

African Farming

and Food Processing

Europe €14.50 - Ghana C1.3 - Kenya KSH150 - Nigeria N200 - South Africa R18 - UK £9 - USA \$15

Tea production

New clones of green tea for Kenya

Poultry

Raising broiler performance

Fertigation

Soft touch nematode control
via irrigation



John Deere's new R4040i sprayer has a 4000-litre tank and up to 36m boom width. [p24](#)

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Farming Calendar 2015

January

9-11	FIAAP International www.victam.com	COLOGNE
9-11	VICTAM International www.victam.com	COLOGNE
9-11	GRAPAS International www.victam.com	COLOGNE
13-15	International Crop Production Show (SIVAL) www.sival-angers.com	ANGERS
27-30	IPM Essen www.ipm-essen.de	ESSEN
28-29	AgriBusiness East Africa www.agri-eastafrica.com	DAR ES SALAAM

February

25-28	Sudan Poultry Expo www.expoteams.com	KHARTOUM
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March

9-11	Global Forum for Innovations in Agriculture www.innovationsinagriculture.com	ABU DHABI
22-25	AgriBusiness Forum www.emrc.be	DRC

April

14-16	AGRIKEXPO 2015 www.agrikexpo.com	LAGOS
15	International Poultry Exhibition www.fieravicola.com	FORLI

Grain and pulses sector for Africa met in Ethiopia

THE AFRICAN GRAIN Congress in Addis Ababa was opened by Ethiopia's state minister Wondyirad Mandefro, ambassador of the Turkish Republic, Osman Riza Yavuzalp and general director of Parantez Group Zübeyde Kavraz.

Overseas director of Parantez Group Fethullah Akatay made a speech at the opening drawing attention to the future potential of Africa: "While access to nutrition is getting more alarming every single day, Africa still has a very significant potential within its own sources because many countries in Africa have very large agricultural lands and highly convenient climates and soil specifications with respect to agricultural production. This indicates the potential in the food industry for many African countries based upon grain and pulses. The fact that this is understood better nowadays requires us to show special attention to this continent."

Entire diversity of plants to be shown at IPM Essen

INTERNATIONAL, TOPICAL AND market-encompassing - IPM ESSEN is the only fair in the world to present the entire diversity of plants, the organisers claim. From 27-30 January 2015, the sectoral meeting will take place at Messe Essen for the 33rd time. Over 1,500 exhibitors will show their portfolios of products and services: from the newest plant breeds via innovative technology and floristry equipment to marketing services. The world's premier horticultural fair will not only be the number-one ordering platform but also a pioneering trendsetter and an important source of impetus for the global green sector. In addition there will be a fully comprehensive programme, say the organisers, with live floral shows, prize presentation ceremonies and informative forums will await the top-class international trade visitors.

GRAPAS flour milling and grain processing event rolls on

THE GRAPAS INTERNATIONAL 2015 trade show and conference is set to be the biggest yet. Already many major international companies have signed up to participate in the show that is taking place in Cologne, Germany from 9-11 June 2015.

Millers will come from all over the world to join senior colleagues in viewing the many specialist exhibits that will be on display in this ever growing trade show. Co-located with FIAAP & VICTAM International exhibitions, the event will comprise approximately 250 international exhibitors. The GRAPAS exhibits will contain the very latest technology used within flour and rice mills and grain processing plants. Also on display will be a wide range of auxiliary equipment and systems such as silos, conveyors, cooler/dryers and magnetics. 'The Global Milling Conference with GRAPAS 2015' is set for 11 June, on the last day of the three-day GRAPAS exhibition.

World's largest dedicated feed ingredient and production trade shows and conferences

FIAAP AND VICTAM INTERNATIONAL comprises two trade shows and a series of technical conferences. Up to 250 exhibiting companies from all over the world will be attending the shows in Cologne from 9-11 June. The latest developments within the specialist ingredients and additives that are used in the processing of feeds will be shown at FIAAP.

Whilst in the VICTAM show visitors will be able find a wide range of the latest available specialist technology for use within an animal feed processing plant/mill. Senior industry executives attending the event will be able to see and touch the great variety of equipment that will be on display at the show. This will include anything from a pellet mill or an extruder to a silo or delivery truck, in fact anything required within a feed mill. The range of equipment on display will be enormous.

During the FIAAP show the 6th annual Feed Ingredient and Additive (FIAAP) Conference will take place on 9 June. The FIAAP conference will showcase the latest and best technologies related to ingredients and additives used within the formulation of animal feeds presented by researchers and thought leaders from around the world.



Multi-tier broiler colony system

THE BROMAXX MULTI-TIER broiler colony system offers an efficient way of growing a uniform and healthy broiler flock with perfect meat quality. The FlexFloor slats let manure pass through easily and provide birds with a comfortable living surface. Breast blisters and foot pad dermatitis do not occur. Manure belts transport manure out of the house resulting in a much healthier air environment. Good health of broilers automatically leads to better growth, less use of antibiotics and optimised production of more flocks per year. Jansen Poultry Equipment



has designed a new feed distribution system that guarantees the supply of feed to all broilers in all compartments, regardless of the number of birds in the house and/or the weight of the broilers. The system consists of a special feed chain and supply mechanism that will provide every row and eventually every single feed pan with sufficient feed, according to the company. Jansen has also developed a water registration system that only measures water that is being used for consumption by birds as this is the most important necessity of the broilers life.

New project to boost Ugandan banana production

MILLIONS OF SMALLHOLDER banana farmers in Tanzania and Uganda are set to benefit from a new US\$3.8mn project to develop and distribute higher-yielding, disease-resistant hybrid banana varieties. The effort is being funded by a grant from the Bill & Melinda Gates Foundation to the International Institute of Tropical Agriculture (IITA). Rony Swennen, a professor at KU Leuven and head of banana breeding at IITA, is leading the project.

Bananas are both a food staple and an economic backbone in East and Central Africa, where over half of all cultivated land is planted with bananas. Uganda and Tanzania produce over 50 per cent of all bananas grown in Africa. The region's yearly banana crop is valued at US\$4.3bn.

However, in Uganda and Tanzania banana production achieves just nine per cent of its potential yield due to pests and diseases, posing a serious threat to the future sustainability of banana production in the region.

A new five-year project aims to dramatically upscale and speed up existing banana breeding efforts in the two countries. The researchers expect their hybrid banana varieties to have a 30 per cent higher yield and a 50 per cent higher resistance to at least three of the target pests and diseases compared to the current varieties grown by the farmers under the same on-farm conditions. The varieties will also meet over 90 per cent of the quality traits for consumers found in the current cultivars, say the researchers.

The project builds on a very successful collaboration between IITA and Uganda's National Agricultural Research Organization (NARO), which culminated in the development of the first 26 high-yielding, and disease-resistant hybrid varieties, called NARITA varieties. The project will also support the on-farm testing of these hybrids in Uganda and Tanzania, will improve the technical capacity of the breeding programmes in the region, will strengthen partnerships with farmers, and will develop local human capacity by supporting eight PhD projects and five MSc research projects.

The IITA, Bioversity International and the CGIAR Research Program on Roots, Tubers and Bananas are also providing substantial co-financing.



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Mobile technology to boost harvest

GHANA-BASED TECHNOLOGY provider Farmerline has announced its plan to provide 500,000 small-scale farmers access to mobile technology to help improve their harvest in West Africa by 2019.

Farmerline has joined the Business Call to Action to improve the livelihoods of small-scale farmers of West Africa. This is a global platform, that motivates companies to develop business models for developmental purposes. The company also plans to provide a specialised mobile communication and data-collection platform to 5,000 agricultural organisations and agribusinesses in the next five years.

Alloysius Attah, CEO of Farmerline, said: "The company is working to bridge the information gap that many farmers face in accessing expert agricultural information and real-time data support. Our commitment to the Business Call to Action underscores our interest in promoting greater information for the agricultural sector and providing more reliable services and technology to meet the needs of rural farmers, most of whom are women."

He added that Farmerline will provide information about markets, financing, weather forecasts and agricultural services to farmers using mobile phones. Sahba Sobhani, acting programme manager at Business Call to Action, noted, "Greater access to agricultural information using the mobile phone is a vital instrument for farmers in key underserved markets, and opening up crucial access to real-time information helps farmers increase their productivity."



A farmer listening to a Farmerline message. Image: Farmerline

New Africa-wide programme to boost seed sector

A NEW AFRICA-wide programme aiming to support the development of a vibrant, market-oriented and pluralistic seed sector in Africa was launched in September in Nairobi. It will use an Integrated Seed Sector Development (ISSD) approach to address the challenges.

The ISSD approach is endorsed by the African Union Commission as contributing to the implementation of the African Seed and Biotechnology Program (ASBP) and the seed agenda of the Comprehensive Africa Agriculture Development Program (CAADP).

