www.africanfarming.net

African Farming and Food Processing

September/October 2015

Europe €14.50 - Ghana C13 - Kenya KSH150 - Nigeria N200 - South Africa R18 - UK £9 - USA $15

Improving chickens
to meet Africa's needs

Zambia's
first palm oil plantation

Agritechnica
innovations for Africa

New Holland Agriculture has delivered 50 TS6000 2WD tractors to Kenya's Butali Sugar Mills. p 48

SFOGGIA

AGRICULTURE DIVISION

>> **PLANTERS** (maize, sunflower, cotton, peanut, sesame...)

>> **SEED DRILLS** (rice, sesame, wheat, millet, sorghum...)

>> **TRANSPLANTERS** (onion, tomato, tobacco, lettuce, spinach...)

>> **VEGETABLE SEEDERS** (carrot, onion, lettuce, spinach...)

>> FIND MORE ON WWW.SFOGGIA.COM

>> KSP

>> ITALA

>> GAMMA PLUS

>> THEMA

PLANTING THE FUTURE TOGETHER >>

SFOGGIA
AGRICULTURE DIVISION
Montebelluna - (Treviso) Italy
Ph. +39 0423 24041 - F. +39 0423 24014

Africa Sales Enquiries:
info@sfoggia.com

MADE IN

Contents

Lion Mountains workers at the pilot phase land area in Sierra Leone.

SAME Deutz Fahr's SG series is a range of incomparably efficient tractors, being exhibited at Agritechnica.

African Farming and Food Processing

Managing Editor: Zsa Tebbit

Editorial and Design team: Bob Adams, Prashanth AP, Sindhuja Balaji, Hiriyti Bairu, Andrew Croft, Thomas Davies, Himanshu Goenka, Ranganath GS, Tom Michael, Rhonita Patnaik, Prasad Shankarappa, Louise Waters and Ben Watts

Publisher: Nick Fordham

Publishing Director: Pallavi Pandey

Magazine Manager: Richard Rozelaar
Tel: +44 (0) 20 7834 7676, Fax: +44 (0) 20 7973 0076
email: richard.rozelaar@alaincharles.com

Country	Representative	Telephone	Fax	Email
China	Ying Mathieson	(86)10 8472 1899	(86) 10 8472 1900	ying.mathieson@alaincharles.com
India	Tanmay Mishra	(91) 80 65333361	(91) 80 40600791	tanmay.mishra@alaincharles.com
Nigeria	Bola Olowo	(234) 8034349299		bola.olowo@alaincharles.com
Singapore	Tan Kay Hui	(65) 9790 6090	(65) 6280 2823	tankayhui@tankayhuimedia.com
South Africa	Annabel Marx	-	-	annabel.marx@alaincharles.com
UAE	Graham Brown	(971) 4 4489260	(971) 4 4489261	graham.brown@alaincharles.com
USA	Michael Tomashefsky	(1) 203 226 2882	(1) 203 226 7447	michael.tomashefsky@alaincharles.com

Head Office:
Alain Charles Publishing Ltd
University House
11-13 Lower Grosvenor Place
London SW1W 0EX, United Kingdom
Telephone: +44 (0) 20 7834 7676
Fax: +44 (0) 20 7973 0076
E-mail: post@alaincharles.com

Middle East Regional Office:
Alain Charles Middle East FZ-LLC
Office 215, Loft 2A
PO Box 502207
Dubai Media City, UAE
Telephone: +971 4 448 9260
Fax: +971 4 448 9261
E-mail: post@alaincharles.com

Production: Priyanka Chakraborty, Nikitha Jain, Nathanielle Kumar, Donatella Moranelli and Sophia Pinto E-mail: production@alaincharles.com

Subscriptions: circulation@alaincharles.com

Chairman: Derek Fordham

Printed by: Buxton Press

US Mailing Agent: African Farming & Food Processing USPS. No. 015-224 is published six times a year for US$90 per year by Alain Charles Publishing Ltd, University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, UK
Periodicals Postage Paid at Rahway, NJ. Postmaster: send address corrections to: Alain Charles Publishing Ltd, c/o Mercury Airfreight International Ltd, 365 Blair Road, Avenel, NJ 07001.
ISSN: 0266 8017

Alain Charles Publishing
Serving the world of business

Farming Calendar 2015

OCTOBER

29-31	Kenya FOODEX *www.profexexhibitions.com*	NAIROBI

NOVEMBER

5-7	AGRIKEXPO 2015 *www.agrikexpo.com*	LAGOS
10-14	Agritechnica *www.agritechnica.com*	HANNOVER
17-18	The Commercial UAV Show Africa 2015 *www.terrapinn.com*	JOHANNESBURG
24-25	Global African Investment Summit *www.tgais.com*	LONDON
24-26	DAWAJINE 2015 *www.dawajine.com*	CASABLANCA
24-26	Agra Innovate Nigeria *www.agra-innovate.com*	LAGOS
25-26	ISRMAX Kenya *www.10times.com/isrmax-africa*	NAIROBI
26-27	Africa Agri Forum *www.i-conferences.org*	ABIDJAN
27-30	3rd Addis Agrofood *www.addis-agrofood.com*	ADDIS ABABA

DECEMBER

1-2	Global Forum for Innovations in Agriculture (GFIA) *www.gfiaafrica.com*	DURBAN
1-3	Agrofood West Africa *www.agrofood-westafrica.com*	ACCRA
8-10	Agra-Innovate East Africa *www.agra-innovate.com*	NAIROBI

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

Successful WVPA congress

THE XIXth WORLD Veterinary Poultry Congress, held in Cape Town in September, was a great success for both WVPA and their local South African branch, who organised the event. It attracted some 1,300 delegates from about 70 countries who attended presentations on all aspects of poultry disease and its diagnosis, management and control.

Dr Stephen Lister from Crowshall Veterinary Services in the UK cautioned delegates that with consumers becoming increasingly concerned over the welfare of animals, veterinarians will have to play a bigger role as the protectors of animals.

Various diseases were discussed at the Congress, including infectious bronchitis, which was covered in a talk by specialist Dr Jane Cook.

At a Congress symposium on avian influenza run by Ceva, representatives from Europe, the US and China told delegates that quick action and good biosecurity measures are the key to control of the disease.

Dr Rosa Costa, from the KYEEMA Foundation in Mozambique, spoke about the importance of interventions to improve production in small-scale poultry farms.

The Congress was dedicated to the memory of the Association's last president, Trevor Bagust, who died in office a year or so ago.

The opening ceremony also featured the induction of a further 10 distinguished poultry veterinarians and poultry health scientists to its Hall of Honour, which can be viewed at www.wvpa.net, and the presentation of three awards.

During the meeting a new president and two new vice presidents were elected into office. The new president is British poultry veterinarian, Nigel Horrox, and his vice presidents will be Nicolas Eterradossi from France and Prof Aini Ideris from Malaysia.

Nigel told us, "WVPA is going from strength to strength with new branches from India, Iraq, Kenya and Nigeria coming on board at this Congress and three great meetings to look forward to in the near future. The outlook looks good for our Association." Forthcoming events include the Asian WVPA Meeting in Manila, Philippines, in October 2016, WVPAC2017 in Edinburgh, Scotland, and WVPA2019 in Bangkok, Thailand.

Angola and UN to promote artisanal fishing

ANGOLA AND THE International Fund for Agricultural Development (IFAD) have signed a US$2.1mn financing agreement for artisanal fishing and aquaculture, according to the United Nations agency.

Of that amount, US$11.1mn will be disbursed by IFAD, with the Angolan government contributing the remaining US$1mn for a project that directly benefits more than 10,000 artisanal fishermen, indicated the statement released by IFAD.

The project also indirectly benefits 5,000 processers and small rural businesses linked to fish marketing, as well as nearly 800 families involved in small-scale aquaculture, notably women who head families, young people and adults from vulnerable groups.

The project will be implemented in the Angolan provinces of Bengo, Cuanza Norte, Luanda and Malange. It aims to reduce poverty and improve food and nutritional security among families dedicated to that activity.

The statement added that since 1991 IFAD has applied US$47.2mn in five programmes and projects in Angola, which have generated investments worth US$101.6mn, benefiting more than 201,600 family households.

Agra Innovate - a high-level conference

AGRA INNOVATE NIGERIA is a leading annual event that brings together international suppliers and local qualified buyers to discuss business opportunities, while featuring a high-level conference that attracts policymakers, agribusiness leaders and technologists.

Successfully launched in 2014, Agra Innovate continues to be fully supported by the Federal Ministry of Agriculture & Rural Development and the influential Nigeria Agribusiness Group

Nigerian agriculture is rapidly transforming into a modernised, productive and competitive force. Over the last four years, a wide ranging, highly effective set of policy reforms have led to over US$58bn in direct investment from the international agribusiness community.

"Agra Innovate was an impressive agribusiness outing. I must confess that I have never witnessed such a successful agricultural event in any part of Nigeria in the past twenty years and more. Congratulations," said Dr N O Funsho, senior special assistant on agriculture to the Governor of Lagos State and a speaker at Agra Innovate 2014.

From farm to value-added products

THE DRC HAS recently launched its first agricultural business park spread across 75,000 hectares. DRC's President Joseph Kabila has pledged to reform Congo's agriculture sector. The country has as much as 80mn hectares of arable land and some 70 per cent of its population are involved in farming. However, commercial farming is yet to take off. DRC spent US$1.5bn on food imports in 2014 alone. How will this agribusiness park and other initiatives transform DRC's agriculture sector?

There is a special session on the DRC at the Fourth Commercial Farm Africa being held on 7 - 9 October 2015 in Lusaka: "Transforming DRC's Land into Profitable Commercial Farm". This includes: Land concession issues and lease tenure; Government's plans and development status of agribusiness parks; infrastructure development to support agri sector growth; labour cost and access to input materials; domestic markets prospect and export potential, and a successful case study.

The summit is also looking into the modern farming practices and soil conservation techniques that can make commercial farming in Africa efficient and profitable. AGCO Corporation, a worldwide manufacturer and distributor of agricultural equipment, inaugurated its Future Farm and Learning Center near Lusaka recently. The centre is aimed at empowering local communities to develop a sustainable food production system and increase farm productivity by implementing modern farming techniques. AGCO is a distinguished speaker at the conference as well as a networking reception sponsor. Soil Capital – a specialist in soil conservation techniques focused at African commercial farming – is also sharing its expertise at the event.

Nigeria's agriculture sector to get US$1.8bn

THE NIGERIAN AGRIBUSINESS Group (NABG) has plans to invest US$1.8bn for the development of agribusiness across Nigeria.

Sunny Echono, permanent secretary in the Federal Ministry of Agriculture and Rural Development, made the announcement at NABG's first annual general meeting in Lagos. NABG is a private sector agribusiness group led by Sani Dangote, and it is comprised of stakeholders across the agriculture value chain, from farmer associations to food processors and transporters, as well as banks and finance companies.

Echono called the private sector an engine of growth for the economy, stating, "We have ended the dominance of government and I am optimistic that the private sector will lead Nigeria in restoring its past glory in agriculture." He also expressed confidence in NABG attracting local and foreign investments into Nigeria's agriculture sector. According to a survey commissioned by the ministry in 2013 to determine the challenges being faced by the agriculture sector, it was found that infrastructure posed the biggest challenge, followed by financing and supply security.

Improving the yields of crops like rice improves incomes and health. (iImage source: USAID)

Echono said that the government is working toward removing these constraints, and asked for NABG's help in these areas "by articulating the position of private sector agribusinesses on matters relating to policies, legal and regulatory environments".

Boosting cattle fertility in Rwanda

CATTLE BREEDERS ACROSS Rwanda are being urged to use a new protocol of bovine oestrus synchronisation to improve cattle fertility.

The new protocol for animal reproduction that the Rwanda Agriculture Board (RAB) is propagating is called Progesterone Releasing Intra-vaginal Device (PRID Delta). It is a device made of a polyethylene spin containing 1.55 g of natural progesterone and its design ensures good contact with vaginal mucosa. It is a process that targets female bovines to come into heat within a short timeframe.

"This new protocol is effective and technically simple as opposed to the existing one. We have already started to use it in some areas but we want all inseminators across the country to use PRID Delta to synchronise cows for artificial insemination," said Dr Christine Kanyandekwe, head of animal resources at RAB.

Dangote Industries invests US$1bn in commercial rice production and processing

AFRICA'S MAJOR BUSINESS conglomerate Dangote Industries Limited (DIL) has signed an MOU with Nigeria's Federal Ministry of Agriculture and Rural Development (FMARD) to establish fully integrated rice production and processing operations across fives states in Nigeria - Edo, Jigawa, Kebbi, Kwara, and Niger. Dangote Industries Ltd will invest US$1bn (N165bn) in the project. A total of 150,000 hectares of farmland in the five states has been acquired by Dangote which will be used for commercial production of rice paddy. Apart from this, Dangote plans two state-of-the-art large-scale rice mills with a capacity to process 240,000 metric tons (mt) of rice paddy. The capacity is planned to be doubled within two years.

The rice plant is expected to produce 960,000 mt of milled rice, which will be about 46 per cent of rice imported into Nigeria.

It will be the largest single investment ever made in rice production in Africa, with the installed capacity.

Nigeria expects that this project will help them produce international quality grade rice and enhance its prospects of becoming a major rice exporter. Nigeria, currently imports rice to meet demand.

There are numerous varieties of rice that can be cultivated in Nigeria. (Photo: agronigeria.com)

The country's rice self-sufficiency policy aims at saving US$1.79bn (N356bn) annually. The country has already witnessed an increase in the number of rice mills from just one in 2011 to 18 by 2014. All these mills process local paddy into high quality finished rice. The Nigerian rice is already available in the local market in brands such as Quarra Rice, Umza rice, Ebony super rice, Eko rice, Mikap rice, Ashi rice, Queen of the Niger and Mama's Pride.

Tea factory power investments

THE KENYA TEA Development Agency (KTDA) is investing US$48mn to construct four hydropower plants to meet electricity demand in some of its 65 affiliated factories. The anticipated 10.9 MW will power some factories with the rest sold to the national grid.

"Energy costs account for about 30 per cent of the operation costs in tea factories. Electricity alone accounts for 17 per cent. The hydropower plants will cut operation costs as well as earn income through sale of excess power," said Lerionka Tiampati, KTDA's CEO.

On average, according to KTDA, each tea factory spends between US$30,000 and US$65,000 on electricity annually. According to Tiampati, factories in tea growing regions should invest in alternative energy. The majority of these factories are found in hilly and rainy areas where the speed of water is fast.

The four hydropower projects are located in the mountainous Central Kenya region. KTDA has already set up two hydropower plants namely Imenti in Meru County and Gura in Nyeri County.

Experts say that, with no damming of water required in the small hydro projects, the overall costs and environmental implications are reduced.

"The hydropower generation aims at reducing the cost of energy, improve power reliability and, whenever possible, sell the excess power to the national grid. With rampant power outages, sometimes reaching 14 per cent, tea factories have been forced to invest in diesel-run standby generators, pushing the cost of power," said Japhet Bulali, a mechanical engineer in charge of KTDA Power, a subsidiary of KTDA that is involved in the development of these Run-Off-River (ROR) systems.

The Kenya government has been encouraging firms to introduce clean energy production and cut reliance on diesel dependency in power generation to ensure environment sustainability.

"Kenya has a huge potential and sufficient renewable energy that will ensure higher energy security, lower costs of energy and increased energy reliability," noted Peter Kanyago, KTDA's board chairman.

Dar Al Dawa Veterinary & Agricultural Industrial Co.

دادفت
DADvet

www.dadvet.com

A Step To A Developed World

وثبـــة إلى عـــالـــــم متطـــــــور

ثقـــة ... جـــودة ... أمـــان

27 YEARS OF LEADERSHIP

P.O. Box: 285 Na'ur 11710 Jordan
Tel. 06 5727981/2/3
Fax. 06 5727984
E-mail: admin.dv@dadvet.com
www.dadvet.com

دار الدواء للصناعات البيطرية والزراعية

We are looking for stratigic partenners in africa to expand our bussinnes if you are intrested kindly contact us.

Artificial insemination plants established in Kenya

KENYA HAS SET up three nitrogen plants to store semen for artificial insemination (AI) as the dairy subsector expands.

The three plants in Eldoret, Nyandarua and Meru are expected to support the private sector, which has largely been involved in the provision of AI services.

Two more centres, one in Sotik and the other in Kirinyaga will be set up in the current financial year, according to Kenya's Livestock Principal Secretary (PS), Prof Fred Segor.

The government also plans to have AI personnel in every ward to boost availability if the service.

Kenya has about 800,000 dairy farmers who keep four million dairy cows, according to the Ministry of Livestock.

Economic Survey 2015 indicated that the volume of milk produced nationally grew from 523mn litres in 2013 to 541mn litres in 2014.

The government is also developing fresh guidelines to regulate the quality of livestock feed.

A new policy, to be released in the next few months, will provide standards to be followed in livestock feed formulation.

