFast solar irrigation system.

GrowFast from Azuri offers farmers an innovative and affordable pay-as-you-go solar irrigation bundle that includes a smartphone with GrowFast app, as well as crop insurance cover. Conventional farming that relies only on rainfall for irrigation limits the number and type of crops that can be

grown each year. The solar irrigation system is designed to improve productivity, income generation, and living standards of small-holder farmers by enabling farmers to keep their crops watered all year long.

Azuri's customised pay-as-you-go plan allows farmers to pay for their solar out of the increased profits from additional harvests. Azuri GrowFast comes with insurance cover in the event of unexpected crop loss.

Agriculture is the backbone of Uganda's economy, employing 70 per cent of the population, and contributing half of the country's export earnings.

"Solar powered irrigation is helping increase harvests, improve farming practices and raising agriculture incomes which in

turn boosts farming incomes and creates new jobs," explains Simon Bransfield-Garth, CEO of Azuri Technologies.

"I am delighted that Azuri GrowFast has been named as a winner of the UN CleanStart fund and we look forward to supporting local farmers in Uganda to increase productivity and household income."

Azuri specialises in solar home solutions including complete solar home lighting systems, solar satellite TV and solar irrigation, all made affordable through a pay-as-you-go service. Products are designed to deliver world-class performance at an affordable price for all customers who live away from mains power.

Profit with DEUTZ-FAHR 6W Profi tractors

DEUTZ-FAHR HAS LAUNCHED a new tractor range oriented towards emerging markets, the 6W Profi, which is comprised of four models with six-cylinder Stage III A engines and power levels between 130 and 180 HP. These machines, which are entirely designed in Italy, are distinguished by their modern design combined with robust mechanics, to ensure high productivity and low operating costs and are strategic features in a global market that requires ever more reliable and performing equipment.

Available either with a cab with air conditioning or a 4-post ROPS frame and practical sun canopy, the new 6W Profi range provides operators comfort during long work days.

Under the bonnet of the new 6W Profi models, the Deutz TCD 2012 L06 series engines can work tirelessly, equipped with Deutz Common Rail (DCR) at 1600 bar, turbocharger with intercooler and waste-gate valve. Thanks to the electronic

injection control, consumption is constantly optimised in relation to the required instantaneous power, while maintaining the delivered power almost constant, resulting in a wide range of engine speeds.

The 6130 W Profi, 6145 W Profi and 6165 W Profi models feature a large 280-litre diesel tank, to which an additional 140-litre fuel tank can be added as an option. However, on the 6180 W Profi both tanks are standard, with a capacity of up to 420 litres.

Designed by SDF, the fully synchronised transmissions offer four gears for three ranges with a shuttle, and offer wide configuration options: the more simple version offers a total of 12+12 speeds; as an option, a creeper or super-creeper can be added (in the latter case, it is possible to operate at only 200 m/h with the engine at maximum speed) for a

combination of 16+12 speeds; if, instead, you prefer to opt for the splitter, you get to 24+12 gears.

Towing performance is optimised also in difficult conditions thanks to the new electro-hydraulic engagement of the front wheel drive and the total locking of the rear differential. The front differential is equipped with an automatic device to limit slippage to 45 per cent, but as an option, it is possible to request electro-hydraulically operated 100 per cent locking.

The 6W Profi range is fitted as standard with a PTO with electro-hydraulic coupling, to allow a gradual and progressive start of the connected equipment. The standard configuration offers 540 and 1000 rpm coupling, whereas as an option, it is possible to have the 540ECO with 1000 rpm. For ease of maintenance, the dedicated PTO clutch has been placed near the shaft for easy access.

Constructed with premium components, the hydraulic system offers a 94 l/min fixed flow pump, serving the lift and the auxiliary distributors, which can be supplemented by an additional 37 l/min tandem pump, to provide a total flow of up to 131 l/min. In addition to all of this, there is also a 43 l/min pump dedicated to the power steering.

The 94 l/min main pump is served by a pair of mechanically controlled double acting distributors (for a total of four ways), which can optionally be increased to 3 (6 ways). If, on the other hand, a tandem pump is also fitted, 6 ways are standard and can be increased to 8 on request.

The rear lift has a maximum lifting capacity of 6,850kg in the vicinity of the quick-release couplings, but can be optionally increased to 8,600kg with additional external cylinders.