The Comprehensive Programme on Integrated Seed Sector Development in Africa (ISSD Africa) aims to enhance reliable access of smallholder farmers to sufficient quantities of quality seed of superior varieties at the right time and at an affordable price. The programme will be conducted in phases.

The Piloting Phase of ISSD Africa - running from September 2014 to August 2016 - will contribute to the development of the five-year Comprehensive Programme and will work with existing seed programmes in eight to 10 countries to explore how seed sectors can be integrated at a local and national level. The organisers hope to draw lessons that will inform international dialogues on seed policy.

Four priority themes have been identified:

- Promoting entrepreneurship in the seed value chain
 - Access to varieties in the public domain
 - Matching global commitments with national realities
 - Supporting African Union programmes and seed sector development
- Addressing these themes will be done through action research, innovation trajectories, policy dialogues, capacity strengthening, and joint learning in eight to 10 pilot countries.

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Used Mado 15 litre Bowl Cutter
Used Rex 200 litre S/S Bowl Cutter & Bowl
Used Rex 45 litre Bowl Cutter black bowl

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Used Weiler 878 Mix Grinder, flaked frozen meat
Used Wolfking 140 Mixer Grinder
Used Butcher Boy 8 inch (200mm) auto Grinder
Used KS 46 Hp - upright Emulsifier for bones

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New ATM long table top Vacuum packer for fish
New ATM Packman single chamber Vacuum Packer
New ATM large single chamber Vacuum Packer
New ATM double chamber Vacuum Packer
Used Cryovac CJ 51 heat shrink Tunnel
Used VC 999 Model ST 1 Dip tank
Used Ilpra Inline Tray sealer, Model Speedy year 2003



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Used Lutetia 400 Kg Vacuum Tumbler
Used Koppens PU 400 Breader
Used Gunther PI30/60 Injector
Used Ruhle 56 Needle Injector

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Used AEW 350 Bandsaw two available
Used Torrey ST 290 Bandsaw sliding table
Used Cheese Cutter Model C23
Used AEW 400 Bandsaw 3 phase, sliding table

Miscellaneous

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Used Koppens VM 600 HS Former
Used Vernag Robot 500 Vacuum Filler
Used double clipper to suit vac filler
Used Vernag LPG 202 high speed sausage linker
Used Ranger Apollo Skinless sausage Peeler
Used Saxon SH 1000 Bag sealer
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Used Do Boy continuous bag sealer
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Zambia, Malawi benefit from climate fund

ZAMBIA AND MALAWI will receive US\$6.6mn to help them under the climate change resilience project.

With the help of the co-operating partners' financial support, Zambia has taken a broad risk management approach to help vulnerable rural households increase their food and income security on the back of cumulative climate risks.

The funds will be provided by the United Nations World Food Programme (WFP) and Oxfam America's R4 Rural Resilience Initiative programme in the two countries.

The project will help bring the resilience package to at least 4,000 farmers in Zambia and Malawi by 2017 and help scale up the programme in subsequent years. WFP and Oxfam America intend to reach a total of 100,000 insured farmers by 2017.

SDC Regional Programme for southern Africa deputy director, Juliane Ineichen said, "Providing vulnerable smallholder farmers, including women, with an integrated risk-management package is the best way to sustainably build their resilience. Rural areas in southern Africa are already severely affected by the impact of climate change."

R4 extends insurance protection against drought to vulnerable smallholder farmers, safeguarding their livelihoods so that they can be confident that their investments will not be lost when a shock hits.

Vulnerability to climate-related shocks is a constant threat to food security and the well-being of small-scale farmers.

Under the initiative, risk management strategies will consist of improved natural resource management, agricultural insurance, and access to credit and savings.

Commenting on the development, WFP chief of the climate resilience for food security unit, Richard Choularton, said, "Our aim is to take insurance where it is most needed and help communities be stronger in the face of disasters, be able to invest in new seeds and fertilisers and guarantee that food is on the table all year long."

IFC supports Senegal's efforts to improve agricultural commerce

IFC, A MEMBER of the World Bank Group, and the government of Senegal, have announced a programme that will help provide access to credit for the agricultural sector and ease the commercialisation of agricultural products, contributing to a reduction in extreme poverty among some of the country's most economically disadvantaged people.

The programme will support warehouse receipt financing, which provides loans secured by goods stored in a warehouse. The warehouse manager issues to farmers, processors, or traders a receipt for the merchandise, which is used to guarantee loans from a banking institution. Over a period of three years, the project will set up the legal and regulatory framework to introduce and scale-up warehouse financing. It will train and raise awareness among market players along the agricultural value chain and the financial sector to put the system into operation, while developing a viable agricultural warehousing sector.

"Agribusiness is a key sector for development in Africa, with low barriers to entry that attracts a diverse array of actors participating across the value chain," said Saran Kebet-Koulibaly, IFC director for West and Central Africa. "This SRE project empowers Senegalese farmers to engage meaningfully in the banking system, using their unsold produce as collateral.

The project will be piloted in Senegal's rice sector. Rice has a socio-economic importance for the country, and enjoys production conditions that guarantee a constant supply. The sector has also been fortified by numerous government structural interventions, working with development partners. The Government of Japan made a substantial financial contribution to the project.

Layers love peppermint feed

A RECENT STUDY was conducted to determine the effects of supplementation of dried peppermint (*Mentha piperita* L) leaves in laying hen diets on laying performance, egg quality, and serum metabolic profile. A total of 150 Hy-Line Brown laying hens (64 weeks old), were assigned to five treatment diets including dry peppermint leaves at 0, 5, 10, 15 or 20 g/kg, respectively, for 12 weeks. Each treatment had six replicates with five hens each. Results indicated that over the course of the trial incremental levels of dietary peppermint leaves significantly increased (linear, $P<0.001$) egg weight, egg production and egg mass. They also increased feed intake from 64 to 76 weeks of age. Moreover, feed conversion ratio was linearly decreased ($P<0.001$, a positive result) with increasing levels of peppermint leaves in laying hens diet. The inclusion of 20 g/kg peppermint leaves resulted in overall best performance.

In terms of eggshell quality, the eggshell percentage, thickness and Haugh unit of eggs from hens fed diets supplemented with peppermint leaves were greater ($P<0.01$) than that of hens fed the control diet. Peppermint supplementation did not influence any other egg quality characteristics like albumen, yolk percentage or albumen height. Notably, serum cholesterol significantly decreased ($P<0.001$), but serum total proteins increased ($P=0.015$), with increasing levels of peppermint leaves.

It can be concluded that peppermint leaves can be used as an effective feed additive to improve performance of laying hens during the late laying period and that up to two per cent can be used with safety.

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Official kick-off of "SMART" horticulture project in Rwanda

ON 12 NOVEMBER, THE official kick-off of project SMART (also referred to as SMASH - Smart Adaptive Sustainable Horticulture) in Rwanda was launched. The kick-off of this project is part of the economic mission to Rwanda, led by Dutch minister for foreign trade and development co-operation, minister Ploumen. The aim of this project is to enable farmers in Rwanda to develop a sustainable and profitable business where productivity and food safety are key. By combining Dutch technology and expertise with local expertise of farmers and knowledge of institutes, both parties see a clear win-win situation.

SMART uses technological solutions to increase productivity and food safety in the horticulture industry. Unique about this project managed by Greenport Holland International, is its focus on small-scale local farmers in Rwanda. A pilot greenhouse will be built at Rwanda Best. The project is implemented in collaboration with leading Dutch companies - greenhouse constructor Bosman Van Zaal and automation supplier Hoogendoorn.

How farmers can reap benefits of ICT

FARMERS IN NIGERIA are being encouraged to make more use of farm applications and other forms of ICT that can increase the knowledge available for making sound, profitable farming decisions an expert, Dr Ademola Adeyemo has said. According to Adeyemo, such technology will not only add value but help farmers get information they need to improve their business. Adeyemo, who is the deputy director, department of general administration, Agricultural and Rural Management Training Institute (ARMTI), Ilorin, said deploying technologies in agriculture would attract young people to take up farming as a business.

He said encouraging the use of ICT in agriculture will make farming a more attractive career option and urged the government to motivate young people to participate more in the development of agriculture. This would require encouraging young Nigerians to use new technologies that are far removed from the old image of farming.

Mini tractors from India

MINI TRACTORS ARE basically a scaled-down version of large tractors having the same features as those found in bigger tractors but they are smaller in size, lighter in weight and cheaper in price. These tractors have automatic depth and draft control/sensing ADDC hydraulics. They also can be used with about 30 different types of implements.