"Some manufacturers have been duping farmers by providing sub-standard feeds affecting overall milk production. The new policy will streamline the industry and enforce standards stipulated by the Kenya Bureau of Standards (KEBS)," observed Prof Segor.

According to the PS, the policy will propose feed manufacturers flaunting the rules to have their business licenses cancelled or face penalties. *Mwangi Mumero*

Local growth necessary for regional growth

"THERE IS A need to create and strengthen regional markets within Africa in order to make the most of cross-country and intermarket trade," according to Zambeef joint CEO Francis Grogan. Grogan made the observation during a group tour by South African farmers to Zambeef's Huntley processing operations and Kalundu Dairy Farm in Chisamba.

Lloyd Phillips of *Farmer's Weekly* magazine, who headed the South African group, observed that there were vast opportunities internationally for the sector, and that countries needed to find niche products that they could then market to specific markets within and beyond the region.

"There is a growing income and a growing consumer base in Africa, and SADC must meet its own demand and have strong food security then look for niche markets that will present fair value for its surplus produce," said Phillips.

"The fundamental strength of a country is in its agriculture sector. There is a need for enabling environments, skills training, effective research and development with meaningful transfer of knowledge to farmers," he said.

Access to regional markets would in turn lead to increased employment, foreign direct investment and tax earnings for the country with the increase in demand for particular agricultural products, he added.

"It was only possible to expand outside the national boundaries if Zambia continued to be self-sufficient in basic food crops," observed Grogan, reiterating the sentiments of his fellow joint CEO Carl Irwin.

Grogan also commented on the need for sustainable agricultural practices in the sector in light of the various economic, social and climatic factors that needed to be taken into consideration as farmers seek to enter market any given market.

New partnership for rice development in Africa formed

A NEW PARTNERSHIP has been launched to benefit African rice farmers and stakeholders directly involved in designing and implementing sustainable projects that boost the crop's development on the continent.

The comprehensive Programme for Rice Development in Africa was launched at the Partnership Meeting on the Regional Initiative for Rice Development in Africa in Kenya late last year.

The meeting was co-organised by the FAO, AfricaRice and key players in the rice value chain in Africa.

"A major challenge facing the rice sector in Africa in general is the inability of local production to meet the continent's demands for rice, and the continent continues to rely on importation to meet its increasing demand for the crop," said Bukar Tijani, FAO Africa regional representative. "We expect this initiative to contribute to reducing high food import bills and impact on small producers."

Tijani added that the programme will support synergies and the comparative advantages, lessons and experiences of key national and international institutions, and initiatives to promote food security and rice self-sufficiency in Africa.

Felix Koskei, Kenya's cabinet secretary for the Ministry of Agriculture, Fisheries and Livestock, urged African countries to tap into the initiative as it will help increase food security and improve livelihoods. "We have common challenges. Thus we need to come together [and] create synergies to eradicate hunger in Africa," Koskei said.

Somalia's minister for agriculture, Abdi Ahmed Mohamed, added: "Rice is a strategic and priority crop for food security in the region. This is an opportunity for Somalia to be back in contributing to Africa's food security." *AfricaRice*

CAMC to invest US$200mn in Zimbabwe irrigation

CHINA CAMC ENGINEERING has announced plans to revive operations at Arda Mushumbi Pools Estate with a US$200mn investment

CAMC wants to build a dam at Arda Mushumbi Pools. (Image source: trust.org)

The estate in Mashonaland Central region will get the money over the next five years, and the funding will be used to develop irrigation. The Chinese company had sealed a deal with Zimbabwe's Agricultural Rural Development Authority (Arda) to resuscitate the estate, but the deal is subject to approval by the country's government through the Ministry of Finance and Economic Development.

Wang Kailong, country representative for Zimbabwe at China CAMC Engineering, said that his company was committed to helping the revival of agriculture in Zimbabwe, and that it had wanted to build a dam at Arda Mushumbi Pools that would irrigate about 1,000 ha.

He added that China CAMC Engineering would also set up a cotton ginnery and a fruit canning plant at Mushumbi. "We have already signed a contract with Arda for us to build a dam, a cotton ginnery and a fruit canning plant at Mushumbi Pools," he added. "The dam that we intend to build will also have the capacity to generate about 15MW of electricity that will provide power to the ginnery and canning plant that we want to set up at Mushumbi Pools."

COMESA develops regional livestock policy framework

THE COMESA SECRETARIAT in collaboration with the African Union – Interafrican Bureau for Animal Resources (AU-IBAR) recently held a two day regional workshop in Lusaka to validate the COMESA Livestock Policy Framework.

Experts in livestock agriculture including directors of veterinary services and directors of animal production from COMESA member states participated in the workshop.

While the continent is experiencing interesting changes in many sectors of the economy, livestock has continued to record low performances, largely because it is poorly funded both from the public and private sector, despite the fact that about 300mn Africans depend on the sector for food security, livelihood, employment and income.

SADC in food deficit

ALL SOUTHERN AFRICAN Development Community (SADC) member states, with the exception of Zambia, Tanzania and South Africa, will this agricultural season experience a food deficit arising from poor rainfall pattern caused by climate change, it has been learnt.

According to the regional economic community's director, food, agriculture and natural resources, Margaret Nyirenda, the weather has not been favourable in the region, resulting in very poor rainfall and in some cases floods and prolonged dry spells. This has affected crop production, especially maize which is the staple food.

Even these three countries will fall below one million metric tonnes of maize at the end of the season as compared to past seasons, she added.

''Agriculture, food security and prudent management of natural resources continue to be at the epicenter of the SADC region. To this end, the SADC region is cognisant of the increased number of vulnerable people who require both food and other humanitarian assistance,'' she explained.

''The humanitarian outlook looks challenging. It is important to note that this year, availability of maize, which usually makes up more than 75 per cent of the total cereal production, is forecast at 31.73mn metric tonnes (mt) compared to 36.79mn mt last year,'' she said.

Zambia has had good harvests in the last couple of years – 3,350,671 mt and 2,618,221 mt of maize in the 2013/14 and 2014/15 farming season, facilitating exports to some of its neighbours in deficit.

Zambia Sugar's production rises

ZAMBIA SUGAR PRODUCED a record 424,000 tons of sugar during the 2014/15 season, comfortably exceeding the previous record of 404,000 tons achieved during the 2013/14 season.

According to the 'Commentary for the Year' ended 31 March 2015, this record performance was largely due to improved factory reliability and better than expected overall time efficiencies. Favourable weather and harvesting conditions experienced in November and December 2014 contributed to better quality and sucrose levels.

"Average cane yields increased appreciably across the entire cane growing area from 114 tons per hectare in the previous year to 123 tons per hectare. A record 3.4mn tons of cane was delivered to the mill, representing an increase of eight per cent compared to 3.1mn tons in the previous year.

"The estate delivered 1.96mn tons compared to 1.86mn tons in the previous year whilst out-

grower deliveries increased to 1.45mn tons from 1.29mn tons in the 2013/14 season. Kaleya Smallholders Company Limited (Kascol), the largest small-scale scheme, supplied their highest tonnage on record with 284,000 tons, exceeding their previous record of 258,000 tons. Smallholder growers contributed 10 per cent of the total cane supply," read the commentary in part.

Record sales were achieved in the domestic market, increasing by six per cent. The company continued to build on its well established sugar marketing and distribution network across the country.

Surplus sugar stocks in the world market and the consequent impact on global sugar prices continue to depress prices in the regional markets. Sales to EU markets decreased by 30 per cent, whilst exports into regional markets increased by 60 per cent. The negative pricing impact on export earnings has largely been mitigated by favourable exchange rate movements.

Sugar production in the 2015/16 season is estimated to be marginally less than the past season due to dry conditions experienced in November and December 2014, power interruptions, the outbreak of the yellow sugarcane aphids and also unseasonal rains during April 2015. The company continues to implement strategies to mitigate these challenges.

"Reasonable growth is expected in the domestic market. Margins in both the regional and EU export markets are expected to remain under pressure from surplus sugar stocks on the world market. Realisations in these markets will continue to be influenced by exchange rate movements," the Commentary added.

Unseasonal rains slightly delayed the factory start-up to the second week of April and operations have stabilised notwithstanding power outages. Early season cane yields are at acceptable levels and will improve as the crop matures.

West Africa fertiliser businesses establish linkages with OCP

REPRESENTATIVES OF 11 West African fertiliser enterprises paid a three-day business visit to the Office Chérifien des Phosphates (OCP) in Morocco. Participants explored opportunities to establish partnerships and networks to increase supply and distribution of fertilisers in West Africa.

Organised by the USAID West Africa Fertilizer Program (WAFP) with support from OCP, the tour forms part of the project's efforts to improve levels of fertiliser consumption in sub-Saharan Africa. Bringing together OCP, a giant producer of primary raw materials for fertiliser production, and blending and distribution companies facilitates appropriate linkages and business deals between actors at the various levels of the value chain to improve regional fertiliser supply.

With a new fertiliser production capacity of one million tons per year, targeted at African markets, OCP has indicated its interest in developing and creating new partnerships with West African fertiliser importers and distributors. The tour served to introduce OCP to companies that are interested in forming part of a distribution network for OCP's products in West Africa.

Participants toured OCP's phosphorus production facility in Jorf Lasfar to get acquainted with the processes for mining and processing raw material into diammonium phosphate (DAP) fertiliser products. There were also opportunities for company representatives to have exclusive meetings with OCP officials to discuss possible linkages between their respective companies.

Bakhresa Port grain depot - processing and throughput evolved

THE NEW GRAIN handling facility at Kurasini has been operational for some months now and consists of five silos, totalling 60,000 tonnes capacity. With only three days to offload the grain from the bulk wheat cargo vessel, the peak flow rate of 1,200 tonnes per hour must be consistently reached.

This speed of offloading is achieved using four side by side Griffith Elder weighbridges, each with separate intake lanes. Bakhresa's site has a fleet of 40 brand new wheat trucks designed for this exact purpose. Each truck has a capacity of around 25 tonnes and can complete the entire weighing and offloading process in only five minutes. The loading and unloading of each vehicle is done on the weighbridge to save time.

As the trucks arrive at the weighbridge, the drivers present a preprogrammed RFID tag to identify themselves. Each tag contains the details of the shipment, including contract number, type of goods and many other bespoke details. These details are stored as a ticket within the Ton Tel software along with the fully loaded weight of the vehicle. The vehicle can then offload the grain onto the elevators and conveyors that will distribute out to the relative silos. Once empty, the vehicle is weighed again. This records the empty weight of the vehicle and calculates a net weight value to add to each ticket.

The driver terminal produces a small printout for

the driver showing the weight information, as he is paid based on the amount of grain offloaded. The whole system is fully automatic using Griffith Elder's Ton-Tel Software and the operator is only needed to clarify information with the drivers, if necessary.

The Ton Tel Software contains an extremely versatile reporting function, allowing managers to generate reports based on vehicle, store, date or any other information found on the tickets. As well as summary reports, the software can be programmed to send reports automatically via email at scheduled times. This allows the manager to know exactly what is happening on site at any time. To avoid operator error, authorisation levels with password protection can be set within the software to allow different levels of access for operators, managers and administrators.

Once the grain has been offloaded, the grain handling is carried out by Buhler conveyors and elevators and directed from the control room to the selected silo. During this process the grain is sieved to remove the fine dust and large foreign bodies from the grain. As the port repeatedly takes shipments from all over the world it is important to separate the various wheat types in each silo.

The information between the conveyor control system can be correlated with the Griffith Elder Ton Tel software and the client's own stock management system to ensure that stock levels and stock information is correct.

The wheat doesn't stay here long and as soon as it is stored, dispatchers begin planning which mill the wheat will be allocated to.

The whole system is then repeated, this time loading the vehicles with wheat via the loading bay above each of the weighbridges. The flow is controlled by an operator who can see the live net weight on the large display inside the office.

Once the truck is filled, the wheat can then be immediately dispatched from the Bakhresa grain handling site onto its various final locations where it can be made into a wide variety of products that are distributed across Africa.

PRESERVE HEALTH

Correct diet for cows, especially with respect to vitamins and microelements, is probably the most acute problem for livestock breeders of all countries.

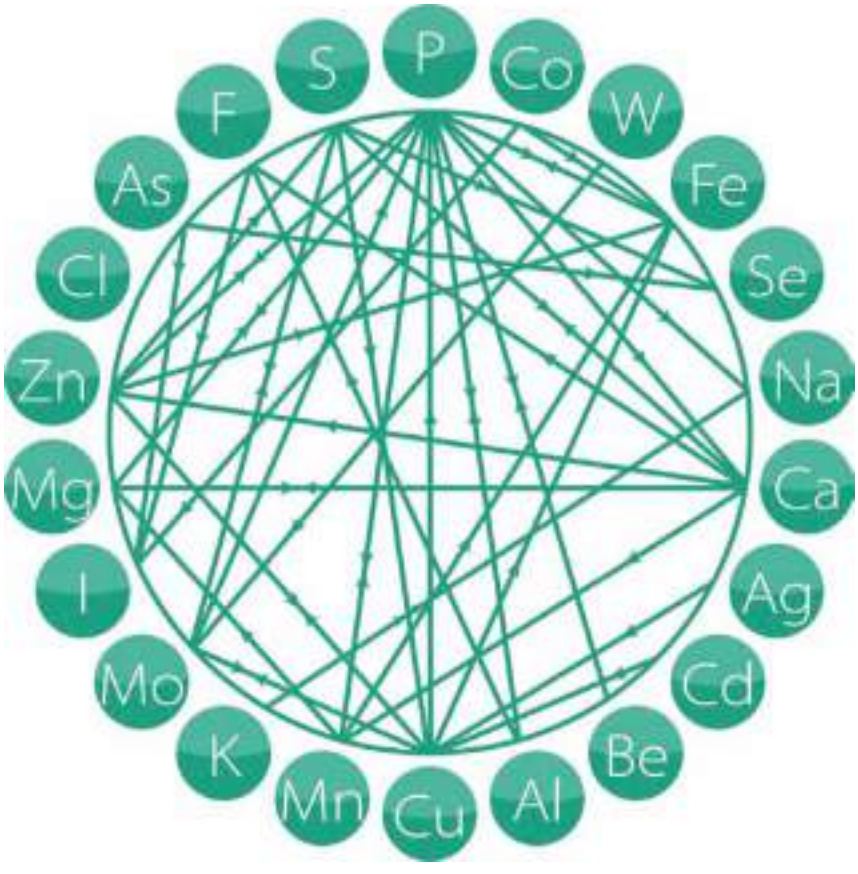


Fig. 1 Diagram of the interaction of mineral substances.
No chain is stronger than its weakest link. The balance of mineral substances can be compared with a chain: if any of the mineral substances is missing then bonds will break and the whole organism will get weaker.

WHAT IS ON a cow's tongue is in its milk – this is the proverb that depicts exactly the importance of diet elaboration, and all milk producers know this very well.

The main problem in modern productive livestock farming is a timely supply of nutrients, including mineral components, to an animal, which are consumed in the process of body growth and development, namely skeleton, muscles and ligaments, internal organs, glandular tissue and immunity as a whole. Cattle are prone to metabolic disturbances and health disorders in case of prolonged and considerable mineral insufficiency or excess of fluorine, selenium or molybdenum.

All required mineral substances can be included in the cattle diet or supplied with water. Moreover, the animals of all age groups should have free access to a box having two partitions with extra mineral nutrition containing salt (in regions with iodide deficiency – with iodized salt), on the one hand, and an appropriate mixture of mineral substances, on the other hand. Extra nutrition ensures the supply of mineral substances to the animals according to their needs.

Dairy cattle, like other animals, need vitamins. The vitamin needs of dairy and meat cattle are similar, except for highly productive lactating cows.

The lack of one or several vitamins in the diet can lead to growth inhibition, reproduction deterioration or specific diseases known as avitaminoses. In grave cases the animal may die. Though extreme vitamin deficiency is quite rare, it should be noted that avitaminoses of medium degree cause a much greater economic damage to livestock farming. In rare cases the diet is so deficient in vitamins that specific avitaminosis symptoms show up. When one animal dies one could suppose that this animal is unique and other animals have vitamin deficiency of a lesser degree which, despite the lack of typical signs, worsens their health condition and productivity.

Cattle have a physiological need for most vitamins necessary for other mammals. Their need for vitamins is satisfied mainly due to vitamin synthesis by microorganisms of the rumen, vitamins in natural food and synthesis by the tissues. High quality coarse forage contains a lot of vitamin A and vitamin E precursors. However, each farmer faces the problem of the choice of a stable indicator to determine the necessity of an increase or decrease in the supply of vitamins which are, incidentally, quite expensive.

Each cattle-breeder should determine what mineral and vitamin additives should be used and how much forage should be given to animals in definite conditions.

Ukrainian cattle-breeders are no exception: when achieving high results in milk and meat production, they faced the problem of the lack of vitamins and mineral substances in highly productive animals.