Image Credit: DEUTZ-FAHR

DEUTZ-FAHR offers its customers a wide range of solutions in order to supply farmers and farming contractors all over the world with machines that simplify their work and maximise their productivity.



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The integration of digital technology into agriculture represents a major opportunity for Africa.

Image Credit: Rohane/ Adobe Stock

Holistic financing solutions

ACCCESS TO ADEQUATE financing is often identified as one of the key inhibitors to achieving long-term sustainability for Africa's agricultural practitioners, particularly smallholder and subsistence-level farmers who typically must resort to borrowing from community members or pooling resources in order to make ends meet.

"There is a real need to unlock financing for small-holder farmers to give them access to mechanisation and other technologies but there is no use in helping them buy a tractor and then they don't have money to buy seed and fertiliser," says Antois van der Westhuizen, managing director of John Deere Financial in Johannesburg. "Africa's farmers require a holistic financing solution that focuses on the entire agricultural value chain."

According to Westhuizen, this is partly why the traditional reliance on grant funding from government sources or NGOs has been too limited in scope. Relying on commercial banks to solve the problem also has its limitations

"For a bank the risk profile of a commercial farmer is vastly different from that of a smallholder farmer. It makes more sense for them to lend to the end-customer of a group of smallholder farmers than each individual smallholder," the John Deere MD states.

According to Westhuizen, unlike South Africa, in other countries on the continent, smallholder farmers account for between 70 per cent and 80 per cent of agricultural output, which is often insufficient to meet their country's nutrition requirements. This results in countries having to import food from abroad, often from heavily subsidised markets like the European Union, which makes it difficult for domestic farmers to compete on price.

This results in a situation in Africa, which is home to roughly 60 per cent of the world's available arable land but is still regarded as a food insecure continent. This is partly due to lack of access to mechanised solutions such as irrigation equipment meaning as much as 90 per cent of the smallholder farmers on the continent still rely on rain to water their crops. Improved farming techniques, access to better seeds and other mechanised equipment could further boost agricultural yields.

Role of technology

John Deere estimates that there are approximately 122mn electronic banking accounts in Africa, mainly hosted by mobile phone operators or home-grown payments and transfer solutions like Kenya's M-Pesa. The electronic payment and receipt records of these accounts can be leveraged to harvest valuable client information which can then be used to create more accurate risk profiles of smallholder farmers by analysing their cash flow management, repayment histories and spending habits.

The integration of digital technology into agriculture represents a major opportunity for Africa. Guarantee schemes such as those provided by USAID can further incentivise commercial lenders to provide financing to smallholder farmers. A project between USAID and Ghana's Feed the Future programme, helped improve the livelihoods of 113,000 smallholder farmers by boosting the productivity of rice, maize, and soy cultivation thanks to the provision of such guarantees.

John Deere participated in a project in Tanzania where it helped smallholder barley farmers boost their output from half a ton per hectare to three tons a hectare thanks to mechanisation, better quality seed and better fertilisers. The enormous potential to boost Africa's agricultural output is underscored by the fact that most smallholder farmers on the continent only have the capacity to farm around 10 per cent of the land available to them at any one time due to a reliance on hand hoeing and rainfall.

John Deere has dubbed this approach its S.M.A.R.T. programme – Solutions for small farmers, Mechanising for yield, Access to finance, Reliability for lower costs, and Technology and education.

"By thinking laterally and by utilising better information through the power of technology we can build financing models that price risk more competitively, resulting in better repayment terms for the borrower. As we improve our risk pricing models and adapt them for the unique circumstances of Africa, we can also improve the likelihood that lenders actually want to lend, which in turn makes it possible to boost access to financing for inputs across the entire agricultural value chain." 

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Style and versatility distinguish the brand from others.

Lamborghini tractors focus on technology

AMONG THE LIGHT and compact models, the Spire 100.4 stands out with a significant revamp. Its lines now sport rounded corners outlining a compact and clean structure. Equipped with the latest generation FARMotion engine with a 2,000 bar Common Rail system, this range's power unit is known for its flexibility and speed, along with its reduced noise and fuel consumption. The EGR exhaust gas recirculation system combined with diesel oxidation catalyst (DOC) post treatment makes these tractors Stage III B compliant.