Some of the applications/uses of the mini tractor where it is very commonly used nowadays are:

- By a small farmer with a land holding of less than five acres
- Inter-row cultivation (due to its small size, small track width and less weight advantages)
- Rice cultivation: being light in weight, it is ideal for puddling operations
- As a primary tractor in semi-arid/desert zones as it is lighter than larger tractors, it doesn't sink in
- As a secondary tractor in large fields
- For soil preparation inside greenhouses
- For haulage/trailer and tanker use
- For transportation of manpower/labourers
- As a mini-loader for materials handling
- In orchards (especially oil palm, citrus fruits, mango, avocado, etc.)
- In vineyards for inter-row cultivation, spraying, mulching, etc
- In countries where diesel is expensive (mini tractors consume very little diesel)



A mini tractor from Captain Tractors seen here with rigid tine cultivator in the Sudan.

- For poorer farmers as a replacement to animal-drawn implement farming
- During the monsoon for sowing or cultivation for removal of weeds
- As an upgrade for power tillers for comfort and to increase productivity
- For internal usage, especially in materials handling, in factories.

Captain Tractors are pioneers of mini tractors in India and currently amongst the largest exporters from India to African countries such as Sudan and South Africa.

They have three models in 15, 20 and 25 hp engine categories. All these models are available in 2WD and 4WD variants.



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Kaduna to revive groundnut farming

THE NIGERIAN GOVERNMENT and Kaduna state government have announced a joint initiative to improve groundnut farming in the state.

Tijjani Isiyaku, state director of Agricultural Transformation Agenda (ATA), said that the federal government and Kaduna state government were exploring the viability of dry season groundnut farming to achieve better groundnut production.

He said that the major challenge was inadequate seeds to meet the demand of farmers.

According to the joint initiative, the federal government will ensure provision for improved variety of seeds in the state. Through ATA, the ministry has also introduced a groundnut value chain in order to revive its production in the country.

Isiyaku said, "A lot of farmers are interested in the new variety of seeds. A different kind of groundnut seeds was distributed to farmers for trial on their farms in July 2014. We went round the farms and discovered that the trials were successful. After just two months of trials, the farmers have started booking the seeds."



Groundnut harvesting. Photo courtesy IITA.

The director said that through ATA, the ministry had also introduced the groundnut value chain in order to revive its production in the country.

Groundnut pyramids were pyramid-like structures made from groundnut sacks built in northern Nigeria. In the 1960s and 70s, as production in Nigeria shifted from agriculture to oil, the groundnut pyramids disappeared.

He said that the present administration was committed to reviving all the economic potential of the country which had been abandoned, such as the groundnut pyramid period which contributed to the economic growth of Nigeria.

Malawi and Mozambique sign fisheries MoU

MALAWI AND MOZAMBIQUE have signed a five-year memorandum of understanding (MoU) on fisheries and aquaculture management.

Speaking recently in Lilongwe, minister for agriculture, irrigation and water development, Allan Chiyembekeza said the agreement would help reverse the worrisome trend of fish dwindling experienced by the two countries.

"We need to identify management strategies that will facilitate recovery of the declining fish stocks through an ecosystem approach to fisheries and aquaculture," he added.

The agreement would help in the management of fisheries in the water bodies shared by the two countries which include Lake Malawi, Chiuta, Chilwa and Shire rivers.

Victor Borges, Mozambican minister of fisheries noted that the agreement would reinforce the sustainable management of the shared lake and river resources by addressing illegal, unreported and unregulated fishing.

Fish is the most important source of protein in Malawi. The fishing industry is also an important source of employment in the country.



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Improved understanding of xylanase type and dose rate could lead to consistently higher returns.

Raising broiler performance through xylanase targeting diets

THE BENEFITS OF improved chicken performance and litter quality coming from adding xylanase to poultry diets containing viscous grains, such as wheat and rye, is widely known.

Adding xylanase to non-viscous poultry diets does not always, however, lead to consistent improvements, and its use in corn-based diets remains low.

Research clarifying the mechanisms by which xylanases improve nutrient digestibility in non-viscous diets suggests that this variability may be due to either poor targeting of the xylanase, or possible under- or over-dosing, and this has implications for its use in viscous diets.

Improved digestibility

While the majority of the improved performance due to optimised xylanase use in wheat-based diets may be due to a reduction in digesta viscosity, in some low viscosity wheat-based diets – depending on factors such as variety, growing season and extent of feed processing – viscosity may be much less important. The remaining response comes from improved nutrient digestibility, which is achieved via the same mechanisms responsible for improved performance in corn-based diets.

Achieving a consistent and reliable response to xylanase use across all diets requires a far greater focus on the actual dose and type of active xylanase reaching the site of action - the stomach and small intestine - than previously thought.

The key to successful xylanase application to poultry diets is to understand how differing xylanase characteristics and dose affect those mechanisms now believed to be responsible for these performance improvements.

New understanding

It had been thought that, in addition to breaking down the long-chain soluble arabinoxylans (often called xylans), which are responsible for increased digesta viscosity, xylanases acted directly to degrade feed ingredient plant cell walls, so improving access to the starch and protein stored within. However, two recent findings have suggested that there may be additional mechanisms.

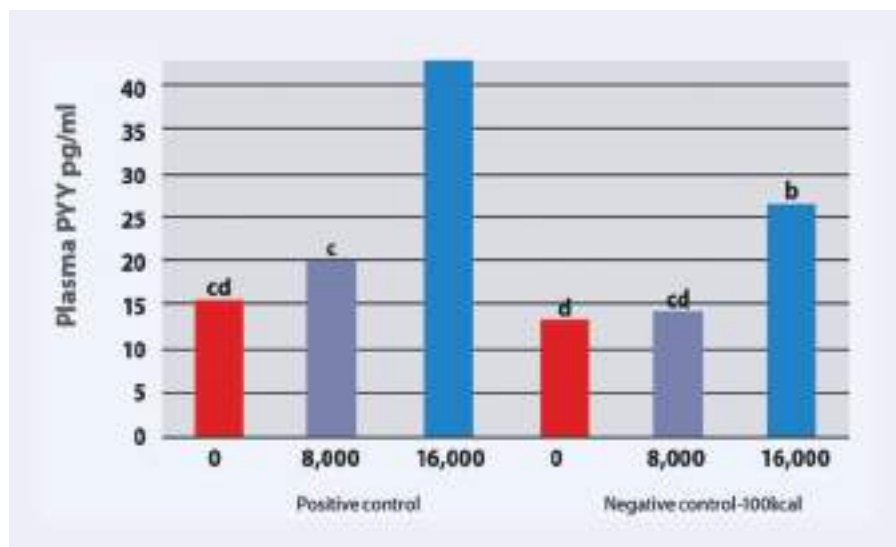


Figure 1: Addition of an intrinsically thermostable xylanase at 0, 8,000 or 16,000 U/kg incrementally increased PYY secretion in both a standard diet and in a negative control diet with energy content reduced by 100 kcal/kg.

Results [from recent studies] suggest that xylanases are indirectly improving the digestibility of the whole diet.

The first study evaluated the effect of xylanase addition on amino acid digestibility. It found that the amount of amino acid remaining undigested was consistently reduced by around 15 per cent for all amino acids, not just those found within the cereal grains.

Separate microscopic examination of the degradation seen in plant cell walls with xylanase addition found that the effect was present as early as the jejunum, so possibly too early in the digestive tract for the effect to be entirely the result of direct xylanase action.

Together, these results suggest that xylanases are indirectly improving the digestibility of the whole diet, not only of the xylan-rich cereals, and that much of the improvement happens early within the gastrointestinal tract.

More recent research has begun to uncover the most likely mechanism by which this is being achieved, and offers insight into how xylanase use can be optimised.

Emerging mechanism

We now know that addition of a well-targeted xylanase increases secretion of a number of entero-hormones, responsible for controlling the digestive process, and of the hormone peptide YY (PYY) in particular (see Figure 1). A rise in PYY levels acts to delay stomach emptying, with PYY secretion linked to the fermentation of undigested feed material, primarily in the cecum.

There are clear differences in the end products of xylan breakdown (hydrolysis) between xylanases, with an intrinsically thermostable xylanase producing a greater concentration of oligosaccharides with three or four xylose sugars (X3 and X4).

What appears to be happening is that certain specific prebiotic end-products of xylan breakdown by the xylanase (arabinoxyloligosaccharides, AXOS) are being fermented in such a way as to promote PYY synthesis. Where the right AXOS are produced, the rise in PYY levels results in feed being retained in the gizzard and stomach for longer, leading to a finer 'grind', potentially greater gizzard development and increased protein digestion within the stomach. Since much of the starch in corn-based diets is encapsulated in protein, starch digestibility and ileal digestible energy are also increased.