"TorMiks" researchers helped to settle the problem. They decided to create an additive which would meet the following requirements:

- The additive should balance the diet of the animal to which it is fed. This means that the

Fig. 2 Line of "Bovimix®" products for cattle with application instructions.

additive should contain all necessary nutrients which are not available in coarse pasture forage.

- The additive should be fed in such a way that each animal gets its share of vitamins and mineral substances.
- The additive should be fed in a form which is convenient and practical for both the cattle-breeder and the animal.

As a result of comprehensive research, a line of mineral blocks under the "Bovimix®" trademark was developed and patented. The product is a 10 kg briquette. There are nine varieties of the product plus one energy additive in the form of a suspension. They should be chosen depending on age groups and productivity. These products can efficiently satisfy the animal's need for vitamins and minerals. The proposed formulas are based on scientific research and take cattle needs into account. They ensure optimal digestion of all vitamins and minerals, improve immunity, increase the yield of milk up to 1000 litres per lactation compared with other animals of the same flock. Due to free access to the block, whether inside enclosed farms or on pastures, extra nutrients are consumed economically and most naturally. As the mixture is highly uniform the animal cannot consume it selectively and avoid less tasty but no less useful components of the mineral block. Due to its hardness, the product can be used on a pasture and will not be eaten excessively, even if it is freely accessible at any time. Moreover, the concentration of the active substance per kg of the product is higher, and the cost of the active substance is lower, compared with other producers' products.

These mineral additives decrease the need for veterinary drugs, and prevent metabolic disturbances at various physiological stages of the animal's development.

So, the cattle-breeder who buys "Bovimix®" series feed additives spends one dollar and at the same time invests five dollars in the future of his farm, because the good health of the animals eliminates excessive expenses assoiciated with treatment and the purchase of vetinary drugs, and ensures the long-term success of the dairy and meat business.

Chickens play a hugely important part in Africa's food security. Tim Guest reports on breeding to increase meat and egg productivity.

Improving chickens to meet Africa's needs

INCREASING THE MEAT and egg productivity of predominantly indigenous chickens (village birds), through interbreeding with exotic or broiler-type, higher-yield animals, seems to be a work in progress across the region. It is important here, though, not to dilute the indigenous gene pool and remove unique and valuable traits, the advantages of which are sometimes overlooked.

While commercial poultry/chicken farming has grown considerably in some more advanced markets in Africa, eg, South Africa, where farms housing up to 10,000 birds are not uncommon, indigenous birds (IC) in small holding scenarios account for almost 90 per cent of the poultry farmed in less developed countries.

The poultry industry in Zimbabwe is based on both indigenous and imported poultry strains. (Image source: Agropreneur Zimbabwe)

Commercial versus indigenous

When it comes to laying eggs, properly managed commercial animals can nowadays produce upwards of 300 eggs per year, whereas indigenous birds lay no more than around 50-60 eggs per year. This difference in the genetic propensity to lay eggs is largely to do with brood cycles and behavior, which sees brooding IC taking some 17 weeks for the laying, nesting, hatching and rearing cycle until chicks are around seven weeks. That whole period passes without another egg being laid and, as a result, there is only time left in the year for a further 2.5 clutches to be laid. So, why the difference in yield between IC and commercial birds? The answer is that the natural broodiness of the birds has been bred out of commercial broilers to maximise egg production, but this makes them unsuited for use in a village scenario where, without natural brood and reproductive behaviour, they fail to deliver any long-term value for the community. This is unfortunate from the perspective of productivity, as these birds under commercial rearing conditions can reach a two kg live weight in just five weeks, while the equivalent male village IC are likely to be not much more than one kg and that after 20 weeks. While these are true genetic differences showing through, the environment in which each is reared also plays a part in productivity: commercial – controlled conditions (though temperature remains a problem in areas where power is unreliable), carefully formulated feed – higher weight; IC – roaming free, feed quality and quantity variable and typically village scraps and natural forage – lower weight. That said, it is the natural genetic traits of the village birds that put them at an advantage in such an environment. Brooding and reproduction follows its natural course without the need for village farmers to intervene with artificial mechanisms. Birds can evade predators effectively through their ability to run fast and fly, the latter allowing them to roost off the ground in trees. Village IC have better resistance to microbial diseases and parasitic infestations than commercial birds; and as is typical even in developed countries, the meat and eggs from free-range birds is typically preferred by all consumers.

Heat's not for everyone

The majority of commercial stock now in Africa have come from stock bred and developed over the past 30 years, in temperate and developed markets – where high temperatures have never been a problem – for export to these developing regions. The discrepancy here is that temperature is still a major stumbling block for commercial production in Africa, and the genetic tolerance to high temperatures has been largely neglected by the industry. As a result, this remains the major factor restricting the productivity of commercial broilers and layers in medium- to large-scale production facilities in sub-Saharan developing countries. And while unreliable electricity supplies make consistent cooling of poultry compounds almost impossible in some places, a simple genetic approach to increase the heat tolerance of commercial birds is now increasingly being adopted. This single-gene approach focuses on genes affecting traits such as feather cover where heat tolerance is improved, for example, by introducing genes for naked neck, which helps heat loss from the bird.

But no matter how effective this heat tolerance gene transfer is, commercial birds are still not suited to good performance in semi-scavenging village conditions, despite many attempts at incorporating genes associated with improved commercial egg and meat production into village birds.

Many cross-breeding projects have taken place and are underway. Results have varied, but it has been documented that almost all cross-breeding programmes result in birds that produce more eggs and/or improved growth rate than IC, yet exhibit several drawbacks in the process, including a diminished broodiness, so they don't reproduce naturally anymore and require farmer intervention to do so. Also, additional feed is often needed to supplement what was previously available in the village in order for the birds to reach full potential. So the question has to be asked, do these 'changes' justify such methods, considering it results in the ultimate impact – erosion of the genetic resource itself?

The Kenbro breed is a dual-purpose (for eggs and meat production) breed which was specifically developed to serve the western Kenya market. (Image source: The Organic Farmer)

Indigenous chicken improvement project

Watching and researching all these approaches, and doing its best to ensure indigenous genetic resource remains strong, is a joint African Union/European Union-funded project – the Indigenous Chicken Improvement Project (InCIP). This is a collaborative research venture between Egerton University, Wageningen University, the University of Malawi and other stakeholders, conducted at the Department of Animal Sciences, Egerton University Njoro.

Its research agenda began in 2012 and is set to run until 2017, aiming to involve smallhold farmers and poorer village communities in Kenya and Malawi in a 'co-ordinated IC sub-sector through improvement of productivity of IC'.

By its conclusion in 2017, the project hopes to have identified 'high-producing ecotypes and composites' and determined what quality of meat and eggs can be associated with each. A database is being created addressing specific issues and circumstances in different countries and regions, so stakeholders will understand what variety or breed stock will best suit their needs. Work with different ecotypes – breeds suited to different environments – is also looking at the resistance of IC to major diseases, such as Newcastle Disease.

Amongst its many activities of note, InCIP is currently evaluating the growth performance of a Kenyan IC ecotype - the 'Kuchi' Ecotype – which is mainly found in Lamu County and neighbouring coastal regions where it has been kept in smallholdings for a long time. It is thought to have been introduced by merchants from Asia, particularly Japan, who inhabited the region many years ago. This ecotype is common in Tanzania where studies have shown its superiority in growth traits compared to other ecotypes, making it a good starting material for genetic improvement in body weight. Unlike other IC ecotypes, very few studies have been done on Kuchi IC in Kenya.

So far, InCIP has conducted molecular studies characterising the various other IC ecotypes in Kenya into clusters. In the case of Kuchi research, it was found to belong to its very own cluster, indicating its genetic distinctiveness from the rest of the chicken population in Kenya. InCIP says that these findings underpin a need to study the Kuchi further, with the understanding of its origins and the Tanzania link crucial. Indeed, many farmers are already beginning to use Kuchi for meat production in Kenya despite, as InCIP states, being 'ignorant of its genetic attributes'. Indeed, it was recently introduced in Elgeyo Marakwet County from Lamu, and InCIP says that preliminary performance indicates its 'superiority in meat production'.

Going forward, InCIP is focused on understanding Kuchi growth patterns and growth genetics so that a breeding programme for its genetic improvement for increased productivity can be designed.

A FIPS-Africa village-based advisor in Makueni County feeding his flock of indigenous chickens.

Ugandan/South African jv to boost production

A UGANDAN POULTRY company, Yo Kuku has partnered with RCL Foods, one of the major South African food producers, in a joint venture expected to boost the production of birds, especially in the East African Community region, by ensuring affordability of their products.

According to company officials, the joint venture also means that they have created one of the largest processors of chicken in both East and Central Africa as well as the regional leader in the supply of fresh and frozen chicken, offering a broad portfolio of chicken products in the market.

"Hudani Manji Holdings Limited (HMHL) announces the completion of its joint venture with RCL Foods (RCL) to form HMH-Rainbow, the new parent company of both the Yo Kuku and Enkoko brands," the company stated.

It has been reported that since the joint venture was agreed upon, both companies have been preparing an integration plan with a major focus on how to rapidly expand the business to meet the wider market of the East African community and other neighbouring countries. The plans for growth include integrating the poultry operation with the set up of a modern hatchery and breeding farm in addition to expanding the capacity of the broiler farms to attain 540,000 birds per cycle within the next 18 months.

Yo Kuku, a new entrant in the poultry business in Uganda, was commissioned early this year and says the decision to invest in the poultry industry was occasioned by the high demand of chicken in Uganda, the lack of a dominant integrated player in the sector and lack of reliable supply chains.

The US$16mn poultry investment sits on 64 acres and is located about 50 km outside of Kampala. Hudani Manji Holdings Ltd is the parent company of the Yo Kuku brand.

The company says its broiler farm has a capacity of 480,000 birds per eight-week cycle and consists of eight broiler houses. Four houses have a capacity of 25,000 birds each while the two newest houses, completed in June 2014, have a capacity of 40,000 birds each. *Geoffrey Muleme*

Overwhelming success for Hubbard forum

THE FIRST HUBBARD Premium Forum fully focusing on premium broiler products and markets, held in Breukelen in the Netherlands, was an overwhelming success, with 106 attendees from 18 different countries. At the end of the forum Hubbard promised their customers of Hubbard premium products that this well-received forum will be the first of a series of meetings which will be held in different parts of Europe.

Hubbard, global leader in the market of 'premium chickens' (organic, Label Rouge, 81-day Free range, 56-day Free Range, Certified, Freedom Food, Chicken of Tomorrow, etc.), gathered its main customers of 'premium chickens' in Europe to get to know each other better, to exchange news about Hubbard's R&D for premium products and to share technical and practical information from the field. It allowed the participants to increase their knowledge about Hubbard's Premium product range, the growing differentiation of the broiler markets in the EU and how to get the best performance and optimal results for this growing segment of the market.

During two morning sessions the presentations focussed on different aspects of the premium products and markets in Europe. After the kick off by Olivier Rochard (MD of Hubbard) Peter van Horne (senior agronomist of WUR-LEI in the Netherlands) made a comparison of broiler production costs of the main countries in the EU and also compared these with the main exporting countries: the USA, Brazil and Thailand. He concluded that without trade barriers the EU certainly cannot compete on costs.

Poultry processing plants have adopted a wide range of technologies to improve productivity. Dr Terry Mabbett looks at these developments and discusses some of the difficulties and challenges.

Plotting progress in automated poultry processing

AUTOMATION IS GENERALLY thought of as a recent addition to poultry processing, but nothing could be further from the truth. Pockets of automation started to develop over sixty years ago beginning with shackle line material handling systems, feather pickers and immersion chillers in the 1950's, as intensive production of broiler birds accelerated. Evisceration and cut-up machinery came on stream during the 1960's and 1970's, with automatic de-boning, portioning and sorting equipment, weighing/pricing label machines, sorters and cooking and freezing systems during the last two decades of the twentieth century.

Poultry processing plants have continued to adopt a wide range of technologies, increasingly enabled by robotic and intelligent systems, to improve productivity including cost effectiveness of the labour force, efficiency, throughput of processed poultry products and repeatability and consistency of performance and product quality. This succession of innovation has simultaneously allowed managers to extend finite resources and adopt an expanding range of value-added activity. The downside is the unavoidable creation of pockets of high tech automated equipment within an otherwise traditional processing plant. Within the larger factory scene these islands of high technology require further automation through robotics and intelligent systems to link up and integrate.

A wide range of difficulties and challenges

Equipment manufacturers and scientific researchers are continually forced to focus on a wide range of difficulties and challenges. These include expanding challenges around food safety, difficulties in staffing plant processing operations, expanding portion and product quality demands, limited resources and the ever-greater requirement for flexibility of operation. Meanwhile, a new generation of technologies promising more fully integrated plant operations continues to emerge to consign these limitations to history.

Georgia Tech, in Atlanta, surrounded by one of the most concentrated areas of poultry production and processing in the US, and indeed the whole world, continues to be at the forefront of innovative developments in poultry processing

Design, development and installation of automatic transfer machines provided important labour savings.

Elimination of automation islands

The introduction in the 1980's of automatic transfer machines linking slaughter and evisceration lines was one of the very first bridges built between such islands of automation. Design, development and installation of automatic transfer machines provided important labour savings and showed, for the first time, the importance and value of linking up two or more automated events or systems.

Computer vision technology has proved to be some of the most empowering technology ensuring in-process product quality and safety. Georgia Tech has developed these innovative computer vision system screens to detect individual meat and poultry portions online for both volume and visual quality.

Processing plants received another crucial link up with the design and development of flexible cut-up lines. This development joined up a series of automatic cutting devices which could be used or by-passed, as appropriate, depending on the overall task in hand. Flexible cut up lines allowed plants to maximise value of the particular product processed while, at the same time, minimising demands on labour.

Integrated automation subsequently gained an intrinsic momentum following the emergence of brand new designs and developments aimed at bridging gaps between pockets of automation isolation that still exist in some poultry processing plants. One such event was the installation of air chillers in place of traditional immersion chillers. Targeting product quality and aspects of food safety in specific sectors of processed poultry products was the main focus of this particular development.

Air chiller systems additionally furnished an automatic transfer bridge between two of the most stubborn islands of automation in the plant, ie, the evisceration line and the pack-out/cut-up line. Georgia Tech was central to the solution, focussing hard on immersion chiller technology through an intelligent transfer device. The device used computer vision technology comprising a series of orientation devices and a shackle transfer module to automatically transfer the carcass.

Post 2000 a separate team of researchers at Georgia Tech, working in co-operation with the University of Georgia and the USDA Agricultural Research Service, intensified their investigation into the development of automated live-bird transfer processes at the front end of poultry processing plants. The team used computer imaging and intelligent grasping devices and automatic shackling technology to slash labour requirements, while increasing and improving control over the quality of the poultry products coming off line.

Knowledge systems yield quality and safety

An early example of in-line intelligence was overhead in-line scale systems and first incorporated into poultry processing plants over three decades ago. Completely revolutionary, at that time, these systems enabled automatic sorting of poultry products 'on-the-fly' by weight grade. Contemporary counterpart was the belt weigh-sorter already widely used throughout the entire poultry processing industry. These devices weighed belt-conveyed products 'on-the-fly' and subsequently removed them from the line based on weight grade. By providing optimum control over the process they have greatly assisted in meeting increasingly strict poultry meat portion demands, while simultaneously furnishing substantial cost savings.

All this proved to be just the 'tip of the iceberg' for integrated automation. Other examples providing intelligence information and action on in-process product quality and safety include X-ray scanners and metal detectors. Metal detectors quickly became well established and widely accepted in all processing plants. X-ray systems strived harder to achieve this level of acceptance due to limited accuracy in screening to detect pieces and fragments of bone and cartilage in 'de-boned' poultry products.

Computer vision technology has proved to be some of the most empowering technology providing in-process product quality and safety. First introduced into processing plants with automatic portioning technology it eventually entered product quality and safety screening/control on a much broader front. After years of research alongside improvements in camera, lighting and computer technology these colour imaging systems became part and parcel of the poultry processing industry. By 2010 a good number of colour-based vision systems were in place for the screening of whole bird carcasses for visual defects.

Researchers at Georgia Tech went one stage further to develop a range of computer vision systems that could successfully screen de-boned meat for fan bones; in-process poultry product for plastic foreign objects; in-process cooked product for colour, shape and quality appearance; and cooked poultry product for temperature quality by using infra-red cameras. This team worked alongside scientists and technologists from Cryovac to develop an automated screening system that could inspect seal integrity on over-wrap trays to ensure and assure food safety and security.

These leading-edge systems of their time were not new technology for new technology's sake, but offered significant cost savings by automating many of the erstwhile manual screening methods carried out in poultry processing plants. Be that as it may, real intrinsic value to the industry and consumers has continued to be through furnishing highly accurate and consistent screening information on 100 per cent of the product. In addition they are able to electronically communicate all this information found by the scanner to a computer database and/or instrumentation, thus offering direction and decision on optimising the poultry process operation.

De-boning has proved to be a relatively 'tough nut to crack' while, at the same time, becoming the focal point of some of the most intense investigation within the industry.