We can also see the versatility, efficiency and practicality of Spire in the transmission available in the 30+15 mechanical version with mini and super gear unit or in the three-stage Powershift version for a total of 45+45 speeds. The hydraulic shuttle's Stop&Go system allows you to stop the tractor and then set off again fluidly and smoothly, just using the brake pedals, for easier use in barns and when haymaking. The Overspeed technology also provides a speed of 40 km/h with the engine running in economy mode. The open-center hydraulic system with a 54 litre/min pump and six-way auxiliary valves with flow control optimises the use of equipment. The rear lift, also available with electronic control, boasts a maximum capacity of 3,600kg, while the optional front lift, with a capacity of 2,100kg, can be equipped with a PTO 1000. The electro-hydraulically engaged rear PTO allows for great efficiency and low operating costs when using any equipment.

The highly advanced technology can be seen in options such as the active suspension of the front axle with independent wheels, in the ISOBUS, in the new MaxCom armrest, in the innovative continuously variable transmission, and in the completely redesigned cab.

The application of the most advanced ergonomic paradigms provides the new cabins of the Spire S VRT with a higher class of comfort, thanks also to the flat platform and the extreme versatility of the configurations and the InfoCenterPro, the new high-resolution colour display which integrates



The Spire 100.4

Image Credit: Lamborghini

all the main functions of the machine, including the innovative Comfortip.

In the medium range the Spark 120-130-140, comes in an intermediate model, the Spark 130 VRT.

The technology is advanced because of the popular Stage IV-compliant FARMotion engine. Completing the offering is the latest generation hydraulic system, and cab fitted with a wide range of accessories, including Agrosky automatic satellite guided steering.

The continuously variable gearbox of the Spark VRT combines the driving comfort typical of hydrostatic transmissions with the high efficiency of mechanical transmissions. The operating economy in the field, but especially that on the road, is unparalleled: The vehicle can travel at 40 km/h with the engine at a reduced rpm. The Trailer-Stretch function further boosts comfort and safety when driving on the road, also providing greater stability when braking with heavy towing trailers, while two additional functions such as the ASM and radar further improve productivity in the field.

The FARMotion engine is an advanced four-cylinder turbocharged engine with waste-gate valve and intercooler, which uses the well-known 2,000 bar Common Rail electronic injection to ensure

exceptional responsiveness even at lower revs and optimised power and torque delivery for both open field and road transport use. The hydraulic engine brake (HEB) is a significant innovation, which can be operated by a foot pedal ergonomically positioned on the platform, acting on the hydraulic circuit of the tractor, on the viscous fan with 'e-Visco' electronic control and on the transmission, to effectively decelerate the vehicle without overloading the braking system. The multiple oil-bath discs on all wheels, the hydraulic parking brake (HPB) as well as the powerbrake brake system come as standard.

The rear PTO operates in three modes: 540 rpm, 540 ECO and 1,000 rpm.

The Spark range goes up to 215 hp, including the ultra-modern models on display at the Paris fair – Spark 165 RCshift and Spark 185 VRT, high quality tractors characterised by great reliability and technology unmatched in their segment.

The unmistakable Lamborghini style embellishes the Spark 155-215 with a superb exclusive and refined livery, with the aim of offering tractors of high quality, exceptional reliability and with advanced technology. **E**

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Sierra Leone and IFAD to boost food security in rural areas

INTERNATIONAL FUND FOR Agricultural Development (IFAD) and the Republic of Sierra Leone have signed a financing agreement to develop a US\$72.6mn Agricultural Value Chain Development Project (AVDP).

About 34,000 vulnerable rural households in Sierra Leone are expected to benefit from the project that aims to improve food and nutrition security and raise the incomes of smallholder farmers by modernising agriculture, increasing production and developing markets.

Project financing includes a US\$5.9mn loan and US\$5.9mn grant from IFAD. The project is expected to be co-financed by the private sector (US\$1.4mn), the government of Sierra Leone (US\$8.1mn) and the beneficiaries themselves (US\$1.4mn).

The new project will increase production and improve the marketing of rice, palm oil, cocoa and vegetables, contributing to the government's priorities of rice self-sufficiency, crop diversification and rural poverty reduction.

Focus on Namibia's sustainable forest management

FIVE MEMBERS OF the Budgetary Committee of the German Federal Parliament visited Namibia from 24-26 February 2019, focusing on forest protection, sustainable forest management, bioeconomy and private sector entrepreneurship.

The delegation visited the Ncumcara community forest to learn more about the achievements and challenges of forest protection, sustainable management of the forest and the generation of additional income for the community members.