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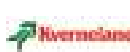
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Additional benefits

Correct PYY signaling therefore appears to be key in determining xylanase response, particularly where digesta viscosity is less important, such as in corn-based diets. The prebiotic AXOS may also provide some additional benefits.

Those gut microflora adapted to ferment the prebiotic AXOS tend to be beneficial, and proliferate at the expense of potentially pathogenic populations. The resulting mix of volatile fatty acids (VFA) produced by the fermentation – which act to signal PYY secretion – is also dominated by propionate, which may help suppress potential outbreaks of salmonella, for example.

In addition, improved digestion in the upper gastrointestinal tract reduces the supply of undigested starch and protein in the ileum, which can promote colonisation by undesirable bacteria that compete for nutrients. The overall result may be a shift in both fermentation type, and location, to a more positive cecal fermentation producing VFAs that are also a potential source of additional energy for the bird.

Dosage link

However, producing the right prebiotic AXOS is critical, and this relies not only on using the correct xylanase, but also on accurate dosing.

Different xylanases vary in their ability to produce AXOS, with some acting to cleave the xylose backbone that constitutes the xylan molecule mid-chain (endo-acting), whilst others release simple xylose or arabinose sugars from the ends (exo-acting). There are even differences among endo-acting xylanases (see Figure 2), depending on the ability to cleave the xylose backbone adjacent to an arabinose side-chain, or break it down beyond a certain size.

Achieving the correct AXOS profile depends on a precise, controlled and targeted pattern of xylan hydrolysis that can

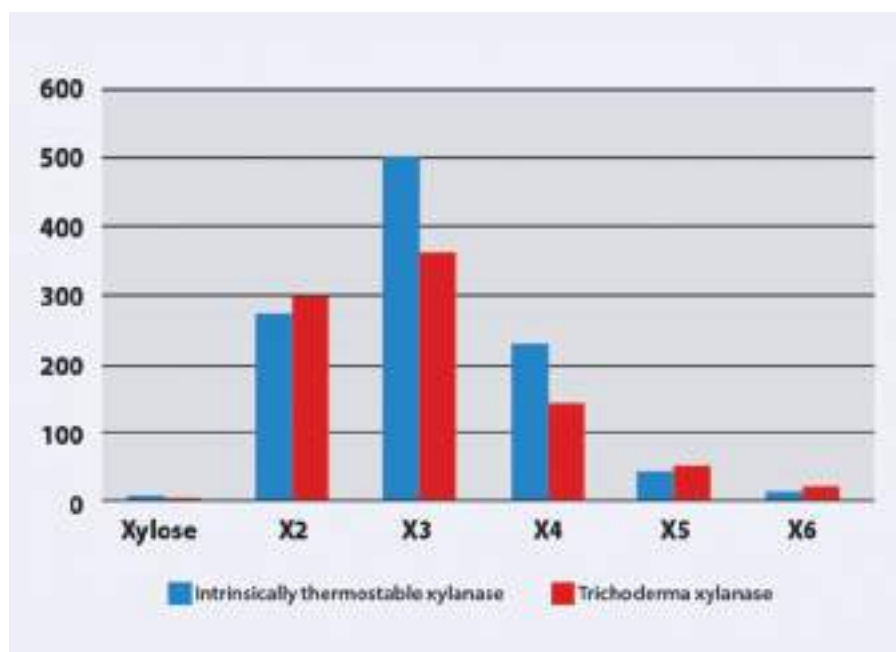


Figure 2: There are clear differences in the end products of xylan breakdown (hydrolysis) between xylanases, with an intrinsically thermostable xylanase producing a greater concentration of oligosaccharides with three or four xylose sugars (X3 and X4).

only be achieved through application of the optimum dose of a correctly targeted xylanase. Overdosing with xylanase will likely over-process the beneficial AXOS to smaller, less effective AXOS, whereas under-dosing will fail to deliver sufficient activity to produce the desired effect.

Just as critically, the use of additional enzyme activities alongside the xylanase, such as xylosidase or arabinosidase, risks breaking down the AXOS that trigger the PYY response. Further, high levels of free xylose from excess xylan degradation or the action of exo-acting xylanases can actually be detrimental to performance.

Consistent response

Ultimately, bird performance and consistency of response remain the benchmarks by which xylanase efficacy should be

measured, and it would appear that the right dose of the right xylanase to trigger PYY signaling is critical. As such, it is highly likely that end-users have, to date, been using some products sub-optimally, and subsequently failing to maximise returns.

This new understanding of the mechanisms involved will not only improve the effectiveness of xylanase application, but it also puts renewed emphasis on the need for accurate, easy-to-use assays that can confirm in-feed enzyme activity levels post-feed processing.

Together with improved information about xylanase type and action from product suppliers, the net effect should be a significant improvement in xylanase efficacy across all poultry diets. **E**

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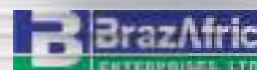
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Major Gambian farming initiative from Pas Reform

A GROUNDBREAKING NEW farming initiative launched in the Gambia is employing Pas Reform's Smart incubation technologies at the heart of its operation, the first to be created as part of a fully supported framework to support and encourage agribusiness re-development for future stability in the country.



Farato Hatchery Farms has been created by EMPAS, the Gambia's leading poultry processing company, to initiate an integrated poultry value chain that aims to reconstruct a poultry industry with sustainable socio-economic benefits.

This hatchery is the country's first state-of-the-art facility, producing 100,000 day old chicks per month. Rapid growth is anticipated, as the new operation returns full control over product quality and overcomes the cost challenges of transportation and losses in transit experienced by local farmers who previously could only source chicks from Senegal.

Farato Farms currently employ 100 women and youths in its operations to produce fresh, healthy Halal chicken, with this number expected to more than double very quickly.

The company's product is marketed throughout the Gambia as Moggie Chicken and recognised as a trustworthy, high quality product, against the backdrop of the government's 'back to the land' call in support of agribusiness development to deliver greater independence, employment and improved living standards.

Kenchic trains poultry farmers on best use of vaccines

OVER 100 POULTRY farmers received training on the best use of vaccines at a seminar organised by Kenchic Limited, East and Central Africa's largest integrated poultry business. This was facilitated by Dr Reza Bentaleb the poultry business unit manager (Intertropical Africa) for CEVA Sante Animale, one of the leading animal health companies in the world.

Dr Reza emphasised that great care is needed to avoid the huge losses caused by using incorrect vaccines, vaccines that have not been stored properly and incorrect administration of vaccines. He urged farmers to invest in quality vaccines to ensure profitable poultry farming. He explained: "Quality vaccines, well-bred chicks and good feed together with correct poultry management will give you very good quality birds. Money spent on reliable vaccines will save you from a high rate of chicken mortality."

"Vaccines have to be stored and administered correctly for them to be effective. The right temperature for storage is three to eight degrees. It is also very important that water is not chlorinated and that you do not use metal containers. The age of the chicken gives reference for the amount of water per 1,000 birds and the ratio has to be followed correctly."

"Bio security is critical in poultry farming. The chicken house must be thoroughly cleaned with effective disinfectants as soon as the chickens are removed. The chicken manure should be taken far away from the farm to prevent contamination which can happen from several kilometers away. Vaccines will only work well with proper bio-security," he concluded.

Kenchic recently started offering farmers the opportunity to purchase day old broiler chicks vaccinated against Gumboro disease (an immunosuppressive disease). The chicks are vaccinated using Transmune, a new vaccine produced by CEVA used worldwide. Kenchic have been using it in their own operations and contract business for the last year with great results.

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Porcine reproductive and respiratory syndrome is the most expensive and invasive disease for pig producers on a global scale.

Plant extract can help combat pig diseases

THE UNIVERSITY OF Illinois has explored the potential benefits of selected plant extracts to fight deadly pig diseases like PRRS and E. coli

The researchers conducted two experiments to test the beneficial effects of garlic botanical extracted from garlic, turmeric oleoresin extracted from ginger, and capsicum oleoresin from pepper on PRRS and E. coli in pigs.

The pigs in the study challenged with E. coli that had been fed any of the three plant extracts had a lower frequency of diarrhoea (20 per cent) than the pigs fed the control diet (40 per cent).

The pigs fed plant extracts were more efficient (40 per cent) in feed use than the pigs fed control diet in the E. coli-challenged group, and challenged pigs fed plant extracts had sounder gut morphology compared with the challenged pigs fed the control diet.

After feeding the pigs challenged with the PRRS virus the three plant extracts, the researchers observed that the pigs were more efficient in week 1 (55 per cent) and week 2 (40 per cent) than the pigs fed the control diet. The pigs that were challenged with the PRRS virus and fed plant extracts also had a lower blood viral load (13 per cent) and lower concentrations of inflammatory mediators than pigs fed the control diet. These observations also suggest that feeding plant extracts could suppress ongoing inflammation and prevent secondary infections.