De-boning has been a 'harder nut to crack'

In spite of its overall achievements, existing automation technology had always limited success in even beginning to deal with product variability and complicated jobs demanding visual or tactile feedback to effectively carry out a task.

A promising start was made with automatic portioning machines

AMF-BX FlexControl, by Marel/Stork Poultry Processsing, the modular breast cap deboning system that produces a wide variety of high yield fillet products.

at the end of the 1980's, when, for the first time ever, a cutting task became automated. This was achieved by 'requesting' a computer vision system to furnish exact volume and shape information on each product. Information was relayed to the computer and used to make a decision on how to optimally cut that particular carcass and to execute the task using a robotically-controlled water-jet knife. Such portioning machines have been consistently improved since then with add on features and more modern designs with metal blades. Advantages are clear enough. Automation saves labour and offers an accuracy and consistency of cutting that cannot be matched by manual methods.

De-boning has proved to be a relatively 'tough nut to crack' while, at the same time, becoming the focal point of some of the most intense investigation within the industry. Automatic de-boners first appeared on the poultry processing scene some thirty years ago and were rapidly taken on board by plants to slash mounting labour costs unavoidably related to burgeoning consumer demand for de-boned poultry products. But plant management soon realised that machinery was failing to produce yields achieved with manual de-boning. When they tried to boost yield they were faced with completely unacceptable increases in bone fragments in the poultry product. The majority, by now thoroughly fed up with failed technology, gave up and reverted to manual de-boning in the middle of the 1990's.

Not dissuaded or deterred, equipment designers carried on improving this technology although by now a more cautious industry was reluctant to re-venture into this field in a hurry. But improvements came thick and fast especially for the de-boning of chicken thighs and legs with many plants installing new systems. Automatic breast de-boning equipment did not have such an initial easy ride or high level of success.

However, 'where there is a will there is a way' and by 2010 the latest breast de-boning system from Stork had adopted a completely different approach to control of the cuts, and was met with general initial approval from the industry.

Georgia Tech was very much involved with this area of automation. It went on to develop prototype systems that utilised on-board robotic actuators to adjust cutting motion by using input and feedback information. They anticipated that success in this area would assist the industry in achieving substantial labour savings and enhanced product yield, while minimising the obvious risk and safety hazards of bone fragments appearing in 'de-boned' poultry products. In 2015 and another five years on it is full steam ahead for the automatic de-boning of the poultry carcass but that is another story.

The economic impact of lameness is caused by lower productivity, higher costs of treatment and even early culling of affected animals.

Gait development in growing pigs reared on different floor types

CHANGES IN THE gait patterns of growing pigs is not affected by the floor surface they are reared on.

Researchers at Newcastle University have used a 3D motion capture technique to subjectively measure the movement of pigs.

Circular, reflective markers were stuck onto different points of the body and detected by infrared cameras when the pigs were filmed while walking.

Movements on the walkway were captured with motion capture software and analysed. This technology provides an accurate alternative to traditional gait assessment methods that rely on the human eye.

Analysis of gait (movement) patterns in pigs can help to spot leg weakness and lameness. Lameness is a significant challenge in the pig industry, costing approximately US$8.3mn per year due to veterinary fees, treatment and cost of replacing lame breeding pigs.

Lameness is a significant challenge in the pig industry.

Common causes of lameness

Also, the welfare of lame pigs is a concern of pig producers. Common causes of lameness include genetic muscle or skeleton weaknesses, infections, injuries and poor nutrition.

Previous research has suggested that the type of floor that pigs are housed on can affect the chances of them becoming lame, with slatted floors causing more leg weakness than straw-bedded floors.

In this study, 12 male and 12 female healthy growing pigs were randomly selected for gait analysis by 3D motion capture.

Different floor types are used in modern, intensive pig production systems at different stages of the pigs' production cycle. The general perception holds that slatted and/or hard solid concrete surfaces are inferior to soft straw-covered floors regarding healthy musculoskeletal development. Previous studies have compared pigs housed on different floor types using clinical, subjective assessment of leg weakness and lameness. However, reliable studies generally report a low repeatability of clinical lameness scoring.

The walking movements of each pig were captured five times over a six week period. The pigs were split into three groups for housing on three different floor types: fully slatted, partially slatted/partially concrete and straw-bedded. During this time all of the pigs grew in weight from 37 kg to 90 kg.

Results showed that the gait of the pigs changed over time, as expected, but many of the changes were very subtle and therefore undetectable to the human eye.

This shows that the 3D motion capture technique may be useful for detection of subtle leg weaknesses and lameness in pigs. Changes in gait pattern of the pigs over the six-week period was not affected by the floor surface. None of the floor types caused any damaging effects on gait development.

Straw-bedded floors cause less leg weakness than slatted floors.

In early August, Phoenix Africa announced an investment of US$550,000 into its Sierra Leone rice farming company, Lion Mountains Agrico Ltd. This Series A funding by a private investor is the first stage in a planned total fundraise of US$26mn over the next two years for the start-up agriculture operation.

Developing large-scale commercial agriculture in Sierra Leone

DESPITE THE EBOLA crisis that has hit Sierra Leone hard over the last year, and with just US$250,000, Phoenix Africa launched a rice-producing business, Lion Mountains, in the Bo District to the south of Sierra Leone. The pilot phase operation began in October 2014, at what proved to be the height of the epidemic.

A small land area was developed and a rice mill established in Bo, the second city of the country, rapidly becoming the largest milling operation in Bo District.

Rice is the main staple of the Sierra Leonean diet but most of it is imported – at an estimated cost to the economy of at least US$350mn a year.

Phoenix Africa has championed the excellent investment potential of Sierra Leone, and aims to make Lion Mountains the biggest producer and processor of food in the country. As the economy rebounds from the Ebola epidemic, a return to high growth is anticipated.

Following the signature of the shareholders' agreement, Paddy Docherty, chief executive of Phoenix Africa and chairman of Lion Mountains, commented, "We are delighted that we have successfully come through the Ebola crisis and secured this finance – there is still a long way to go for both Lion Mountains and Sierra Leone, but, with this backing, we are properly under way. This is an exciting opportunity for us – we believe in the African agriculture story and are highly confident that Lion Mountains will continue having an increasingly positive impact in Sierra Leone, and especially for the local communities where we operate."

Lion Mountains workers at the pilot phase land area, December 2014. 50 per cent of the 120 seasonal workers employed for the land prep and planting were female.

Within two to three months it has become the biggest rice milling operation in the Bo district.

Large-scale commercial agriculture

Lion Mountains Agrico Ltd has been founded to develop the extraordinary agricultural prospects of Sierra Leone: with readily available land of the highest quality and plentiful rainfall, the country offers a very attractive natural endowment with excellent commercial potential.

The goal of Lion Mountains is to develop large-scale commercial agriculture, with a focus on mechanised production and processing of rice and other crops in Sierra Leone, generating superior returns for its shareholders whilst also delivering a profound social impact to its partner communities. It is headquartered in Bo and has agreements in place with three chiefdoms in Bo District: Lugbu, Tikonko and Bumpe Ngao, providing access to 14,000 ha of prime farmland.

Excellent community relations

Lion Mountains has developed excellent community relations and enjoys high levels of support among all stakeholders, from President Koroma downwards.

Phoenix established a rice mill in its warehouse in Bo, and processing and sales of rice began in December 2014. Milling capacity will gradually be expanded as the land area is developed, and it is already the premier milling operation in Bo District.

With Sierra Leone heavily reliant on imports of rice, the market is highly attractive, and Lion Mountains will sell domestically for the immediate future.

Within two to three months it has become the biggest rice milling operation in the Bo district. Locals now have access to the market.

Now, Phoenix Africa is trying to raise a fresh US$1.1mn tranche of money to expand and buy more infrastructure.

"There are very few countries where you can, from a standing start, go on to become the dominant player in your industry in two or three years," said Docherty. "Selling Sierra Leoneans rice from Sierra Leone is making us very popular. This is a real import-substitution opportunity."

The Lion Mountains Outgrower Programme was launched in November 2014, and the company now buys rice and other produce from several hundred local farmers in its three partner chiefdoms. In addition to providing this market linkage to

its outgrowers, Lion Mountains will, in time, also supply training and inputs in order to assist them in increasing their yields and diversifying their output.

Currently Lion Mountains sells 50kg bags of rice to market stall holders for about US$40 to US$50 each, with the local community given a share of the profit.

The company is led on the ground by managing director Mike Gericke, from Zimbabwe, who brings 40 years of experience of farming in Africa.

As a Phoenix Africa company, Lion Mountains has an explicit social impact remit: its goal is to turn development into a profitable business. It has therefore agreed a significant programme of social impact commitments with its partner chiefdoms, which are also deeply pragmatic in ensuring that this will be a successful, sustainable business. The interests of the company and the local communities are aligned, guaranteeing the continuing support of the local people for the operations, and the security of land tenure for the future.

The social impact commitments are set out clearly in the original agreements with the three partner chiefdoms and are published widely. The key points are:

- Partner chiefdoms will receive a 20 per cent profit share
- The company will employ and train local people
- The Outgrower Programme will train local smallholders and provide market linkage
- The company will build roads and bridges in partner chiefdoms

As a result of these social impact commitments, and the responsible way in which the land was sourced, Lion Mountains enjoys excellent relations with its partner communities. It places a very high value on good relations with its partner chiefdoms, and is highly confident that success in this area will help ensure a long-lasting and profitable business for many years to come.

Lion Mountains began operations in October 2014 and has developed a land area in Lugbu Chiefdom as a pilot phase, with rice and groundnuts planted in December. This development is the initial step in rolling out a portfolio of 14,000 ha, largely dedicated to the production of rice for domestic consumption. For these seasonal operations, Lion Mountains hired a workforce of 120 local people.

Dr. Demby and Mustapha Jalloh with their very first bags of rice, milled in December 2014.

As for the future, with almost no competition, Lion Mountains plans to be the biggest producer of food in the country in three years, and then expansion for export is the long-term goal.

A project to overhaul the rice seed system and improve farmers' access to all rice seeds in the Northern and Upper East Regions has been launched.

Rice seed scaling project launched in Ghana

THE THREE-YEAR INITIATIVE, dubbed 'Rice Seed Scaling Project,' is being implemented by the Africa Rice Centre, in collaboration with the Agricultural Technology Transfer (ATT) Project, Savanna Agricultural Research Institute of the Council for Scientific and Industrial Research (CSIR-SARI), Alliance for a Green Revolution in Africa (AGRA), and some selected private seed companies and extension agencies.

The United States Agency for International Development (USAID) is funding the project with one million dollars, while Africa Rice Centre is providing the technical support to ensure a successful implementation.

The objective of the project is, amongst others, to improve seed planning and connect actors along the rice seed value chain, as well as strengthen capacity of rice seed value chain actors to stimulate the development of a sustainable rice seed system in northern Ghana.

The move is to ensure that 1.5 tons of quality breeder seeds are produced yearly by SARI and purchased by private sector companies, 50 to 60 tonnes of quality foundation seeds are produced yearly by four private seed companies, and purchased by certified seed producers, and 2,000 - 2,500 tonnes of certified and quality declared seeds are produced yearly from 2016 by both certified seed producers and community-based seed producers and purchased by paddy rice producers.

Dr. Stephen Nutsugah, director of CSIR – SARI, said at the launch of the project at Nyankpala near Tamale that the project had come at an opportune time to enhance food security, reduce importation of rice and increase incomes of smallholder rice producers, traders and processors through increased production of good quality rice.

Despite various initiatives by government to increase rice production, the country still has a demand-supply gap that is being filled through importation of more than 350,000 metric tonnes (mt) annually, costing more than US$600mn.

The country's total rice demand will reach some 820,000 mt annually in a few years' time, for which a boost in domestic production becomes paramount to meet such rising demand.

Lukmanu Whumbi, a farmer in Northern Ghana, points to fields of rice. (Image source: Isaiah Esipisu/IPS)

Dr. Nutsugah, therefore, said the project would collaborate with other rice project initiatives, by delivering interventions that sought to address the challenges facing the country's rice industry, to ensure the production of increased and good quality rice to meet this rising demand.

Dr. Olupomi Ajayi, consultant, rice sector development and risk management officer at Africa Rice Centre, said, "This project is unique because at the end of the project, we must leave behind a rice seed system that functions well and is sustainable, and its impact should be felt by everyone involved in the seed system."

Dr. Ajayi expressed gratitude to USAID for providing the financial support for the project, which would address the constraints and opportunities identified in the country's national seed policy.

Brian Conklin, deputy office director/agriculture team leader, Office of Economic Growth of USAID, called for effective collaboration with other rice sector projects, to ensure the transformation of the country's rice industry.

No.1 PLAYER
in paddy processing, has powered more than 10,200 mills

MILLTEC
ISO 9001:2008 / ISO 14001:2004

12 TPH RICE MILL

MILLTEC A MARKET LEADER OFFERS ONE SOURCE SOLUTION FOR COMPLETE RICE MILLING PROJECT IMPLEMENTATION ON TURNKEY BASIS.

MILLTEC
ISO 9001:2008 / ISO 14001:2004

AGRI POWER

MS sorters

MILLTEC GROUP OF COMPANIES

FOR ASSISTANCE ON MILLTEC PRODUCTS & SERVICES PLEASE CALL:

1800-102-8431

MILLTEC MACHINERY PVT. LTD.
NO. 51/A , 1ST PHASE, KIADB INDL AREA
BOMMASANDRA, BANGALORE -560099

Follow us on

TEL: +91-80-28016666+91-80-27831128
EMAIL: MARKETING@MILLTECMACHINERY.COM
WEBSITE : HTTP://MILLTECMACHINERY.COM
HTTP://MILLTECMACHINERY.IN

www.facebook.com/milltecmachinerypvtltd | www.twitter.com/milltecmmpl | www.linkedin.com/company/milltec-machinery-private-limited

Zambeef division aims to capitalise on growing demand for edible oil.

Zampalm pioneers Zambia's first palm oil plantation

ZAMPALM IN MPIKA is Zambia's first ever palm plantation. The plantation boasts 2,800 hectares of palm plants which, when harvested, will produce crude palm oil that is the basic ingredient in most vegetable oils on the market in Zambia.

The locally produced palm oil will enable the government to cut back on crude palm oil imports which currently stand at over US$70mn annually.

Involving the community

With its first nursery set up 20 km away from the main plantation site, near Chief Kopa's palace, Zampalm was keen to get the community involved from the very start.

"This was something new and on a scale that has never been done in the area before so there were concerns on the part of the local community. However, with the help of Chief Kopa, we were able to communicate what was happening," said Trusted Mwiinga, who has been in the agriculture sector for over 25 years and has worked on the project from its inception by Zambeef Products in 2009 as Zampalm's plantation manager.

Getting the plantation up and running was no easy task with little infrastructure in place and a site that was cut off from the rest of Zambia; so management had its work cut out and only after overcoming the initial setbacks was the project truly able to move forward.

"We had the first seedlings fail due to water stress. Farming requires dedication, especially if the crop is one that has not been farmed before. The seedlings tend to suffer in the winter period but after three years they are able to adjust and cope with the weather conditions. With the help of some expert advice the challenges were addressed," explained Mwiinga.

The success of the project has resulted in improvement in social amenities such as accommodation, water and power on the plantation and surrounding areas.

"Mpika is a sparsely populated area; what you can see now if you visited the plantation is endless neat rows of palm trees. The landscape looks very different compared to the time when we first came here. It was much like the Kafue plains; full of grass, anthills and the ground was very rough. There was no need for tree cutting because the place was virtually tree-free and no deforestation resulted from it," Mwiinga recalled.

"We had no communication network, one had to go to the Boma to make a phone call, which can be very difficult on the family man as, in the beginning, that was only possible once a week. We also didn't have five star accommodation or power," Mwiinga said of the early days.

The success of the project has resulted in improvement in social amenities such as accommodation, water and power on the plantation and surrounding areas. Over the three years of its existence in the area, Zampalm has employed local people in its nursery, plantation and workshop. There are currently 120 permanent employees and 400 seasonal workers with these numbers expected to rise as the harvesting and production begin.

Zampalm's plantation manager, Trusted Mwiinga.

With an untrained workforce comprised mostly of small-scale farmers, fishermen and hunters, absenteeism and time-keeping posed a problem at first, but, with time, employees understood the work requirements and adjusted their lifestyle.

Skills training benefits the community

The community residents were also able to benefit from skills training in various areas such as weeding, spraying, chipping and construction, all of which were needed for the plantation to operate smoothly. Given that the machinery in question was something that they had never seen before, the training was imperative for a safe working environment.

"The plantation is taking shape and harvesting will commence in a few months and we will be able to see the fruit of our work. There's been improved accommodation, water reticulation, roads, and I am very happy to be a part of this legacy," said Mwiinga.

The Zampalm project was launched in 2009 and currently has some 370,900 palms planted over an area of 2,612 hectares (ha) in the main plantation, with another 39,000 seedlings in the main and pre-nursery. Zampalm owns 20,238 ha of titled land, and the intention is to plant a total of 4,812 hectares in 2017 and similar areas in subsequent years as the business grows.