In Tsumeb region, the delegation got information on the economic and ecological damage of bush encroachment on pasture land and on possibilities to turn bush encroachment into an economic opportunity and make it a viable resource for business.

The delegation observed at bush thinning activities at a farm and the process of producing wood chips. The German government is supporting a programme to introduce innovative and climate-friendly technology for both bush thinning and biomass utilisation.

Agrotop to build large-scale breeding farm in Nigeria

AGROTOP, ONE OF the leading global players in livestock turnkey projects, has announced to build a large-scale pullet and breeding farm for Agrited, Nigeria's leading supplier of poultry products.

The newly built Blue Plains Farm will be located about 40 km north of Ibadan next to Fiditi town, Oyo State. The breeding farm is being built on 112 ha of bushland.

Blue Plains farm will accommodate six environmental control (EC) breeder pullet houses, 12 EC producing breeder houses, three male houses, a state-of-the-art super-modern hatchery with a hatching capacity of more than two million eggs at a given time, modern EC chicks dispatch house and seven hectares of the logistic village.

Agrotop has completed the building of two EC pullet houses accommodating about 23,000 Ross 308 pullets. To complete the first phase of the development, the company will build another four EC breeder houses, professional hatchery with a Pasreform hatching system and a chicks' dispatch house.



Image Credit: Owarite Klakki/Flickr

The initiative is in line with Nigeria's ambitious plan to boost its poultry and livestock sectors.

This is the fourth poultry breeding farm built by Agrotop for Agrited. The previous ones include:

- White Plains – Breeding farm with 33,000 heavy breeders, 18,000 light breeders, a combined Emka and Pasreform hatchery with a hatching capacity of 1,632,000 eggs
- Green Plains – pullets farm with a capacity of 57,000 pullets PS birds and a 1,200 sq m grains and equipment storage warehouse
- Silver Plains – Breeding farm with capacity for 66,000 heavy breeders, 20,000 pullets and 1,200 sq m grains and animal feed storage

Added to this, Agrotop has completed other projects for Agrited in Nigeria including the Yola Project in north Nigerian. This greenfield integration project includes a hatchery and houses for broiler pullets PS, broiler breeders, layer-breeder pullets and layer breeders, as well as commercial layer pullets and commercial layers.

For Amo Farms, Agrotop built eight EC poultry houses and a slaughterhouse which runs a semi-automated line with the capability of 1,000 birds per hour and adheres to the highest European food industry standards.

Cambridge Consultants introduces AI-powered robot for agritech

BRITISH TECH FIRM, Cambridge Consultants has announced an agritech AI-powered autonomous robotic platform that navigates orchards and fields to identify when crops are at the optimum level for picking.

As agriculture need to increase efficiencies, producing greater yields with fewer inputs and less labour, growers need precise information on crop growth and health throughout the growing season.

Automation of data collection is essential to providing growers with information at scale. Existing large-scale monitoring approaches use drones, which cannot capture information from beneath the crop canopy. Attempts to use ground-based monitoring have been limited by the requirement for additional infrastructures, such as cabling or radio beacons.

Mamut integrates stereo cameras, LIDAR, an inertial measurement unit (IMU), a compass, wheel odometers and an onboard AI system

that fuses the multiple sensor data inputs. This sophisticated blend of technologies enables Mamut to know where it is and how to navigate through a new environment, in real time.

Niall Mottram, head of agritech, Cambridge Consultants, commented, "Mamut is a practical application of AI, meeting a real and pressing need, particularly for growers of speciality crops where failure carries a high cost."

"AI systems are already being used to understand crop conditions, yield predictions and to enable weed identification, but our autonomous robotic platform can collect valuable and granular data below the canopy, where drones cannot see. This data enables farmers to treat each plant in their vineyard, orchard or field individually, and on the scale of massive industrial farming, optimizing yields and producing more output with less input," Mottram added.

Case IH innovations awarded “Machine of the Year 2019”



Image Credit: Case IH

CASE IH'S VERSUM CVXDrive with Stage V engine and Quadtrac CVXDrive have won the 2019 Machine of the Year titles, respectively in the “mid-size” tractors and “XL” tractors categories, awarded at the biennial SIMA exhibition in Paris. Judged by a panel of European agricultural magazine editors, the accolades were given in recognition of the benefits of the proven continuously-variable transmission, a unique feature to Case IH, as well as the fuel efficiency and operating benefits brought to the articulated tracked tractor market.