The researchers believe the benefits resulted from the effects on the pigs' immune systems because feeding plant extracts reduced the inflammation caused by E. coli and the PRRS virus. "Though it is not occurring on every farm, it is the biggest disease problem in the pig industry," said James Pettigrew, a University of Illinois animal sciences researcher. "E. coli has also been a problem historically and continues to be on an industry-wide basis."

"Either disease can sweep through a farm so their alleviation would substantially reduce production costs," he added. "Even though many management practices have been used in the swine industry, these



Pepper extract increased pigs' efficiency and lowered blood viral load.

practices cannot guarantee freedom from disease for pigs."

Consumer concerns about bacterial resistance to antibiotics have prompted the swine industry to seek additional methods to protect the health of pigs, including special feed additives. This interest led Pettigrew and his team to explore the potential benefits of selected plant extracts.

Yanhong Liu, a doctoral student who led the studies, said, "We've known for a long time that plant extracts, also called essential oils or botanicals, have certain biological actions. For instance, they can act as antioxidants or as antimicrobials. We wanted to test whether we could get a benefit from feeding those products in very low doses to pigs that were challenged with these specific diseases."

E. coli, a bacterial illness of the gut, is marked by diarrhoea, decrease in appetite, decrease in body weight, and in some cases, a higher mortality rate. E. coli is especially dangerous post-weaning as pigs adapt to new feed and new environments, Pettigrew added.

Liu noted that even the pigs in the non-challenged group, with a low frequency of mild diarrhoea, benefited from the plant extracts. "Because there is a relatively high diarrhoea rate in post-weaning pigs as they

are moved from the mother and started on all solid feed, the extracts could also be used to reduce its occurrence," she added.

Common symptoms of PRRS, a viral infection of the lung, include fever, lethargy, trouble breathing, loss of appetite, and decreased growth performance. The disease can also lead to spontaneous abortions and higher pre-weaning mortality rates in pigs.

The researchers believe the benefits resulted from the effects on the pigs' immune systems because feeding plant extracts reduced the inflammation caused by E. coli and the PRRS virus. "In production animals, inflammation is costly. Inflammation reduces feed intake, and it diverts nutrients away from growth to the immune system," Pettigrew said, adding, "If we can bring that quickly back down to normal after a challenge, then that helps in production."

The researchers would continue to study the mechanisms behind the beneficial effects they observed, including conducting gene expression studies. "We want to know the big picture of how these plant extracts affected the challenged and non-challenged pigs," Liu said.

Pancosma SA, Geneva, Switzerland, provided funding for the research. ^E

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Researchers at the Tea Research Foundation of Kenya (TRFK) have developed newer clones for replacement of the already moribund tea bushels – some over 45 years of age. Mwangi Mumero reports.

New thinking for Kenyan tea growers

ALREADY, TWO NEW clones of green tea - TRFK 430/90 and TRFK 371/3 - have been released to farmers to replace the older bushels whose annual production has been waning.

According to researchers, the two clones have higher levels of theaflavins - a vital component in tea - and are moderately tolerant to drought and root knot disease. They are also widely available across the tea-growing zones in the country.

With the ageing tea bushels, a depressed market for Kenyan tea due to instability in traditional export markets and overproduction, the annual tea bonus for farmers has been declining, prompting farmers to call for a new thinking in the business.

Key among the raft of changes will be the replacement of the ageing crop, diversification into the purple teas as well as value addition at the local level before export.

Reduction in the cost of power through investment in small hydro projects is also expected to shore up declining earnings from tea.

According to the Kenya Tea Development Agency (KTDA), which regulates 66 tea factories and markets tea for over 560,000 smallholder farmers, in the year ending June 2014, 1,124bn kg were produced, earning the farmers a gross revenue of Ksh 52.97bn (US\$616mn). Average earnings per kilo to farmers was Ksh 31.61 (\$ 0.37).

But even with these high earnings, farmers across Kenya have lamented the low bonus this year.

"This payment has been comparatively lower than Ksh42 (US\$0.49) in the previous year. Tea companies need to think of ways of improving our returns, otherwise farmers will abandon the crop for vegetables or dairying," observed Mrs Monica Matu, a farmer in Kihome village, Othaya Division in Nyeri County.

Affiliated to Gitugi Tea Factory Ltd which is close to the Aberdare Ranges, Mrs Matu's farm has over 2,000 tea bushels.

She added: "The rising cost of fertilisers due to this taxation by the government also needs to come down to reduce our overheads. This will help to improve our profitability."



New clones introduced to farmers by the Tea Research Foundation of Kenya (TRFK). Photo courtesy: Mwangi Mumero.

In value addition, we have come up with a variety that has multiple benefits.

KTDA officials, however, contend that the biggest culprit for the reduced returns from tea has been political instability in major export markets notably Egypt, Afghanistan, Pakistan and Sudan, which collectively, account for over 30 per cent of total exports.

Kenya has been seeking to increase exports to other markets, such as Russia, Ukraine, Kazakhstan and the USA as well as Canada.

Tea contributes four per cent of Kenya's Gross Domestic Product (GDP) and accounts for 26 per cent of foreign exchange earnings. It promotes rural industrialisation and gender empowerment, with over 50 per cent of the labour being women.

It is an important income crop for farmers in the Mt Kenya region, Rift Valley, Western Region and Kisii, near Lake Victoria.

With these changing fortunes in the Kenya tea markets, players in the industry have introduced better yielding varieties,

value addition and also sought ways of cutting energy costs.

Early this year, the Tea Research Foundation of Kenya (TRFK) introduced a new purple variety, TRFK 306/1, a unique tea product that is rich in anthocyanin – an antioxidant. This clone had been under development for the last 25 years.

Researchers note that anthocyanins have health-enhancing properties. They are widely used as preservatives, especially in the food industry. It also has other chemicals said to enhance its value over black tea.

"In value addition, we have come up with a variety that has multiple benefits. The variety has the best quality tea seed oil equivalent to olive oil used in cooking although work is still in progress", observed Dr Samson Kamunya, a plant breeder at TRFK.

The variety has wide adaptability and is suitable for all designated tea-growing regions. It is said to be drought- and frost-resistant, while at the same time able to fight off many pest and diseases.

Currently, over 96 per cent of Kenya's tea production and exports is black tea

which is largely used for blending lower quality teas from other countries.

Consequently, it fetches low prices and therefore depressed revenue for tea growers, in particular, and low foreign exchange for the country in general.

The new variety currently fetches three to four times more revenue than the black tea.

According to Dr Kamunya, demand for the purple tea has been high among farmers, adding that they will soon be releasing it to other tea-growing regions in the country.

Already two tea centres in Kericho and Kirinyaga Counties have planted the new variety, with farmers posting better returns compared to the black tea.

According to Mr Wachira Mahihu, chairman of Ndimia Tea Factory in Kirinyaga, a kilogram of processed purple tea sells at Ksh 2,600 (US\$30) compared to Ksh 200 (US\$ 2.4) for the black or green tea.

Cutting energy costs

Away from purple tea, KTDA has been helping its affiliated factories to invest in small hydro-projects to cut their energy costs.

Five years ago, Imenti Tea Factory on the eastern shoulders of Mt Kenya commissioned a one megawatt hydro-project to stem its high cost of power - a pioneer project for KTDA.

"The hydropower generation aims at



Most tea-growing areas in Kenya are located in highland regions with fast-moving streams and rivers.

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 - thus raising the cost of power," said Mr Japhet Bulali, a mechanical engineer in charge of KTDA Power, a subsidiary of KTDA that is involved in development of these Run-Off-River (ROR) systems.

Most of the tea-growing areas in Kenya are located in highland regions with fast-moving streams and rivers - mainly in water catchment areas of Mt Kenya, the Mau Escarpment and Mt Elgon.

"No damming of water is required in the small hydro projects - reducing overall cost as well as cutting on environmental implications. However, this system is prone

to reduced power generation during low rainfall months, said Mr Bulali, during this year's Nairobi International Trade Fair.

According to him, a tea factory has to raise 60 per cent of the total cost of the power project with the rest coming from commercial banks in the form of loans.

"Upon completion, operational costs are low, making it a viable source of power for the factories. Power production is usually highest during the rainy season, which is also the peak tea-picking season," he added.

Among the projects in progress are the one megawatt Mataara tea factory power project expected to be switched on in July 2015, the Chebut/Kaptemo tea factory project, with a potential of nine megawatt, the 5.6MW Gatunguru tea factory project, the 2.1MW Weru tea factory and the 1.5MW Kionyo tea factory project.

Others are Kimunye and Thumaita factories joint project expected to generate 1.8MW upon completion.