A two-tonnes-per-hour crushing mill was built this year, with plans for a second two-tonne plant in 2017 and a further 10-tonne plant in

the following year, taking crude palm oil production up to 17,000 tonnes a year.

The total investment cost is estimated at US$41.5mn, of which Zambeef has spent US$20mn so far. At current prices the average production of crude oil of 3 to 3.5 tonnes per hectare could generate more than US$170mn in revenue over the next decade.

Once fully operational the plantation will contribute to substituting 70,000 tonnes of imports of cooking oil into Zambia.

Growing market for edible oils

The market for edible oils in Zambia, of which palm oil is one component, is estimated at 120,000 tonnes per year, and this is expected to continue growing as the country develops further.

More than half of Zambia's edible oil consumption is imported from the Far East, East and South Africa.

Palm oil is the world's most used vegetable oil and has many different uses in addition to cooking. Palm oil and its derivatives are found in foods such as margarines and ice cream, used as a thickener, preservative and antioxidant; as well as in personal care products such as shampoo and cosmetics; industrial products such as lubricants, paints and inks; and as a renewable fuel.

Once fully operational, the plantation will contribute to substituting 70,000 tonnes of cooking oil imported into Zambia, saving the country around US$70mn (K511mn) in foreign exchange outflows every year.

Zambeef Products Plc is the largest integrated agribusiness in Zambia. More information is available at www.zambeefplc.com

Oil palm seedlings in the Zampalm Nursery. Image: Bibusa/flickr.com

While Zambia is not a traditional growing region for palm oil, lower yields are expected to be outweighed by the competitive advantage of being closer to consumers in the region given that the cost of importing edible oil from the Far East can account for around a third of its retail price.

Social and environmental benefits

In addition to the commercial and economic benefits of the Zampalm plantation the initiative has provided a number of social and environmental benefits, including the creation of employment and infrastructure in the remote community in the area, which has high poverty levels.

Traditionally, the Bisa people in the sparsely populated area of Senior Chief Kopa were fishermen, hunters or cassava farmers. Since Zampalm was launched there are now shops springing up and the economy is growing and changing livelihoods.

People can educate their children and improve their houses, with thatched roofs replaced with iron sheets; some children are now going to high school; people can buy new clothes; and health has improved, said Mwiinga.

There are two government health posts that are 15 and 20 km away but Zampalm has provided transport to the clinics, including an ambulance to Kopa clinic and Mpika District Hospital.

Zampalm is also planning an outgrower scheme with the company providing seedlings. It has already given the nearby school 100 seedlings to plant. Ⓔ

With the tremendous growth of the floriculture industry in Kenya over the last few years, stakeholders have looked upon the annual Naivasha Flower Fair to showcase their new innovations and products to growers and other interested parties. Mwangi Mumero reports.

Naivasha flower fair

THE FLOWER INDUSTRY has recorded growth in volumes and value of cut flowers exported each year from 10,946 tonnes in 1988 compared to 86,480 tonnes in 2006, 120,220 tonnes in 2010 and 136,601 tonnes in 2014.

The Kenya National Bureau of Statistics indicates that, in 2014, the flower industry earned US$546mn. It is estimated that over 500,000 people depend on the floriculture industry which impacts over two million households.

According to the Kenya Flower Council (KFC), an association of growers and exporters, Kenya is the lead exporter of rose cut flowers to the European Union (EU) with a market share of 38 per cent.

Approximately 50 per cent of the exported flowers are sold through Dutch Auctions, although direct sales have been growing in recent years.

In the United Kingdom, supermarkets are the main retail outlets.

Other destinations of Kenyan flowers include Japan, Russia and the USA.

The main cut flowers grown in the country are roses, carnations and alstromeria. Others include gypsophilla, lilies, eryngiums, arabicum, hypericum and statice.

The main production areas are around Lake Naivasha, Mt Kenya, Nairobi, Thika, Nyandarua Kericho and Kiambu.

This year's Naivasha Flower Fair attracted over 200 exhibitors drawn from around the world as well as thousands of visitors from Kenya, Ethiopia, Tanzania and Rwanda among others.

The main cut flowers grown in the country are roses, carnations and alstromeria.

A wide range of products and services

Exhibitors brought a wide range of products and services that included farm inputs, banking services, breeding services, security consultants, management systems, transport and logistics and communication appliances.

Show-goers learn on the working of a solar irrigation system from a Chinese firm. (Image courtesy Mwangi Mumero)

Among the exhibitors was the Eco-Group East Africa, which was showcasing its soil improvement products at the fair for the first time.

The Kenyan-registered company, which has sourced its technology from the US, has been in operation for the last two years.

"We utilise fish waste such as guts, fins and the head to manufacturer biological fertilisers that enhances soil aeration, ameliorates soil conditions and moderates soil pH. It also revitalises exhausted soil, reducing its sodium content in the process," observed Mia Metcalf, an American and the director of the Eco-Group East Africa during an interview with *African Farming* at their stand.

According to Metcalf, their products target roses and vegetables in commercial units and also for smallholders.

Their products - in liquid formulations - can be applied through drip irrigation systems or in foliar forms.

Soil analysis is vital

For effective use of crop nutrients, soil analysis is vital. This is a service offered by another firm exhibiting at the Fair.

"While large scale growers are almost 100 per cent certain to carry out soil analysis on their farms, uptake by smallholders is slow. Smallholders need to understand the value of analysing the soil before growing any crop as it helps to reduce input wastage," said Cecilia Wambua, technical sales agronomist at Cropnuts Laboratory Services.

Depending on the farmer's needs, the firm analyses different soil parameters such as soil chemistry, pathology, nematodes, water content and effluent.

Another firm, NIRP International, has been a regular feature at the past fairs.

Headquarted in France, the company breeds flowers - mainly roses for growers in Naivasha - and is the main breeder in the country.

Developing new flower codes

The company researches and develops new flower codes using production, bud sizes, colour, and susceptibility to diseases as parameters.

"Every year at least 700 new flower codes are developed for the growers in Kenya, France, Ecuador, Ethiopia and Tanzania. The new codes are then taken to flower propagators before being released to growers. Each stem can give three stems," noted Danielle Mae Spinks, sales manager with NIRP East Africa.

According to Ms Spinks, exhibiting at the Naivasha Flower Fair gives her firm an opportunity to meet new growers who may be interested in flower trials on their farms.

New management systems on show

With flower production processes becoming even more sophisticated, new management systems were also on show.

These solutions are expected to help

KIKAPU

SUSTAINABLE & SELF-SUFFICIENT STORAGE SOLUTION FOR SMALLHOLDER FARMERS.

MAIN FEATURES

GRAIN CONSERVATION AND SUSTAINABILITY
Aeration system operated by a solar panel

EASY HANDLING AND OPERATION
Articulated arm and Access ladders

Kikapu is an innovative solution to grain conservation, contribuing to production savings and food security, thus insuring benefits that go beyond the farm.

www.kepler.com.br | comex@kepler.com.br | +55 11 4873-0317 | +55 51 3361-9670

KEPLERWEBER®
Storage with results. This is our business.

growers and exporters to manage their activities.

"This software helps growers to manage their activities online. Finance, crop history, auditing, harvesting, costing, quality control and compliance can be captured and managed through this software, availing needed information in real time. It can be customised to the grower's needs and will track every aspect in all operations in real time," said Kelvin Gachari, a project manager with Muddy Boots Software, a Kenyan firm.

The software costs US$1,300 which includes set up, user training and one year of support.

New innovations that can help cut on high energy costs were on display at the Fair.

Ms Danielle Mae Spinks, sales manager with NiRP East Africa flower breeders, showcases the firm's products.

Clean energy solutions expected to help cut on the monthly bills attracted quite a crowd at the fair.

Clean energy solutions

Specifically, clean energy solutions expected to help cut the monthly bills attracted quite a crowd at the fair.

"This solar pumping system fulfills the concept of low carbon, energy conservation and environmental protection. It can effectively be utilised in irrigation systems and can be remotely controlled," said Eugene Reeksting, of Laser Engineering Solutions, the company behind the solar irrigation system.

The unit consists of solar panels, a solar pumping inverter, three phase AC pump and a water storage device. It uses solar energy to pump water from a borehole, dam or river directly to an irrigation system or a storage tank.

While new products were the range at the fair, a new Dutch-funded project aimed at boosting flower and tomato production was also unveiled.

Funded by a consortium of Dutch companies and the Dutch government, the Green Farming project aims to train local farmers in sustainable use of fertilisers, water and labour with a focus on greenhouse technologies.

"We have studied the Kenyan horticultural farmers and we feel there is a need to boost their practical skills. We aim at increasing production per unit area using resources sustainably," said Nico de Groot, a senior project manager with the project.

The project has already constructed greenhouses in Isinya, Kajiado County, to start farmers' training in November 2015.

"We will work with farmers' groups and offer monthly courses on tomato crop management. In the long-term we believe the consortium will be able to do business with these farmers as they become successful producers," asserted de Groot.

Through the project, farmers will also be trained on the use of clean energy such a solar to save on their power costs.

While the flower industry looks rosy, players in the sector lament on different challenges hampering the full potential of the sub-sector.

"With devolution of agriculture management to the counties, the cost of doing business has been rising. There is a lack of clarity as to which authority - central government or the counties - should collect which taxes. This has led to double taxation on the part of growers," said Johnstone Mulary, an advocacy and lobby officer with the Kenya Flower Council while speaking to *African Farming*.

Overall, 44 per cent of revenue collected by the flower growers goes to taxes, a figure Mulary described as 'extremely high', calling for the streamlining of the taxation regime.

At the same time, the cost of power is prohibitive with a medium 20 acre farm paying at least US$200,000 per month for electricity charges.

Some growers have developed solar and hydropower plants in their farms to cut on their energy costs.

"Kenya stands to lose as farmers migrate to Ethiopia and Rwanda as well as Ecuador and Colombia where production costs are lower. There is also a need to open up direct flights from Nairobi to the US to widen the flower market," said Mulary.

Some of the farm equipment displayed at the flower show.

AGRA INNOVATE NIGERIA

24 - 26 November 2015, LANDMARK CENTRE, VI EXTENSION, LAGOS

• CALLING ALL **FARMERS, PROCESSORS AND MANUFACTURERS** •

• ATTEND NIGERIA'S **BEST AGRICULTURE EXHIBITION** •

Now in its second successful year, "**Agra Innovate Nigeria**" has already become the leading annual gathering for all levels of Nigeria's diverse agricultural and agribusiness sector. We are pleased to announce that this year's event will take place at the Landmark Centre on Victoria Island Extension, Lagos on the **24th - 26th of November**.

About the **Exhibition**

Agra Innovate Nigeria's exhibition will present a wide range of leading Nigerian and international product and service suppliers who are helping farmers, processors and manufacturers improve their businesses across all key agricultural value chains.

Companies like Dansa Foods, BASF, Maslaha Seeds, panAfrican Group and Cellulant will all be there to provide information and tools that can be used to increase the efficiency and profitability of farming and processing operations.

In addition, there will also be a range of free-to-attend advice workshops on offer for smallholders and farmer group representatives which will provide practical tips on how to make meaningful improvements to their operations.

About the **Conference**

The first two days of Agra Innovate Nigeria also features a high-level business / policy conference with speakers from the key organisations that are helping to drive further transformation in this potentially huge domestic and export market.

Limited to only 200 seats, this exclusive meeting will offer a busy programme of interactive discussion and debate led by the leaders of an incredible range of public and private agribusiness organisations including the Federal Ministry of Agriculture & Rural Development, the Nigeria Agribusiness Group, The Bank of Agriculture, GIZ, the National Biotechnology Development Agency, Sahel Capital Partners and the University of Ibadan.

• REGISTER NOW FOR FREE ENTRY ON •

www.agra-innovate.com

Supported by: NABG Nigeria Agribusiness Group; giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Sponsored by: Dansa; BASF The Chemical Company; Control Consulting Nigeria Limited; cellulant

Media Partners: Bloomberg TV Africa

How AFAP is boosting Africa's fertiliser markets.

Using fertiliser for a food-secure Africa

SUB-SAHARAN AFRICA is home to 214mn of the world's 805mn malnourished people, according to the UN's Food and Agriculture Organization (FAO). This, despite Africa having the largest remaining tracts of arable land and the world's fastest growing economies. Two primary reasons for these high levels of hunger and malnourishment in Africa are low agricultural productivity and poor soil management.

Small-scale and rural farmers in sub-Saharan Africa face challenges in acquiring agricultural inputs. Chief among these is limited access to fertiliser and seed. Shortages of inputs are common in developing economies and are a huge constraint to productivity in this region.

According to FAO, farmers in sub-Saharan Africa face particularly acute constraints. These include poor output price incentives, high fertiliser prices, lack of liquidity or credit and lack of knowledge on correct fertiliser use.

There is a need to rapidly increase fertiliser utilisation levels in sub-Saharan Africa in order to accelerate agricultural production and economic growth. FAO states that on average, agriculture accounts for 32 per cent of the GDP of countries in the sub-Saharan Africa region and most of the poor and malnourished live in rural areas and rely on agriculture-based activities for their livelihood. Therefore, improved performance of the agriculture sector will have a positive impact on economic growth and will also reduce poverty, hunger and malnutrition.

The key operating mechanism for AFAP is agribusiness partnership contracts.

What goes into Africa's cropland soil?

Sub-Saharan Africa has a combination of high soil nutrient deficits and very low fertiliser use. The International Fertilizer Industry Association (IFA) says the region utilises 12 kg/ha of fertiliser. This is in comparison to over 150 kg per hectare in Asia. Sub-Saharan Africa's low fertiliser usage is attributed to a set of failures in the input and output markets. Ultimately, this leads to lower crop yields.

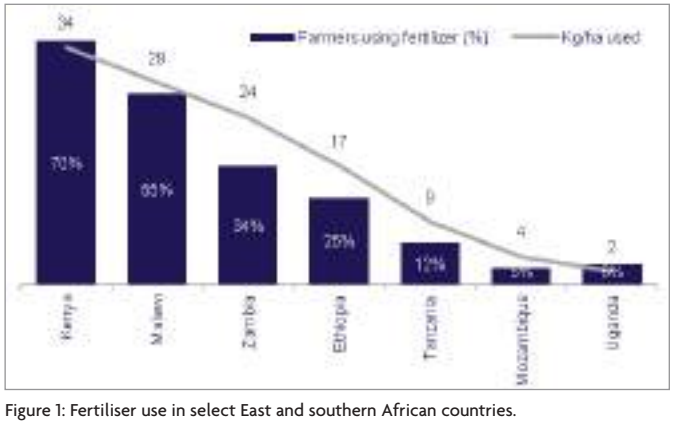


Figure 1: Fertiliser use in select East and southern African countries.

A woman applies fertiliser in Kenya. Image: B.Das/CYMMIT.

Reasons for low fertiliser use

A number of factors undermine farmers' capacity to utilise fertiliser and reap the benefits. The demand side is impacted by poor price incentives and highly seasonal and variable production due to increasing rainfall variability. Other factors are the lack of liquidity, credit or insurance, lack of physical access, and lack of knowledge on the correct use of fertilisers.

With low and dispersed demand, the fertiliser industry remains largely underdeveloped. Suppliers also cannot make the economies of scale that would reduce the high costs of transporting, stocking and distributing fertilisers. As a result, fertiliser sold in sub-Saharan Africa is the most expensive in the world.

What is being done to ensure food security in Africa?

On the 5th May 2015, high level agriculture technical experts, political decision-makers and fertiliser industry representatives announced an ambitious plan to increase the commercial supply and distribution of fertiliser on the continent. These leaders, from government, private sector and the civil society sector, announced an innovative fertiliser trade promotion initiative called the East and Southern African Fertilizer Trade Platform (ESAF). As a solution, ESAF aims to enable the effective trade and cost reduction of fertiliser that promotes both access and utilisation by smallholder and rural farmers. This, ESAF hopes, will boost yields and productivity and take agro-based workers out of poverty.

This new initiative aims to take fertiliser procurement and distribution to scale in East and southern Africa through the creation, growth and strengthening of 500 fertiliser and agribusiness enterprises. It is the brainchild of the African Fertilizer and Agribusiness Partnership (AFAP). The nonprofit development organisation aims to establish sustainable and competitive private sector-led fertiliser markets that provide smallholder farmers with affordable, quality fertilisers at the right place and time. The key operating mechanism for AFAP is agribusiness partnership contracts (APCs) under which eligible international, regional and local agribusinesses apply for AFAP assistance to enter or expand their

footprint in the African fertiliser market. AFAP's assistance includes a combination of credit guarantees, matching grants, technical and logistical support, and training of local farmers and entrepreneurs. In return for AFAP's assistance, agribusinesses perform market development activities with local farmers and/or agribusinesses, such as extension support and business management training.