The prizes add to a run of awards won recently by Case IH which recognise the brand's focus on innovative technological developments designed to help enhance the sustainability, productivity and profitability of farm businesses. They range from a bronze medal in the SIMA Innovation Awards for Case IH XPower digital weed control technology to the 2019 Tractor of the Year title for the Maxxum 145 ActiveDrive 8.

The 4.5-litre turbocharged and intercooled engine in the four-model 100-130hp Versum tractor range, which meets EU Stage V emissions legislation by combining patented under-hood after-treatment technology with a diesel oxidation catalyst and diesel exhaust fluid (AdBlue) injector in a compact all-in-one package, drives through a standard CVXDrive continuously-variable transmission. Where large amounts of road travel or field tasks such as mowing, baling, light tillage and specialist

operations where it may be beneficial to separate engine speed and forward speed are concerned, this has significant advantages.

The CVXDrive transmission in the Versum range provides stepless travel up to 40 km/h, which can be attained at reduced engine rpm. The incorporation of double clutch technology means that, at the point it takes place, the change between the transmission's two mechanical ranges is seamless, and full tractive power available across the whole speed range. An Active Hold Control feature allows the tractor to be easily stopped on hills and at road junctions without using the footbrakes.

Versum CVXDrive tractors also feature Automatic Productivity Management (APM) which optimises the engine and transmission setting for either a target engine or forward speed set by the operator.

Continuously-variable transmissions have never before been available in an articulated tracked tractor, and Case IH remains the only manufacturer to offer CVT in this type of high-horsepower machine. The CVX transmission in the Quadtrac 470, 500 and 540 CVX models improves ease of use, particularly for inexperienced operators, accelerates faster to field or road speed, reduces operator fatigue, makes full power available at low ground speeds for special applications or implements.

The transmission provides stepless travel from 0-43km/h, and 0-17km/h in reverse. It is

possible to set three target speeds from 0-43km/h, and these are adjustable via the thumb-wheel and buttons on the Multicontroller joystick, part of the tractors' Multicontroller armrest. Acceleration is boosted by a kick-down feature, while 40km/h is achieved at just 1,440rpm, to further enhance fuel economy. The transmission incorporates four mechanical ranges with automated range-changing, changed without power interruption by four multi-plate wet clutch packs on the four planetary gear sets. Active Hold Control, where the hydrostatic motor eliminates the input speed from the engine, means the tractor, when brought to a halt on a hill, can remain static without the operator applying foot or hand brake.

The Machine of the Year award is judged by journalists from across a number of international agricultural publications, who make their overall selection from 14 categories ranging tractors and other self-propelled equipment to implements. The winners of each category are then revealed in mid-November, before the overall MOTY winner selected is revealed at SIMA.

“We are delighted to win the 2019 Machine of the Year award with the Versum CVXDrive with Stage V engine and Quadtrac CVXDrive,” says Thierry Panadero, vice-president Case IH Europe.

“It's a fitting recognition of the focus Case IH places on providing its customers with products to help their businesses become more sustainable, more productive and more profitable.”

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African fisheries sector in focus at Halieutis Fair in Morocco

HALIEUTIS FAIR HAS closed its fifth edition, highlighting the growth opportunities in Africa's fisheries sector.

More than 50,000 visitors and 300 exhibitors were represented at the Fair this year.

During the Halieutis Fair, Aziz Akhannouch, minister of agriculture, maritime fisheries, rural development and water and forests, held several important bilateral meetings, such as the one organised with the Spanish minister of agriculture and fisheries and the one held with the Russian deputy

minister of agriculture and with the president of the Russian Federal Fisheries Agency.

These exchanges were an opportunity to reaffirm the rich and solid partnerships that Morocco has with these two countries. Several prospects for enhanced exchanges in scientific research and training have also been opened between Morocco and these countries.

Simultaneously, an important convention was signed in Agadir between Morocco and the United Nations Food and Agriculture Organization (FAO). This convention will strengthen the role of professional organisa-

tions in artisanal fisheries as part of the Halieutis national strategy for the development of the sector.

Halieutis organised programme of meetings and conferences that discussed Morocco's strategic position as the leading producer of marine products in Africa and the world's largest exporter of sardines. The news, the stakes and the perspectives of the fishing sector were at the core of discussions, in a context where the sustainable development of the ocean economy is today at the centre of all the concerns.

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