"The government classifies a hydropower project that generates between 0.5MW to 10MW as a small project. They have entered into a power purchase agreement for the sale of extra power-earning income for the tea companies especially during periods of low tea productivity and on Mondays when many factories do not process the leaves," noted Mr Bulali. ^E

Tanzania's need to boost tea production

IN HIS RECENT tour of Mufindi District, CCM Secretary General Abdulrahman Kinana called on the government to set up strategies that would encourage more production of tea.

Mr Kinana said despite the country's great potential in tea production, Tanzania was far behind other exporters.

He noted that in 20 years, tea production did not reflect the existing potential and available opportunities. He thus called on the government to make efforts to create a more conducive environment to attract investors. Mr Kinana also called for help to tea-growing smallholders to co-operate with large farmers to increase production. He mentioned Kenya as one of the countries doing well in tea growing by encouraging co-operation between smallholders and big farmers. Tea is a major cash crop. It is also



a major source of earnings to quite a substantial number of smallholder farmers in the Southern Highlands regions. By conservative figures, there are more than 30,000 small-scale farmers involved in tea cultivation.

It is harvested all year round and, therefore, provides a regular, dependable source of income to farmers. However, the sector

faces significant challenges.

A study conducted in the sector identified a clear downward cycle within smallholder tea producers and factories where low productivity from the farmers means tea factories do not get enough greenleaf throughout to operate efficiently and keep variable factory costs low.

As a result, they are only able to offer low prices to farmers, which

means that they are unable or unwilling to invest in raising the productivity of their tea crop, for example by applying fertiliser.

Thus green-leaving remains low throughout. This downward spiral leaves Tanzanian farmers among the lowest paid in the region.

Furthermore, they take a smaller share of the sector's earnings, receiving just 26 per cent of the made tea price compared with the 75 per cent received by Kenyan smallholders who benefit from greater ownership of factories.

There would be significant growth opportunities if this downward spiral can be broken, with clear potential to raise smallholders' incomes.


It is to be hoped that the government can come up with strategies that will increase investments in the sector and thus break the downward cycle that holds back small farmers.

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Even though the oil palm is indigenous to the region, West Africa produces less than six per cent of the world's palm oil. This leaves an unmet demand of 850,000 tons for a palm oil sector performing well below its potential.

West African palm oil still to realise its immense potential

FOR HALF A century, Indonesia and Malaysia have accounted for the vast majority of the world's exports of palm oil. But now investors are flocking to West Africa to secure land for rival plantations. Environmentalists say the forests of South East Asia have been massively despoiled and are warning West African governments not to follow suit. A growth-versus-conservation battle is in the offing.

Africa (and West Africa in particular) is a new frontier region for large-scale palm oil production. Many companies that already have existing plantations and other investors are now looking to expand their operations into this region to meet the growing demand for the commodity.

The oil palm plant originated in West Africa and grows extensively in this region, but largely as village low-yield multi-crop stands; however, few publically or privately owned agro-industrial estates are currently in existence. Yet restrictions on logging and the acquisition of land in Malaysia and Indonesia are pushing investors into Africa, where concessions for new plantations are more freely available. In the past decade, politicians in West Africa and countries of the Congo basin have leased out around 1.8m hectares of land for palm-oil plantations, according to Hardman, a London-based research company. Another 1.4m hectares is being sought.



Lands for oil palm plantations are at an all time premium, wherever they can be found.

Demand for palm oil, whose annual global production is valued at around US\$50bn, is soaring.

Lower yields in Africa than Southeast Asia

However, yield is much lower in Africa than in Southeast Asia for various reasons, including climate and infrastructural limitations and a predominantly smallholder approach to production. It is debatable whether comparative yields are achievable, even with investment and improved growing techniques.

Demand for palm oil, whose annual global production is valued at around US\$50bn, is soaring; consumption may triple between 2000 and 2050. The oil is taken from the oil palm's red fruit and is used in roughly half of all packaged supermarket products, from margarine and ice cream to shampoo and cosmetics. It is increasingly used as a biodiesel, too.

With all this money pouring into palm oil companies, lands for oil palm plantations are at an all-time premium, wherever they can be found.

Oil palm plantations can, however, only be established on a narrow band of land in tropical areas that are roughly seven degrees north or south of the equator and



that have abundant and evenly spread rainfall. This makes the potential area for new oil palm plantations rather limited. Plus, most of these lands are composed of forests and farmlands that are occupied by indigenous peoples and farmers, some of whom are already growing oil palms for local markets.

A controversial business

But Africans are fast learning that it is a controversial business. The expansion of oil palm plantations, therefore, depends upon companies getting these people to give up their lands. This is not an easy sell, given the meagre jobs and other benefits that an oil palm plantation generates in comparison with the destruction that it causes and the value that the lands already hold for the people. A typical oil palm plantation requires only one poorly paid worker for every 2.3 hectares, while the surrounding communities pay a high price for the deforestation, water use, soil erosion and chemical fertiliser and pesticide contamination that it causes. Companies trying to acquire lands from communities also run into customary forms of land governance that do not allow for a company to buy up land one parcel at a time.

Findings from Solidaridad

Results of Solidaridad, West Africa's Sustainable West Africa Palm Oil Programme (SWAPP), which studied best management practices of oil palm farms, have shown that simple agronomic practices of pruning, weeding, creation of paths and regular harvesting of fruits at a 10 day interval increases one's yield by over 60 per cent.

The SWAPP programme aims to support the palm oil industry in the region. Its goal is to encourage sustainable production through provision of knowledge and



Sustainable palm oil farmers.

pushing the adoption of best management practice for farmers, processors and other critical sector players such as financial bodies which invest and assist in growing the sector. In Ghana, 60 per cent of the oil palm fruit is processed by village-level semi-mechanised artisanal mills. There are over 1,200 artisanal mills, the majority of which use basic digester and spindle press technologies.

To get on a sustainable growth path, the oil palm industry in West Africa needs to adopt new technology and migrate from the digester and spindle press technology to more advanced screw press technologies, for example.

While artisanal basic digesters and spindle presses produce oil for consumption and industrial use, the technology extracts far less oil than screw presses.

The way forward

The West African oil palm industry has huge potential. However, it requires various sector players to adopt new and more


Sustainability is the driver for both small-scale farmers and processors.

efficient technologies for agronomy, processing and oil extraction.

The industry is poised for a quantum leap should farmers - who are the weakest link of the value chain - get the necessary support they need to improve their yields. This would include upgrading to the right planting materials, agronomic support and finance.

Currently, oil palm farmers hardly have access to these services, including access to credit or financial support to acquire inputs such as fertiliser or to cover labour costs for pruning and weeding.

Lessons learnt from the implementation of SWAPP show that sustainability is the driver for both small-scale farmers and processors.

The region's industry can realise its immense potential if the processing sector opens up to adopt new technologies and produce international quality oil. 

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The one billion naira agricultural loan disbursed by Fidelity Bank to large-scale farmers in Sokoto State early this year is having positive effects on many farmers. Attajiri Rice Mill, one of the beneficiaries of the scheme, has commenced processing rice for local consumption.

From farming to processing: Attajiri rice mill

NIGERIA REMAINS THE largest importer of rice in Africa and one of the largest importers globally, despite the abundance of natural resources, agricultural potential, arable land and dams scattered across the country. Rice is a basic staple in the country, and production is increasing, but continues to lag behind demand.

Nearly all the country's rice imports come from Thailand and India, thereby providing jobs in these countries at the expense of Nigeria's teeming youths roaming the streets in search of proverbial white collar jobs.

The nation spends about US\$100mn on rice importation annually, despite the country's huge potential in the area of rice production. This has become a huge drain on the economy, as Nigeria earns foreign exchange through oil and throws it away by importing rice, while Nigerian rice farmers are being run out of business.

Thus, with the expected increase in population, it would be difficult for the country to sustain such importation in the long run. Moreover, with the uncertainties in the global oil market, the nation can no longer continue to depend on importation of rice and other food items from other countries without looking inwards to boost rice production and meet local needs.

Disturbed by the ugly trend, the Federal Government last year identified and selected 10 states for accelerated dry season paddy rice production, which included Sokoto, Kebbi, Zamfara, Kano, Jigawa, Bauchi, Gombe, Katsina, Kogi and Taraba States. The states were selected due to the availability of water in their areas during the dry season and to augment existing integrated rice mills in the country. The government approved the provision of 50 kg of seeds of improved rice varieties to each farmer that would lead to cultivation of 230,000 ha of land across the 10 states, while new varieties of rice like the 'New Africa Rice' with high yield that could outperform the local variety, was provided to farmers to enable them to produce more. It is expected that with the accelerated programme currently in place, Nigeria



The Federal Government last year identified and selected 10 states for an accelerated dry season paddy rice production. Photo: Agronigeria.com

Rice is a basic staple in the country and production is increasing, but continues to lag behind demand.

would be self sufficient in rice production while a full ban on importing rice would be placed on the commodity by 2015.