AFAP's objective is to rally the public and private sector behind this initiative through joint efforts to: create a more conducive policy and regulatory environment to increase investor confidence; identify investment opportunities in the agriculture sector and facilitate investment; provide market information and research intelligence on the fertilizer industry in the region; facilitate business-to-business linkages to increase regional trade; improve access to finance all along the value chain; and promote sharing of lessons learned and good practices.

The ESAF initiative has extensive private and public sector support and is led by the Secretary-General of the Common Market for Eastern and Southern Africa (COMESA), Mr Sindiso Ngwenya. Its plan was signed off and adopted as a COMESA project at the COMESA Ministers of Agriculture meeting held in Kinshasa, Democratic Republic of Congo in November 2014.

The fertiliser trade initiative has the potential to improve the lives of millions of people.

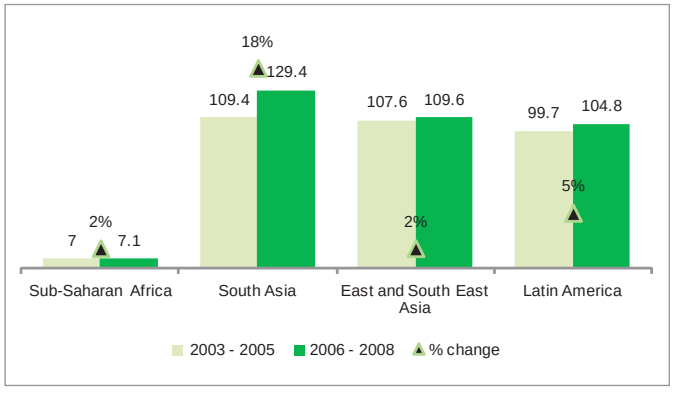
Why is ESAF the solution?

With its strong public and private sector linkages, the key stakeholders on ESAF are manufacturers, importers, distributors, agro-dealers, farmers' organisations, and many more interest groups benefitting from the increased trade and utilisation of fertiliser in African agriculture.

Focused on the COMESA region, the fertiliser trade initiative has the potential to improve the lives of millions of people due to better crop yields and improved food security that will lift many on the continent out of hunger.

Commenting at the launch of the initiative, AFAP vice president, Professor Richard Mkandawire said: "We have implemented public sector-led mechanisms to improve agricultural production, but that has not worked quickly or efficiently enough. The reality is that the private sector is important and governments cannot do it alone. The free market has a role to play in achieving the right economies of scale but only if the policy environment is supportive of those that work under such policies. ESAF stands to ensure that private sector and government open up the fertiliser market in a way that allows universal access for small and rural farmers".

AFAP regional director, ESAF Trade Platform, Dr. Maria Wanzala, said, "Our smallholder and rural farmers need to have an advantage in order for their agriculture businesses to succeed.



A woman applies fertiliser in Kenya. Image: B.Das/CYMMIT.

Unloading bags of fertiliser.

Making the right inputs available will be the biggest first step in alleviating poverty and feeding our continent. Growth for sub-Saharan Africa depends largely on how well we can feed ourselves."

Commenting on the launch, Fertilizer Association of Southern Africa CEO, Mostert, said, "Governments must allow the private sector to approach the fertiliser market as a business and allow the fertiliser industry to develop to the potential of the country. We should aim to achieve economic growth and poverty reduction by enhancing the productivity and profitability of agriculture through the development of the fertiliser sector. "

Alliance for Commodity Trade in Eastern and Southern Africa CEO, Argent Chuula, said, "Our call is to grow the Agricultural inputs sector, so as to have adequate improved Agricultural inputs for our farmers, in order to achieve food security".

As these leaders made their commitments to the success of ESAF and increased food security, Africans are hopeful the initiative will contribute to a better and food secure future.

AFAP's achievements through APCs

Smallholder farmers in the Chokwe region of Mozambique have turned their fortunes around after devastating floods reduced them to near destitution. In 2015 alone, 12,000 farmers received 74,000 metric tons of fertiliser, through a co-operative that entered into a partnership with AFAP in 2013.

Heavy rains that hit the region in 2010 and 2012 affected thousands of people, mainly smallholder farmers. In an effort to reclaim their livelihoods, the farmers, together with partners, formed a co-operative society – the Limpopo Valley Agricultural Society (SAVAL) to boost productivity.

In July 2012, SAVAL was registered as a private input and output market company with the main objectives of importing and supplying agricultural inputs, tools, implements, and equipment. The co-operative also markets agricultural products and provides extension services to producers within the Limpopo Valley.

The co-operative later evolved into a business with 12,000 farmers growing rice as the main crop on more than 18,000 ha. However, the smallholder farmers had no access to finance for purchase of the much needed inputs, expecially fertiliser.

In 2013, SAVAL through the AFAP Supplier Guarantee, received US$85,000 to kick-start the flow of fertiliser supply into the farmers' co-operative. In the meantime, the Mozambican government embarked on a major rehabilitation scheme to assist the farmers by supplying technologies that would provide a constant supply of water. The farmers also opened a co-operative bank that would provide finance for agricultural inputs.

Since the partnership with AFAP, SAVAL can now procure bulk inputs on credit from major suppliers in Mozambique and provide fertiliser to its members at discounted prices.

For more details, and to secure interviews contact:
Zamathiyane Ndaba
African Fertilizer and Agribusiness Partnership (AFAP)
Tel: +27 (0)11 844 7320 Cel: +27 (0)83 952 4660

Current fertiliser technology can be very effective if properly used. However, the Virtual Fertilizer Research Center (VFRC) is collaborating with global scientific teams to create fertilisers that provide these necessary nutrients but mitigate environmental harm.

VFRC advances new packaging of nutrients

WHEN MINERAL FERTILISER research and production began in the early 20th century, scientists focused on producing large amounts of product to address nutrient depletion in cultivated soils where fertility and productivity had declined.

The Haber-Bosch Process was no exception. It set the stage for an industrial fertiliser revolution. Now the nitrogen fertilisers produced via that process significantly contribute to feeding half the earth's population. But it is a double-edged sword, with fertiliser overuse harming the environment and humans. The Virtual Fertilizer Research Center (VFRC) collaborates with global scientific teams to create fertilisers that provide these needed nutrients but mitigate environmental harm.

African soil could support more crops with more fertiliser use. Image: devex.com

Fertiliser research should move beyond NPK-only fertilisers and, considering crop needs, incorporate other nutrients alongside these primary nutrients.

"Application of primary nutrients only (ie, nitrogen, phosphorus and potassium [NPK]) mine soils of secondary and micronutrients (SMNs). This depletion levels off yield potential," said Christian Dimkpa, VFRC research scientist. "In addition, the overuse and poor management of nitrogen results in contamination of water sources and emission of greenhouse gases."

In other cases, though, underuse of NPK fertilisers limits yields and intensively mines soil nutrients. This situation, according to the World Bank, is "a scenario for disaster over the long run." Therefore, fertiliser research should move beyond NPK-only fertilisers and, considering crop needs, incorporate other nutrients alongside these primary nutrients.

NPK alone does not guarantee long-term universal yield increases because crops require 14-17 nutrients, depending on the crop. Adding boron, calcium, magnesium, sulfur and zinc and a number of other SMNs will be required to sustain yields. The VFRC researches SMN interactions with crops to identify specific crop needs. "The use of fertilisers should be about feeding the crop and not the soil," argued Dimkpa. Current nitrogen use efficiency (NUE) sits at a low average of 33 per cent, with most of the nutrient being lost via denitrification, leaching, runoff and volatilisation. Addition of SMNs to widely-used fertiliser formulations – and for specific crops and locations – creates the potential for higher NUE. The underuse of N is a similar story.

African soils hunger for SMNs

Soils in Africa, Eastern Europe and, to a lesser extent, the Middle East and South America, hunger for not only SMNs but also nitrogen and phosphorus. The impacts of underuse are at first obvious: if crops are not "fed," they will not grow. Over time, the planting of highest-calorie-per-acre crops (such as maize and rice) drain soil nutrients to the point of intense degradation. Application of the primary nutrients and best management practices (such as residue management and legume rotations) proved the foundation for reinvigorating these tired croplands, but optimal yields will only be achieved when SMN needs are met. Many of these nutrients enhance the efficiency of nutrient uptake by plant roots, especially of N and P – ultimately leading to healthier plants and larger yields.

Proper packaging enhances the effects of better uptake and, therefore, lessens environmental harm. Simply, innovative fertiliser packaging means rethinking the form in which nutrients are encapsulated and presented to plants. Currently, fertilisers are available in prill, granular powder, liquid and briquette forms, among others. Some of these are more efficient than other forms, but the VFRC believes significantly better improvements can be made. "We envision that future fertiliser research will advance from bulk engineering and chemistry to fine bio-nano-chemistry," said VFRC executive director Prem Bindraban. While packaging technologies this way may result in higher costs for farmers in the short run, overall, they will use less fertiliser – saving money and reducing fertiliser's environmental footprint. "This strategy may be particularly relevant for micronutrients that are required in small quantities but have high yield effects," said Bindraban.

The VFRC aims to create synergy between research organisations, universities and the private sector to lead the way in future fertiliser research and overcome the challenge of feeding nine billion by 2050 under exacerbating climate conditions. "Can it be done? Of course," Bindraban noted, "But we must collaborate with a sense of urgency and correct vision. Current fertiliser technology can be very effective if properly used. But we can certainly make future products more efficient." IFDC

Proper maintenance is particularly important for centre pivot systems because their many moving parts create more potential for breakages, and also because of the sheer volume of farmland which they can cover.

Centre pivots: the importance of proper maintenance

SINCE ITS INVENTION in 1940, centre pivot irrigation has become an increasingly popular choice for farmers around the world. Used from North America to Australasia and everywhere in between, this mechanised system enables people in environments as inhospitable as the Sahara Desert to grow crops, while also saving on labour and water compared to other methods. However, in order to maximise efficiency and take full advantage of the extensive range of benefits that come with using this system, proper maintenance is extremely important.

"The sole purpose of the pivot is to apply water to a crop," explained Kent Crawford, senior product support specialist at centre pivot manufacturer Valley Irrigation. "Failing to maintain machines can cause downtime and prevent growers from applying water when it is most needed and, as a pivot gets older and experiences more wear and tear, maintenance becomes even more essential."

The first and most obvious step towards achieving this [correct maintenance] is ensuring that the system is properly installed in the first place.

The importance of proper maintenance is also greater for centre pivot systems than with other irrigation methods, not only because their many moving parts create more potential for breakages, but also because of the sheer volume of farmland which they can cover. With a length of anything up to more than a kilometre, a seemingly minor fault towards the outside of a pivot can affect many hectares of crops.

Todd Merryman, manager of technical services at another centre pivot manufacturer, Reinke, explained: "Since the centre pivot irrigation systems can cover a large growing area, then you put more crops at risk if that system isn't maintained and kept in good operating condition." The first and most obvious step towards achieving this is ensuring that the system is properly installed in the first place – a fact which becomes even more important given the finely tuned, highly customised nature of centre pivot systems.

Properly installed, a centre pivot system can last for many years. (Image source: Valmont Industries Inc.)

"There is no such thing as a generic centre pivot irrigation system," said Merryman. "All modern centre pivot irrigation systems are highly customisable and therefore they have to be critically designed and configured for the application." Designers take a range of factors into consideration when creating a system for a particular piece of land, such as field size, soil type, intended crop and available water – including both the volume of water per minute and the water pressure available. "If they are not installed as engineered, it will definitely make a big difference. That's why they should always be installed by a reputable and knowledgeable crew who know what they are doing."

Properly installed, a centre pivot system can last for many years – Merryman told of one which is still functioning after 35 years in the field. However, to achieve this sort lifespan, as well as maximising crop yields during this time, there is a need for what Merryman called "preventative maintenance".

Preventative maintenance

"The idea of preventative maintenance is that an operator should never allow the system to get in such a bad state of repair that it is down for any particular reason," said Merryman.

"Proper maintenance can prevent problems from developing," agreed Crawford. "Key areas that require regular attention include gearbox oil levels and keeping clean oil, maintaining seals, and tightening electrical components and connections to prevent electrical problems. Regular maintenance of nozzles and regulators is also important."

Regulator springs can wear out over time and a number of problems can occur with individual sprinkler nozzles. Generally considered to have a lifespan of around ten years, the consensus is that issues with the nozzles are due more to wear than spontaneous malfunction. "There are two things that can happen with the sprinkler head," explained Merryman. "It can either have a leak because it's been broken off somehow, or it could be plugged."

One potential cause can be when water from lakes, rivers and other impure sources is used to feed the system and, over a

LOW PRESSURE-
HIGH PERFORMANCE

MANUFACTURERS OF
SPRINKLERS AND
PRESSURE REGULATORS

period of time, sediment and other debris accumulates to plug the nozzle. "Generally, good, clean, deep well water won't cause problems, but you have to consider that the orifice that the water comes through is very, very small, so it doesn't take anything that big to plug that up," Merryman said.

Alternatively, small pieces of debris can force their way through the orifice to create a larger hole, allowing more water out than was originally intended. If this occurs across the whole system, it has the potential to effect not only the crops being directly watered by the broken nozzles, but the entire field, as it could cause a reduction in system water pressure. Centre pivots are custom designed to take in and give out a certain amount of water at a certain rate. Increasing the flow rate of a significant number of sprinklers will therefore create a situation whereby the pre-determined water intake is unable to keep up with output, causing a knock-on effect on the other sprinklers.

"The outcome would be a less than desirable water pattern and will ultimately either over-water or, in most cases, under-water some of the crops," said Merryman. "So the operator won't have even watering across their field and will start to see areas that show stress due to under-watering."

It is important, however, to avoid temporary fixes.

The good news is that the majority of these issues can be easily prevented.

Nozzles should be checked regularly. (Photo: AgriLife Today/Flickr)

Regular checks for wear and tear

"The best way to avoid these problems is to regularly check for wear and tear," said Crawford. "We recommend checking nozzles after every 5,000 hours of use and at the beginning of every irrigation season." Sprinklers which are plugged, leaking or over/under-watering should be fairly easy to spot with a basic visual inspection. Plugged sprinklers can be remedied by simply cleaning out the nozzle, while broken units can be replaced at relatively little cost.

It is important, however, to avoid temporary fixes and ensure that any sprinkler heads are replaced as soon as possible with the appropriate, like-for-like model from the

manufacturer. "A temporary fix tends to become permanent," Crawford says. "If you put the wrong size nozzle on, it usually just stays there and, if enough of these temporary fixes occur, it affects the water application throughout the entire machine."

Temporary replacements can therefore create the very problems – incorrect water pressure, irregular watering patterns and over/under-watering – which replacing the nozzle was intended to prevent.

Leaks, if left unchecked, can cause a similar raft of problems. "The system and the sprinkler package is designed for a designated amount of water volume and pressure," said Merryman, "so leaks of any kind – whether its actually on the system or the plumbing that brings water to the system – are taking away from the water volume that the system was assumed to use." One or two small leaks shouldn't have too much of an impact, but they quickly add up. Again, the best way to avoid this is by performing regular visual checks on the equipment and fixing leaks as and when they occur.

Most centre pivot irrigation systems come equipped with pressure gauges to monitor water pressure, which can be useful – particularly for detecting leaks to underground piping which could not otherwise be seen with the naked eye. However, visual inspections are still vital because, as Merryman pointed out, "it will take a fairly sizeable leak before you notice the difference in pressure – we're talking probably about 100 gallons per minute lost before you start seeing much fluctuation".

Centre pivot irrigation can be used to grow crops in some of the world's driest environments, including in the Sahara Desert (Photo: Soil Science/Flickr)

Other important things to check include making sure grease fittings on drive trains and bearing points are properly lubricated, checking the voltage meter to ensure that the electrical power is staying within the operating parameters of the system, and checking for proper tyre inflation to prevent them from coming off the rim or causing the pivot to get stuck. "These are all things which can be easily checked by the operator," said Merryman.

However, for a comprehensive list of maintenance checks needed for a certain centre pivot model, operators should always consult the manual. "Specific preventative maintenance along with safety considerations is always outlined in the operator's manual for the irrigation system, regardless of the brand," said Merryman. "That should be followed very closely. It lays out the maintenance schedule – not only what needs to be done but over what time period – and will go a long way towards preventing any problems or outages in the field.

All the leading combine harvester manufacturers have introduced new or updated models for next year's crops, offering improvements to output and operating efficiency. Mike Williams reports.

New harvester developments

BOTH ROTARY AND conventional straw walker separation models have benefited from the improvements. Rotary separation has been gaining popularity, particularly on high capacity models for big acreages, but straw walker models are still the popular choice in African countries with about 60 per cent of the sales total according to figures from New Holland.

One of the recent arrivals in the New Holland harvester range is in the high output category and there is also an entry level addition to the popular TC range. TC models with straw walker separation are New Holland's most popular combines throughout Africa, and the new model is at the lower end of the scale for power and harvesting capacity. Called the TC4.90, it has four straw walkers instead of five in the other three TC models, and the maximum engine power is 175hp. The header width options are 3.96 and 5.18metres, the drum is 1.04 metres wide with 0.607-metre diameter and the grain tank capacity is 5000 litres.