It was in view of the need to meet the set targets, that the Sokoto State government, in partnership with Fidelity Bank, disbursed US\$6,000mn (N1bn) agricultural loan to large-scale farmers in the state to boost food production, especially rice and cassava. Thus, Fidelity Bank acted as the intermediating institution in channelling the funds from the Central Bank of Nigeria for the purpose of lending to co-operative farmers and other agro-allied enterprises along the agro value chain business.

This is having positive effects on many farmers. Nura Attajiri, a large-scale rice farmer and entrepreneur, is one of the beneficiaries of the scheme, and has established a rice mill for the processing of rice for local consumption in the Kalambaina area of Sokoto.

Attajiri, like other beneficiaries of the

loan scheme, has been a large-scale rice farmer at the Bakalori Irrigation Project for over 27 years. But with the financial support Attajiri received from the state government, he was able to move from mere producer of rice to processing.

Attajiri engages in rice farming all year round through irrigation but decided to establish the rice mill following plans by the Federal Government to ban importation of rice in 2015. After planting of crops, it usually takes between three and four months before harvest. Subsequently, the commodity is transported to the mill for processing and packaging for onward sale at the market.

"We produce an average of 1,000 bags of rice after each harvest. We usually take the raw paddy rice to the mill, where it is washed to remove the chaff. It is then soaked in a tank filled with hot water and parboiled for two hours. After that, the rice is dumped in a steaming machine and later taken for drying. Thus, it is then processed in the rice milling machine to remove stones and impurities and after that the rice is bagged. So, it takes at least two days for paddy rice to be processed at the mill before it reaches the market for sale", he said.

Attajiri maintained that the quality of rice being produced in the state was more

nutritious than the imported rice from Thailand, which has preservatives. He however, noted that the major challenge was getting adequate paddy rice to be able to meet the demand of local consumption.

Attajiri noted that the plan by the Federal Government to ban rice importation in 2015 may not be feasible, as local production by farmers was low compared to the demand for the commodity. He said a ban on the importation of rice in 2015 would be counter productive, pointing out that out of the 50mn metric tonnes of rice being consumed in the country annually, 21mn was imported from China, India and Thailand.

"As a large-scale rice farmer that has been in the business since 1983, I know the negative effects of importation of rice on the economy. But the truth of the matter is

Concrete and genuine efforts should also be made by the Federal Government towards mechanised agriculture.



A ban on the importation of rice in 2015 would be counterproductive.

that banning importation of rice in 2015 without commensurate local production would be counter productive."

"Most of the people that collect agricultural loans from the government for paddy rice production are not genuine farmers. I strongly believe that it will take some time for Nigerian farmers to meet local demand, and this can be achieved only if the government is determined to put in mechanisms to ensure that only genuine farmers are empowered," he said.

He added that concrete and genuine efforts should also be made by the Federal

Government towards mechanised agriculture in the country and expressed the readiness to commence the exportation of rice to neighbouring countries soon

"We cannot develop as a country if we rely on importation of food and goods without producing it locally. We have tomatoes, onions, pepper and sugar cane in Sokoto, which can be processed to have a multiplier effect on the economy. It is high time our people engaged massively in local production of goods to create wealth, generate employment and fight poverty," Attajiri enthused. ¹⁰



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While much of the recent progress has been in the high capacity self-propelled and trailed sectors of the crop sprayer market, tractor-mounted models can still provide cost-effective crop protection on smaller farms. Mike Williams reports.

Sprayer developments

John Deere's new R4040i sprayer has a 4000-litre tank and up to 36m boom width.

FOR THOSE WHO need plenty of tank capacity and a wide boom to handle a large workload, self-propelled or trailed is likely to be the best option, and another attraction is that the latest advances in spraying technology are usually available at this end of the market before appearing on the lower-priced mounted models.

It is also important to remember that a simple purchase price comparison can be misleading because the figures for both mounted and trailed sprayers should include some allowance for part of the tractor cost, but this does not apply to a self-propelled sprayer.

For growers who need a simple approach to small- or medium-scale crop protection, the new Alpha series mounted models from Team Sprayers offer tank capacities of 600, 800 and 1000 litres. The standard boom width is 12 metres, with smaller versions available from six metres upwards, all with manual folding and a self-levelling action. The diaphragm pump has 73 l/min capacity and in-cab electrical controls and a foam marker kit are available at extra cost.

Kuhn Farm Machinery offers a wide range of tractor-mounted sprayers in four different series with tank capacities from 600 to 1800 litres. The entry level Optis sprayers are offered with steel booms in 12 to 16 metre widths and with manual folding only. At the top of the range are the Altis models with both steel and aluminium boom options and with hydraulic folding

Many of the leading sprayer companies have introduced front tanks to complement their tractor-mounted ranges.

available. The maximum boom width for the Altis sprayers is 28 metres.

Lemken tractor-mounted sprayers are available in the Sirius 8 series with an electric remote control system, while the Sirius 10 models have computer-operated controls. Top models in the range have tanks holding up to 2000 litres, and the tank shape is tall and narrow to bring the centre of gravity close to the back of the tractor to ease the lifting effort. Sirius 8 boom widths are up to 15m with from 12 to 30m for the Sirius 10 series, and the maximum pump output is 22 l/min.

Additional tank capacity

A different approach for those wanting additional tank capacity plus the advantages of a tractor-mounted sprayer is to use an auxiliary tank mounted on the front of the tractor. This is an idea that is attracting increased interest because it can offer the same total tank capacity as a small- to medium-sized trailed model, and the additional tank also acts as a front weight on the tractor.

Many of the leading sprayer companies have introduced front tanks to complement their tractor-mounted ranges including Kverneland's Vicon brand. The

Vicon Ixter series mounted sprayers have maximum tank capacities up to 2,000 litres with 15 to 30-metre boom widths, and using the optional Ixtra front tank adds an additional 1,100 litres. There are two versions of the Ixtra tank, the Comfort specification with manual controls and a mechanical level indicator to show the contents, but on the Pro version both are operated electrically.

Self-propelled sector

Recent developments in the self-propelled sector of the sprayer market include a list of specification improvements for the Pantera model from Amazone. The power unit is a 218hp Deutz engine, which can be operated in a fuel-saving Eco mode or in the Power mode for maximum output. The transmission has been upgraded to provide a 50 kph travel speed on the road, and the braking system has been improved with hydraulically operated discs all round to provide improved stopping power.

Amazone has also increased the tank capacity to provide 4,500 litres and the 24 – 40 metre boom has an improved suspension system to increase stability plus automatic height control during headland turns. The latest specification also includes an improved Claas Vista cab with the latest high tech air filtration system with pressurisation that meets the category IV filtration standard, protecting the operator from health hazards while using spray chemicals.

Hardi has added a new cab to the specification for their latest Alpha Evo self-

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propelled sprayer, using a three-pillar design to improve all-round visibility from the driver's seat. There is a choice of 217 and 245hp Deutz engines, both with EcoDrive control to match the engine output and fuel consumption to the load, and for road travel this is also said to reduce noise levels in the cab.

Dealing with steep slopes

Another feature of the new Hardi design is an automatic control to allocate more power to the rear wheels when climbing a slope, but putting more power through the front wheels on down gradients, an arrangement that is said to give increased traction and stability when on steep land.

Also designed to cope with steep slopes is the latest Condor MountainMasterPlus self-propelled sprayer from Agrifac. It is based on a special chassis that can provide a self-levelling action while working on side slopes of up to 20 per cent, while stability is maintained by providing two levels of track width adjustment with either 190 to 265cm or 225 to 300cm settings available. Agrifac has also introduced a new Condor

Designed to cope with steep slopes is the latest Condor MountainMasterPlus self-propelled sprayer from Agrifac



The Altis series mounted sprayers from Kuhn Farm Machinery have boom widths up to 28 metres.

Endurance model based on a standard chassis with a 50 kph transmission and carrying an 8000-litre tank.

Cab improvements

Cab improvements feature on John Deere's newest self-propelled sprayer, the R4040i. The cab interior is restyled and includes an updated cornerpost display and the entry and exit are now easier. The power unit is a 6.8 litre John Deere engine with 235hp rated output plus a power boost to 255hp, the tank capacity is 4,000 litres and the

standard specification includes a new 50-litre PowerFill induction unit for transferring spray chemical into the tank. Maximum boom width is 36m.