New Holland harvesters with five straw walkers have maximum engine outputs from 175 to 258hp, the header widths are up to 6.10 metres on the top two models and the grain tanks hold 5200 litres on the TC5.70 with 6400 litres capacity on the TC5.80 and TC5.90 combines. A feature on all TC models is the double cascade cleaning shoe with a 450mm sloping pre-sieve plus an adjustable fan to provide increased capacity, and the options include a moisture sensor to help the operator fine-tune the settings to match changing crop conditions.

Straw walker models are still the popular choice in African countries.

Six models in the CR series

There are six models in the CR series with rotary separation based on the twin rotor system originally introduced by New Holland 40 years ago. The newest model is the CR10.90, the most powerful model in the range with a 653hp engine and equipped with a 14,500-litre grain tank and a choice of headers up to 13.7 metres wide. New Holland claims the 10.90 offers the highest output available, setting a world harvesting record with a 99.7 tph work rate in an independently verified eight-hour test.

Improvements to the Lexion 700 series combines feature in the latest developments from Claas. The first Lexion combines arrived in 1996 and there are five models in the latest 700 series for the 2016 harvest. Maximum power outputs are from 405 to 625hp using Mercedes-Benz engines in four models and a 503hp Perkins power unit in the mid-range 760 model. The 'Dynamic Cooling' system, previously restricted to the top three models but now included as standard equipment on all 700 series Lexion combines, automatically matches the cooling fan speed to the requirements of the engine. Reducing the fan speed in light load situations can mean power savings amounting to 15hp or more.

Lexion harvesters are equipped with the Claas Hybrid threshing system, combining the APS primary unit to begin the process while

The TC5.80 with five straw walkers is the best selling New Holland combine throughout Africa.

the Roto Plus system deals with the grains that are more difficult to extract. To maintain high levels of output in difficult harvesting conditions a new Automatic Crop Flow (ACF) control has been added to Lexion 700s to help identify peak loads and avoid threshing system blockages. ACF monitors the Hybrid threshing system and the engine speed, and it alerts the driver and automatically takes remedial action when pre-set load levels are exceeded.

Because of the increased output and cutting widths up to 12.3 metres, new straw chopping and spreading equipment is used on the latest Lexion 700s. The chopping drum width is increased to provide a more uniform flow of crop material and achieve a more constant chop length, and the extra width also distributes the chopped material more evenly over a bigger area. The spreader's previous hydraulic drive has been replaced by a mechanical system to achieve a more constant operating speed, and the spreader can now be controlled from the cab.

Developments in the John Deere range

Sales of combines with rotary separation have been increasing in Africa and there has been a big move away from straw walker machines, but the situation is not the same in all countries, according to John Deere. The biggest markets for the rotary machines are in countries with highly mechanised farming, and in some of these nearly all the medium and larger capacity harvesters are rotaries, but in other countries, where the market is dominated by smaller capacity machines, straw walker separation remains the popular choice.

John Deere sells a full range of combines in Africa from small tractor-powered trailed models to the big S series with single rotor separation, and their S series combines are currently the most popular models throughout Africa. In South Africa the S series has been the market leader for the last three years, and their market share is still increasing, according to John Deere.

Developments in the John Deere combine range are centred mainly on the W and T series models. Output increases of up to 15 per cent are achieved by a series of design changes that include the biggest active separation area and the largest cleaning shoe area available in this class of combine, and a faster unloading rate means the 11,000-litre capacity grain tank can now be emptied in less than 90 seconds, a 30 per cent improvement that can achieve better trailer utilisation.

The diameter of the main threshing drum remains unaltered at 660 mm, but the area available for active separation has been expanded by increasing the wrapping angle of the concave by eight

NEW HOLLAND AGRICULTURE

CASE IH AGRICULTURE

SPARE PARTS

AFRICA'S LARGEST CASE IH & NEW HOLLAND SPARE PARTS DISTRIBUTOR

- 15 000 SQ M UNDER ROOF
- 120 000 LINE ITEMS
- VERY COMPETITIVE PRICING
- RELIABLE LOGISTICS (48 HR DISPATCH FROM JOHANNESBURG)

LANDBOUPART
TREKKER ONDERDELE · TRACTOR PARTS

ONE OF THE LARGEST DISTRIBUTORS OF AFTERMARKET PARTS IN AFRICA. STOCKISTS OF PARTS FOR MASSEY FERGUSON, JOHN DEERE, PERKINS, FORD, FIAT AND CARRARO.

CONTACT:

Tel +27 11 922 2007 / 2105
Fax +27 (86) 219 7910
e-mail Fjacobs@nhsa.co.za

Web www.nhsa.co.za

Tel +27 11 922 2022 / 2009
Fax +27 11 922 2356
e-mail Rudibr@northmec.co.za

Web www.northmec.co.za

Tel +27 11 922 9205 / 9201
Fax +27 11 968 8216
email daniev@landboupart.com

Web www.landboupart.co.za

degrees. The diameter of the rear separator drum has been enlarged to 500 mm, said to be the biggest in the industry, and the separator grate has been redesigned to provide more openings and offer increased efficiency over a wider range of harvesting conditions.

A completely new cleaning shoe design provides 6 sq m of sieve area, among the biggest in this class of combine, but using aluminium to make the new shoe has avoided a weight increase. The fan has also been redesigned to simplify cleaning adjustments, and independent tests have shown that operators can easily achieve high work rates while keeping grain losses at a low level.

A new feature on the T series combines and on some W series models is a 40 kph travel speed, and tracks area now available as an option for reducing soil compaction and to allow the combine to work in soft ground conditions.

Grain separation with the single rotor system originally introduced by International Harvester on their Axial-Flow combines was one of the major developments in harvesting technology. The number of Axial-Flow combines sold so far under the International Harvester and Case IH brand names totals well over 150,000 and the line-up for the 2016 season includes three updated 140 series models offering improved performance, operator comfort and reliability.

The Case IH Axial-Flow models covered by the design changes are the 5140 powered by a 6.7 litre engine producing 312hp maximum output, and an 8.7-litre engine in the 6140 and 7140 models delivers up to 400 and 449hp respectively. The specification changes include a new six auger bed positioned just behind the rotor to replace the five augers used previously, providing increased capacity to convey crop material to the sieves. There is also a new Cross Flow Cleaning System to provide automatic compensation and optimum grain flow while working on side slopes. The Cross Flow feature, which can be switched off when not needed, can compensate for up to a 12- deg slope and maintain optimum output while working on steep land.

Changing between chopping or swathing the crop residue can now be managed from the operator's seat or by using electrical switches mounted on the side of the combine, and there is also a switch control to adjust the speed of the crop chopping unit. The grain and tailings augers are now easier to clean when moving into a different crop, and the concave consists of six smaller and lighter elements to make it easier and quicker to change the setting between crops. Another development includes rubber track options to reduce soil compaction while working in soft ground conditions, with 610, 762 and 900 mm track widths available.

With the Case IH Axial-Flow models changing between chopping or swathing the crop residue can now be managed from the operator's seat.

John Deere W series harvesters like this 330 model benefit from design improvements to increase output by up to 15 per cent.

The 7344 model is one of two new entry-level models in Massey Ferguson's small to medium capacity Activa combine range.

There are two new models in the small to medium capacity Activa harvester series from Massey Ferguson, including an entry-level 7340 combine powered by a four-cylinder engine. The 4.91-litre engine in the 7340 develops 176hp, and using four cylinders instead of the usual six for this power output reduces friction and other power losses for improve fuel efficiency, the makers say. The new Activa model has five straw walkers and is the replacement for the Activa 7240. It has new operator controls plus a redesigned sectional concave to allow a quicker changeover between different crops. It is also equipped with a 600 x 1340 mm cylinder giving the largest separation area in this class of combine.

The updated controls and the improved concave design also feature on the new Massey Ferguson Activa 7344 combine that replaces the previous 7244 model. It also has five straw walkers, but the engine has six cylinders with 218 hp output produced from 7.4 litres. And it is available with a new 5.5m PowerFlow header.

Specification improvements to the Activa S series

Specification improvements to the Activa S series combines with five and six straw walkers and with engine outputs from 243 hp upwards include a faster discharge speed for emptying the grain tank, and a longer discharge auger is available to simplify grain unloading. The options list also includes a new 9.2-metre wide header with a SuperFlow auger and quick adjustment facility.

This year's addition to the Deutz-Fahr harvester range is the compact C6000 series that replaces the previous 6040HTS combine. The new series is based on the standard C6205 model plus a TS version equipped with a Turboseparator to boost the work capacity by about 20 per cent. Both versions have a separation system with five straw walkers and a special feature is the Double Grain Return or DGR cleaning system that helps to reduce grain losses and is a unique Deutz-Fahr feature. Options for the C6000 series include a segmented concave that simplifies adjustments to the settings when changing to a different crop.

The power unit for the C6000 series is a 6.1-litre Deutz engine with 250 hp maximum output, and the specification includes a 7000-litre capacity grain tank instead of 6500 litres on the previous model. The discharge rate is 75 l/sec. There are four standard grain header options offering widths from 4.2 to 6.3 metres, and special header equipment is available for harvesting sunflowers.

Information on the C6000 combines' quality of work is constantly monitored by the Deutz-Fahr Combine Control Management or CCM unit. This provides instant access to data that can help the operator to maintain optimum harvesting performance in varying crop conditions.

The world's biggest trade show for agricultural machinery and equipment, Agritechnica 2015, is fast approaching with exhibitors keen to present their new products to the agricultural industry. African Farming attended the Agritechnica 2015 Show Preview ahead of the show set to take place from 10-14 November 2015 in Hannover, Germany.

Agritechnica - the world's largest trade fair for agricultural machinery

THE 2015 AGRITECHNICA show preview took place at the Hannover Convention Centre, welcoming both journalists and exhibitors. African Farming took a sneak peak at the latest agricultural innovations from the exhibitors taking to the stands at Agritechnica 2015.

New Holland's big baler, T7-315.

New Holland

The T7 Heavy Duty tractor from New Holland will be launched in 2016, with two new models - the T7290 and the T7315 - on display at Agritechnica this year. T7 tractors offer New Holland's ECOBlueTM SCR technology for Tier 4A compliance, providing up to 19 horsepower more power and 139Nm of torque over the existing T7000 range. With Engine Power Management, up to 51hp extra is available for maximum productivity.

New Holland's twin rotor combines CR10.90 boasts the 'Diesel Engine of the Year 2014' which delivers epic power and in-field response.

Klaus Senghaas at New Holland told African Farming, "We also have CR combines - twin rotor combines - which we launched last year. We are launching some new engines for this CR combine, we also need Tier 4 final standards for the CR."

AGCO is hugely active in Africa nowadays but of course the connection we have is through Massey Ferguson.

AGCO - Massey Ferguson

Massey Ferguson will exhibit its 50,700 tractor at Agritechnica, which comes with the very latest emission technology, enabling clean air to leave the machine's exhaust. According to Campbell Scott at Massey Ferguson, while Africa's agricultural sector is still developing, in the near future machines such as the 50,700 will be needed.

"Africa is not in that league yet but I think that it will be something that will come fairly soon. These mowers and implements we already sell in South Africa and we're going to expand them into the rest of the region - so on this occasion Africa is leading. We could arrange new improvements for our combine harvesters and balers as well," Campbell told African Farming.

"AGCO is hugely active in Africa nowadays but of course the connection we have is through Massey Ferguson."

Speaking of this year's show Campbell added: "Agritechnica is very important - more than just a German show. For us its one of the key places to showcase what's here for Massey Ferguson.

"At Agritechnica we will have a technology tour. We believe today about 30 per cent of our customers get the best from their products that they have already paid for. And 70 per cent don't. There's things in the products that they don't use and we're going to try to show them how the combination of Massey Ferguson plus our partner technology can help them become more efficient."

Pottinger

The Pottinger Synkro cultivators have been developed to provide optimum stubble cultivation, and are suitable for both shallow and deep soil preparation. The machine has been designed to offer low drag and low power requirements. While the TerraDisc compact disc harrow has also been created specially for stubble cultivation and seedbed preparation. The TerraDisc rigid compact disc harrows - offer 3, 3.5 and 4 metres working width. Terradisc K features folding compact disc harrows 4, 5 and 6 metres working width and TerraDisc T trailed compact disc harrows measure 4,5 and 6 metres working width.

"The Synkro stubble cultivators and the disc harrows are machines we are already selling in Zambia and South Africa," a representative at Pottinger told African Farming.

"We had a Pottinger day where we invited farmers to Zambia - it was really interesting. We would like to have a closer look at the African markets. We see a big potential for the future because there is a lot of land which can be used and a lot of people."

Merlo

Merlo Group has developed a new range of products based on the same technologies, but with more compact dimensions. The firm is launching its new TF33.7 and TF 30.9 range of compact telehandlers. This new range features technologies and performance levels that are also featured in the superior product ranges.

The TF33.7 and TF30.9 will also be available in the L

PROVEN & DEPENDABLE™
GRAIN AND POULTRY SOLUTIONS

EXPLORE THE WORLD OF BULK MATERIAL AND ANIMAL MANAGEMENT SOLUTIONS

VISIT AGRITECHNICA AND STOP BY AT GSI'S BOOTH TO LEARN MORE ABOUT OUR:

- Expanded drying solutions offering
- New Material handling solutions for farm applications
- Storage solutions for any application
- Complete animal management systems

AGRI TECHNICA
The World's No.1

Visit GSI in Hall 20 (20B08c) at the AGCO booth

WWW.GSIAME.COM

PROVEN & DEPENDABLE™

version (low profile), with a height of just two metres, while at the same time maintaining the same cab as the standard models.These models have been developed using the same cab as the models of the superior ranges, ensuring better comfort, a maximum speed of 40 km/h, and the possibility of approval for agricultural use.

John Deere

John Deere has expanded its range of mid-size 6R and 6M Series tractors, now with a total of 14 new four-cylinder and large frame six-cylinder models with Stage IV/Final Tier 4 engines from 110 to 195hp to replace the current Stage IIIB/iT4 compliant models.

While the 6R is readily available, the 6M will be on the market from November 2015. These enhanced tractors feature better manoeuvrability, enhanced operator comfort, a wide choice of transmissions and the option of up to six SCVs. The new 6R Series four-cylinder premium tractors feature 4.5-litre John Deere PowerTech PSS engines. The six-cylinder versions, however, are equipped with 6.8-litre John Deere PowerTech PVS engines. All new 6R Series tractors are installed with John Deere's intelligent power management system (IPM), which adds 15 to 31hp on the four-cylinder models and 47hp on the six-cylinder versions.

JCB recently announced that it will also unveil new developments to its Loadall range.

JCB

The Fastrac tractor range offers full front and rear suspension for both comfort and traction. G External disc brakes provide excellent heat dissipation and better performance than the oil-immersed systems seen on conventional tractors.

"Fastrac tractors with four equal sized wheels are used in the sugar cane markets for hauling big trailers full of cane," said Nigel Chell at JCB.

Other agricultural machinery on offer from JCB include compact backhoe loaders and telescopic handlers. According to Chell, JCB's small compact backhoe - the 2DX - is 50hp, which he noted has become increasingly popular.

"Its entry level price makes it more affordable than the traditionally European style of machinery."

In Africa JCB revealed that its focusing on building its dealer network, with last year the firm introducing a new dealer in South Africa called Agrico - a company that produces very large tractors, farm implements and irrigation equipment. According to JCB, previously it did not have an agricultural dealer in the region, however Agrico has about 22 outlets. In the meantime, Chell stated that the firm is appointing new dealers in Zambia, Zimbabwe and Botswana.

"In some of the countries we have a construction network who have access to the agricultural machinery but history tells us dedicated agricultural dealers do the job much better," Chell said.

JCB recently announced that it will also unveil new developments to its Loadall range at Agritechnica 2015. The company's agriculture MD Richard Fox-Marrs said, "Agritechnica is a key date in the industry calendar and we are delighted to be showing some of the innovative developments to our Loadall product, which is the world's biggest selling agricultural telescopic handler."

SAME Deutz Fahr's 5G series is a range of incomparably efficient tractors, which are suitable for a variety of applications.

Lemken

The Azurit precision seeder was presented as a prototype at Agritechnica 2013 and now the company has launched the pre-production machine of its blue Azurit, which follows the 'DeltaRow' concept. The DeltaRow system clearly differentiates Lemken technology from traditional approaches, in which seeds are placed in single rows. The team at Lemken have opted for two staggered twin rows spaced 12.5 cm apart. This enables individual plants 70 per cent more surface area for growth and provides better access to water and nutrients. The Azurit allows maize, soya beans, sunflowers and rapeseed to grow with great precision and efficiency at forward speeds of up to 15 km/h.

SAME Deutz Fahr

SAME offers the Frutteto family with a new front axle suspension system with independently sprung wheels. Although this is a technological system usually seen only on higher horsepower tractors, SAME has now brought this to its specialised smaller tractors for fruit orchards and vineyards.

Providing farmers with a comfortable driving position, it features two hydraulic cylinders, a system allowing the suspension arms to pivot unassisted on the front and a suspension carrier. A speed sensor, a steering sensor and three nitrogen accumulator tanks also contribute to driver comfort and vehicle stability whether working in the field or driving at high speed on the road.

Case IH showcased tractors at Sahara Expo

CASE IH EXHIBITED products from three of its tractor series during its first participation in the recently concluded Sahara Expo in Egypt. On display at the Case IH stand, which it had with its distributor ECAD, the company showcased the Steiger 500 model from the Steiger series, which comes with high horsepower and is designed for large-scale farming. Next to it was the Puma 180 model from the Puma series of multipurpose tractors, designed to handle a variety of tasks in mid-sized livestock and farm operations. The third tractor on display was the JXT75, which is aimed at small-scale farmers looking for a versatile machine.

The Steiger 500 model.

Speaking about the agriculture sector in Egypt, Nadir Ekiz, product marketing manager for Africa and the Middle East at Case IH, said, "Agriculture is still a significant contributor to Egypt's economy and despite the small area of arable land available, the country's agricultural sector is one of the most productive in the world." Ekiz said that the company is ready to answer the demand for advanced farming equipment and keep pace with the market's productivity needs. "Our tractors are specifically designed for helping our customers to get the job done efficiently and cost-effectively, exactly the way they want to and whatever the size and type of their farms," he added.

Cargill, IDC ink mill deal

CARGILL AND THE Industrial Development Corporation (IDC) have signed a memorandum of understanding (MoU) to engage in discussions to set up mini mills in various areas of rural Zambia.

Recently Cargill launched the Chipata mini mill in Eastern Province as a pilot project to explore the establishment of further mills.

According to a recent statement, Cargill's general manager in Zambia, Lezanne van Zyl and IDC CEO, Andrew Chipwende, signed on behalf of their respective organisations.

''Cargill's mini-mill project with IDC will evaluate the viability of smaller commercial dry maize mills in the Eastern and Northern provinces and together the two companies believe the mini mill project has potential for expansion beyond Chipata,'' the statement reads in part.

The statement says Cargill is investigating how best to expand its assets footprint and believed by strategically placing smaller processing plants could leverage its existing small-scale farmer origination capabilities with the merchandising and supply chain expertise.

Cargill is also expanding into other areas north of Chipata, serving the communities in smaller urban places, necessitating for the model to be tested for the benefits it may bring to smallholder farmers.

In another development, Cargill has launched Sungani Banja (translated as 'Look after the family), a barter scheme that will offer local farmers the option to exchange their maize for mealie-meal when they use its mini-mill in Chipata.

The system works by providing farmers with coupons to the value of their crop, which they can redeem for mealie-meal.

The Sungani Banja offering comes in the wake of Government's appeal for the private sector to get involved in improving food security across the country by providing reliable, affordable and sustainable sources of food for the Zambia populace, especially in rural areas.

Nawa Mutumweno

New Holland Agriculture delivers 50 TS6000 2WD tractors to Kenya's Butali Sugar Mills


The Butali fleet.

NEW HOLLAND DISTRIBUTOR, CMC Motors officially handed over 50 TS6000 2WD tractors to Butali Sugar Mills Ltd (BSML) in a ceremony held in July at the customer's factory in Western Kenya. These units will join the company's fleet of more than 200 New Holland 90 horsepower TS90 and TS6000 tractors.

BSML has a raw cane crushing capacity of 2,500 TCD (tonnes crushed per day). The mills are fed by 30,000 contracted farmers scattered within the Western Sugarcane belt. To collect the cane from the farms, BSML runs a fleet of 200 New Holland tractors pulling sugarcane wagons, with each unit operating 20 hours per day spread over three shifts. With the addition of the fifty new units, BSML owns the biggest fleet of TS6000 2WD tractors in sub-Saharan Africa.

The TS6000 tractors run a powerful intercooler turbocharged four-cylinder engine that delivers high torque rise and requires less maintenance. They are available with a choice of mechanical transmissions: an Econoshift transmission with 24 forward and six reverse speeds and a synchro command simple and robust transmission with 12 forward/reverse speeds fully synchronised in three ranges. The single-piece front drive axle efficiently transfers power to the ground and the rear axle is designed for maximum performance and durability. The hydrostatic steering with independent high-flow hydraulic pump ensures safe and precise manoeuvrability. The operator compartment with a wide platform and simple to operate controls provides an ergonomic and comfortable work environment that reduces operator fatigue.

Sanjay Patel, managing director and CEO of BSML, is enthusiastic about the New Holland TS6000 Series tractors: "We work our tractors hard, ferrying sugarcane from the fields to our mill on a daily basis with a radius of 30 km around the factory. The robust design of this tractor and the modifications made in the TS Series over the years, especially keeping the mechanics simple to operate and maintain, have made this tractor ideal for our business. We renew our fleet regularly – in fact, our units are never more than five years old. We have a long history of business with New Holland and have owned New Holland tractors for many years."

CMC Motors supports Butali Sugar Mills' operation from its Nairobi and Kisumu branches with its team of professional

African Farming and Food Processing

2016 WALLPLANNER

double vertical AD

W 95 mm x H 205 mm

SOLD

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	
MON			1								1 All Saint's Day		MON
TUE			2			1					2		TUE
WED			3			2			1		3		WED
THU	1 New Year's Day		4	1		3	1		2		4	1	THU
FRI	2		5	2		4	2		3	1	5	2	FRI
SAT	3 Birthday of Prophet Muhammad (Mawlid an-Nabi)		6	3 Good Friday	1 Labour Day	5	3		4	2	6	3	SAT
SUN	4	1	7	4	2	6	4	1	5	3	7	4	SUN
MON	5	2	8 International Women's Day	5	3	7	5	2	6	4	8	5	MON
TUE	6	3	9	6 Easter Monday	4	8	6	3	7	5	9	6	TUE
WED	7 Orthodox Christmas Day / Ethiopian Christmas Day	4	10	7	5	9	7	4	8	6	10	7	WED
THU	8	5	11	8	6	10	8	5	9	7	11	8	THU
FRI	9	6	12	9	7	11	9	6	10	8	12	9	FRI
SAT	10	7	13	10	8	12	10	7	11	9	13	10	SAT
SUN	11	8	14	11	9	13	11	8	12	10	14	11	SUN
MON	12	9	15	12	10	14	12	9	13	11	15	12	MON
TUE	13	10	16	13	11	15	13	10	14	12	16	13	TUE
WED	14	11	17	14	12	16	14	11	15	13 Islamic New Year	17	14	WED
THU	15	12	18	15	13	17	15	12	16	14	18	15	THU
FRI	16	13	19	16	14 Ascension Day	18	16	13	17	15	19	16	FRI
SAT	17	14	20	17	15	19	17	14	18	16	20	17	SAT
SUN	18	15	21	18	16	20	18 Eid al-Fitr (End of Ramadan)	15	19	17	21	18	SUN
MON	19	16	22	19	17	21	19	16 Assumption Day	20	18	22	19	MON
TUE	20	17	23	20	18	22	20	17	21	19	23	20	TUE
WED	21	18	24	21	19	23	21	18	22	20	24	21	WED
THU	22	19	25	22	20	24	22	19	23 Arafat Day (Feast of Sacrifice)	21	25	22	THU
FRI	23	20	26	23	21	25	23	20	24	22	26	23	FRI
SAT	24	21	27	24	22	26	24	21	25	23	27	24	SAT
SUN	25	22	28	25	23	27	25	22	26	24	28	25 Christmas	SUN
MON	26	23	29	26	24	28	26	23	27	25	29	26 Boxing Day	MON
TUE	27	24	30	27	25 Africa Day	29	27	24	28	26	30	27	TUE
WED	28	25	31	28	26	30	28	25	29	27		28	WED
THU	29	26		29	27		29	26	30	28		29	THU
FRI	30	27		30	28		30	27		29		30	FRI
SAT	31	28			29		31	28		30		31	SAT
SUN		29			30			29		31			SUN
MON					31			30					MON
TUE								31					TUE
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	

double vertical AD

W 95 mm x H 205 mm

vertical AD

W 95 mm x H 100 mm

SOLD

vertical AD

W 95 mm x H 100 mm

SOLD

vertical AD

W 95 mm x H 100 mm

vertical AD

W 95 mm x H 100 mm

double horizontal AD

W 195 mm x H 100 mm

double horizontal AD

W 195 mm x H 100 mm

RESERVED

half horizontal AD

W 300 mm x H 100 mm

The 2016 **African Farming and Food Processing** Wall Planner, printed on high quality paper in large A1 format, will have a prominent position in the offices of farm managers, importers, distributors, government officials and other stakeholders and investors in agriculture throughout Africa.

Each and every one of our **10,744** subscribers in Africa will receive their own personal copy of the 2016 Wall Planner with this year's November/December issue of the magazine and copies will also be sent to **361** individuals overseas making investment decisions in Africa.

Showcase your brand, products and events to key buyers in Africa's agricultural sector.

Advertising spaces are limited and selling fast, so act now!

For further information, please contact

richard.rozelaar@alaincharles.com or

call +44 207 834 7676

Alain Charles Publishing
Serving the world of business

MENA: +971 4 448 9260 | **ASIA:** +91 80 6533 3362 | **USA:** +1 203 226 2882 | **EUROPE:** +44 20 7834 7676

E-mail: post@alaincharles.com | **Web:** www.alaincharles.com | www.africanfarming.net

Indo Farm Equipment looking to expand in Africa

INDIA'S INDO FARM Equipment is one of the fastest growing companies in the field of agricultural mechanisation and construction equipment in India.

The company started with a single objective: to manufacture an agriculture tractor that every farmer can afford and get the maximum output.

The company is engaged in manufacturing and marketing of agricultural tractors, pick n carry cranes, engines, diesel power generators and combine harvesters as well as various other agricultural implements. The company has been in business for almost two decades.

It has a state-of-the-art manufacturing facility spread over an area of 14 hectares with installed capacity of 12,000 tractors, 2,400 cranes, 300 combine harvesters, 20,000 engines and 6,000 generators per annum. There is an in-house foundry equipped with induction furnaces in order to ensure better quality.

Presently the company is exporting to more than 40 countries around the globe. To continue this growth it is looking for exclusive business partners in various African countries, who can provide sales, service, spares and stock. In return Indo Farm will provide its best possible support to establish the market for its product line and to make farmers happy and satisfied.

www.indofarm.in

The new multipurpose tractor from MF

MASSEY FERGUSON HAS launched three new Cab Tractor models in the MF 4700 Series. These class-leading 75hp, 85hp and 95hp standard farm tractors are the first completely new tractors to have been developed in recent times specifically for this highly demanding multi-purpose sector.

Designed and built using the latest computer-aided design and manufacturing techniques, these three new models offer the most up-to-date equipment and specifications in their class to exceed the wide range of requirements of these varied and multi-purpose users.

"Designed by engineers in Massey Ferguson's Beauvais facility, the MF 4700 Series are not only completely new tractors, they also introduce an entirely original concept in modern tractor development," said Campbell Scott, director marketing services.

"The MF 4700 are the first, and only, tractors available that have been designed in the 21st Century to deliver the straightforward, rugged and reliable operation for users in the 75hp to 130hp sector.

"They not only introduce modern technology to this size of tractor for the first time, but they are also purpose-built for this important sector. And, of course, they benefit from over half a century of Massey Ferguson's experience of producing pioneering, straightforward and dependable tractors," he added.

ADVERTISERS INDEX

INDO FARM EQUIPMENT LIMITED
An ISO 9001:2008 Certified Company

BUSINESS OPPORTUNITY

Stepping towards green revolution around the World...
Be a part of Indo Farm and Green revolution


Plant spread over 34 acres


World Class Engine Assembly


Modern Foundry unit spread over 5 acres


State-of-art Machine Shop having CNC and SMPS machines

- India's fastest growing tractor company
- Indo Farm tractors 26 HP to 90 HP wide range
- Best in farming and commercial works
- Our tractors are made with latest technology including features like synchromesh gear box, epicyclic reduction, straight axle, power-steering, wet brakes, multi speed PTO, Dual DC Valve and 4 wheel drive etc.
- Indo Power 9 to 23 tonnes pick 'N' carry hydraulic mobile cranes
- Agricom harvester combines track driven axial flow and straw walker
- Indo Farm rotary tiller 5 to 8 feet
- More than 250 dealers network in India
- Export to over 40 countries

We use 100% World Class Brands

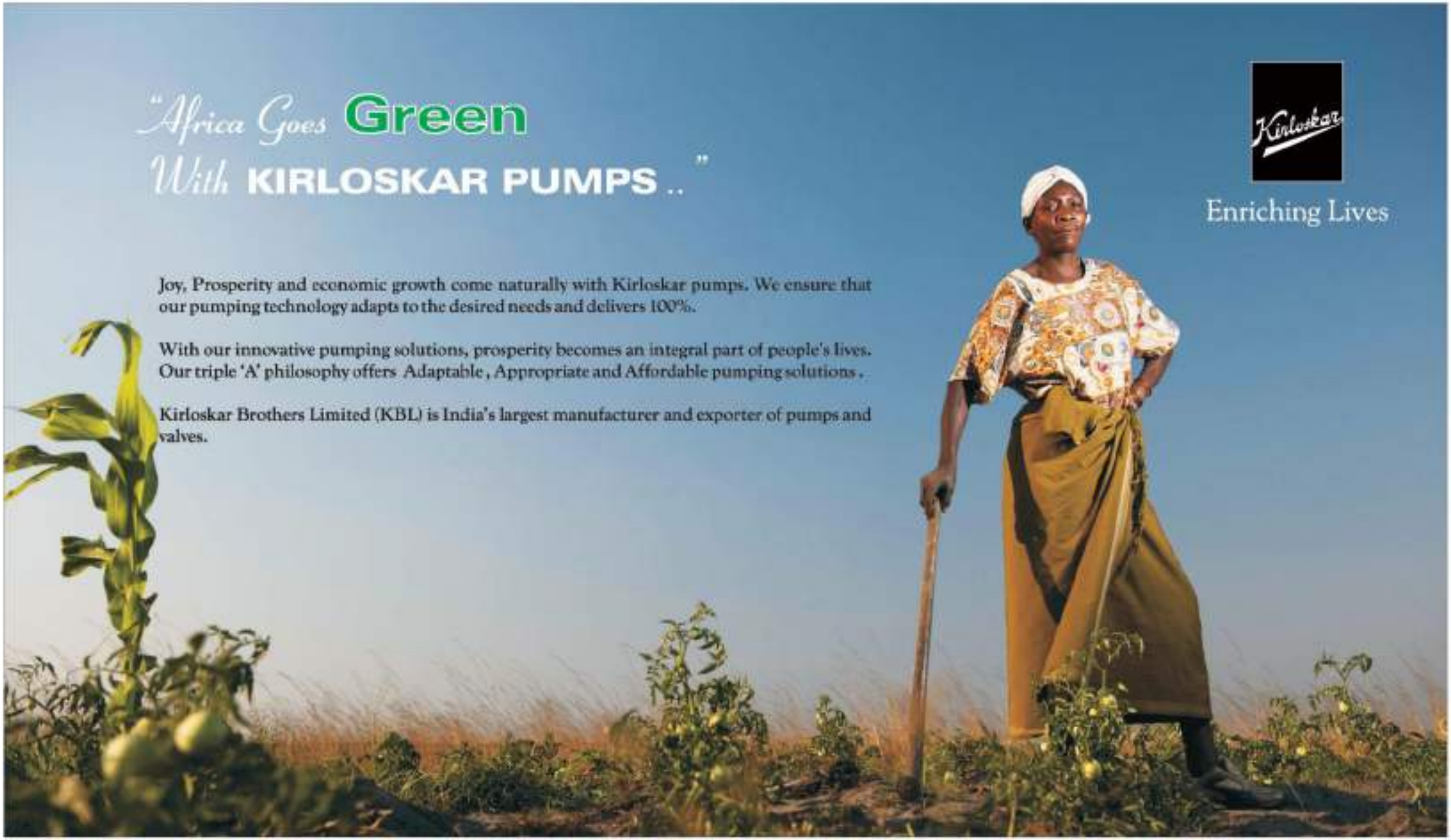
MRF, Exide, Bosch, Luk, TVS, Sigma/Talbros, Carraro Italy.

India's Most Fuel efficient Tractor

Export to more than 40 Countries

Please contact for Import enquiries and Distributorship :

+91-92185-23404, +91-92185-23538 | exports@indofarm.in, rajeevpandey@indofarm.in | www.indofarm.in



Pumps | Valves | Motors | Hydro Turbines | Turnkey Projects

Water Resource Management | Irrigation | Power | Industry | Gas, Oil And Defense
Building & Construction | Distribution | Customer Service & Spares

KIRLOSKAR BROTHERS LIMITED

e-mail: kblin@kbl.co.in | website: www.kirloskarpumps.com