Smaller capacity trailed sprayers are often the next step up in capacity for farms that have outgrown their existing mounted models, and some of the leading manufacturers have introduced special entry-level trailed sprayers to encourage customers to make the upgrade. One of the attractions of moving up to a trailed sprayer is that it spreads the total weight of tractor plus sprayer over an extra pair of wheels, and this can help to reduce ground compaction in some soil conditions.

An example of a sprayer designed to help narrow the gap between mounted and trailed is the recently introduced AG2500 trailed model from the French built Tecnomas range. It has a 2,500-litre tank capacity, which is similar to many mounted sprayers and front tank combinations. To reduce the price difference, the AG2500 specification lacks some of the latest high technology design features.

For large farms and for contractors offering a crop-spraying service, the Leeb GS trailed sprayer from Horsch offers high capacity combined with a high specification.

Three tank sizes are available from 6,000 to 8,000 litres, with tanks made of stainless steel for long-term corrosion resistance, and a 1000 l/min transfer rate helps to reduce the time required for tank filling. The maximum boom width is 36 metres using booms made of steel and equipped with a special pneumatic cushioning system to absorb shock loads while travelling over rough ground. Special features in the standard specification include sprayer wheels with hydraulically operated steering and there is an automatic control system for headland turns. **E**



The Pantera 4502 sprayer from Amazone has a 4800-litres tank and a 218hp engine.

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The African Orphan Crops Consortium (AOCC) recently opened the African Plant Breeding Academy to help improve the livelihoods of Africa's smallholder farmers and their families, reduce hunger and boost Africa's food supply.

Addressing nutrient deficiencies in African soils

TWO HUNDRED AND fifty plant breeders from different African countries went recently to the newly opened African Plant Breeding Academy in Nairobi to examine the nutritional and productivity levels of about 100 African crops. Upon completion of the project, which is set to last five years, these breeders will be able to advise smallholder farmers in their respective countries on the crops with high yields and nutrition.

Crop yields and nutrition are boosted when farmers cultivate the right crops, said Howard-Yana Shapiro, an assistant professor at the College of Agriculture and Environmental Sciences at the University of California–Davis, US, which is involved in this project. "What we are trying to do is [help] correct the lack of nutritional content in many indigenous African food crops."

Under the umbrella of the African Orphan Crops Consortium (AOCC), the University of California is collaborating with the African Union through the New Partnership for Africa's Development (NEPAD), the International Livestock Research Institute (ILRI), the World Agroforestry Center and others to implement this high-tech initiative.

The consortium launched the plant-breeding academy, the first of its kind in Africa, last December. Ngozi Abu, one of the trainees and also a senior lecturer in the Department of Plant Science and Biotechnology at the University of Nigeria, emphasised that African researchers should take the lead in research on African crops. Only African scientists, or those working in Africa, know the desires of African farmers and consumers, she said. Ms Abu believes that African crops, such as cocoyam and plantains, could become the nutritious crops of the world tomorrow."

The 250 plant breeders will use new equipment and techniques to "genetically sequence, assemble and annotate the genomes" of the hundred African crops, explained Margaret Kroma, an assistant director general at the World Agroforestry Center.

Discovering the DNA of crops

It's about getting the DNA of crops, Allen Van Deynze of the University of California Seed Biotechnology Center added. He maintained that if breeders understand the DNA of crops, farmers could even get information on crops with strong resistance to climate change, in addition to being able to select those with higher nutritional content and yields.

Throwing his weight behind the academy, Ibrahim Mayaki, the head of NEPAD, said, "Malnutrition is a direct product of food insecurity. A large number of Africans suffer deficiencies of micronutrients such as minerals, iron and vitamin A, with devastating effect on the population." According to the Food and Agriculture Organization (FAO), malnutrition is responsible for more than half of child deaths in developing countries.

Mr Deynze likened this initiative to using a smart cell phone instead of an analogue landline phone.



The baobab will be the first orphan crop.

African breeders will "take advantage of the latest technologies to rapidly advance development of crops that are important to African diets and health," he said, adding that farmers easily double their yields when they plant the right seeds.

The baobab: a wonder tree

The first orphan crop to be sequenced, assembled and annotated at the Academy will be baobab, which can be used as a dried fruit powder for consumer products. Baobab is called 'the wonder tree' in Africa because its fruit has 10 times the antioxidant level of oranges, twice the amount of calcium than spinach, three times the vitamin C of oranges and four times the potassium of bananas, antiviral properties, gluten-free and much more. By sharing knowledge of the genome sequences of baobab and other African crops, scientists and technicians working at the Academy will inform plant breeders and farmers of species varieties that are more nutritious, productive and robust.

This is a development that gives Mr Deynze hope for Africa's agricultural progress. If there could just be better co-ordination of the many different agricultural projects on the continent, Mr. Deynze said that "Africa's agricultural future could be very exciting." ¹

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If there could just be better co-ordination of the many different agricultural projects on the continent, Africa's agricultural future could be very exciting.

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Plant parasitic nematodes have always presented one of the most difficult pests to identify and control. Dr Terry Mabbett looks at a possible solution to this problem.

Soft touch nematode control via irrigation

NEMATODES ARE ROUNDWORMS that can only be observed and identified under high magnification, although the symptoms and damage caused by plant parasitic nematodes to a wide range of crop plants is all too easy to see. Plant parasitic nematodes inhabit the soil and invade the roots of many different crops and have always presented one of the most difficult pests to identify and control.

Hard chemistry nematode control

Hard chemical nematicides applied to the soil as fumigants (general soil sterilants) and liquids or granules (systemic chemicals which enter the root system) are generally used to control nematodes. All chemical nematicides will kill the free-living soil-inhabiting juvenile stage by contact action. Systemic products are absorbed by the roots and move therein to eradicate those juvenile stages and adult nematodes feeding on the root system.

Downsides of using chemical nematicides are mostly related to acute toxicity posing high potential risk and hazard to operators and the environment.

- The generally high mammalian toxicity of chemical nematicides demands a long withholding period (safe harvest interval) with use confined to the pre-plant or crop planting stage.
- Safe and effective use requires custom-designed, closed pesticide application systems so that operators do not handle or come into contact with the formulation. Only properly trained and qualified personnel should operate such equipment.
- An ever present risk of water source contamination is exacerbated in arid and semi-arid regions with relatively small and immobile water resources.
- There is a constant risk of chemical

Plant parasitic nematodes are exceptionally stubborn soil-borne pests requiring treatment at the start of every crop.



Tomatoes grown in greenhouses or outside is one of the most susceptible crops to nematode attack (Picture courtesy Omex).

stress in young establishing plants to which chemical nematicides are applied. Plant parasitic nematodes are exceptionally stubborn soil-borne pests requiring treatment at the start of every crop. As such there is high and continual selection pressure on the nematode population with real risks of resistance to chemicals.

Greenhouse crops and root knot nematodes

For these reasons, growers and governments around the world are increasingly looking to softer touch alternatives for nematode control, to maintain operator safety and the integrity of water resources.

A large number of different plant parasitic nematodes affect a wide spectrum of crops but greenhouse tomato crops attacked by root knot nematodes (*Meloidogyne*) are among those which suffer most damage. Complete crop failure is not unusual.

Tomato plants are highly susceptible to root knot nematodes and tomato crops grown under protection are especially at risk for the following reasons. Greenhouse cultivation means cropping throughout the year, with tomatoes grown alongside a limited range and rotation of alternative crops, like aubergines, sweet peppers and cucumbers, all of which are hosts to root knot nematodes.

As such, greenhouse soils lack the wider

aspects of field crop production where susceptible crops can be rotated with crops which actually reduce nematode numbers. In addition, outdoor soils invariably experience a long hot summer fallow, during which the nematode population is reduced by 'soil solarisation'.

There are over 60 different species of *Meloidogyne* worldwide, but for tomatoes and many other greenhouse crops *Meloidogyne javanica* and *M. incognita* are the most damaging. Highly susceptible crops grown under warm conditions in light, sandy and friable soils, which facilitate movement of the free living juveniles, are ripe for nematode invasion and development, and, therefore, suffer correspondingly high levels of damage.

Root knot nematodes display a relatively straightforward but highly efficient and effective life cycle:

- Adult female nematodes lay egg masses on the root surface
- J1 (juvenile) stage develops inside the egg
- J1 develops into free-living J2 stage and is attracted to the root which it invades. Invasion and subsequent feeding stimulates the formation of 'giant cells' which collectively form 'galls' (knots) on the roots
- The J2 stage subsequently develops through J3 and J4 stages and eventually into the adult nematode inside the root

A softer touch control alternative

Omex Agrifluids, the soluble plant nutrient specialist with its soft chemistry ethos has the answer in a new all-natural product based on extracts from garlic and other plant species. Omex sees this new natural and water soluble product as the modern-day logical extension of an age-old agronomic practice used in Egypt. Egyptian farmers planted garlic between tomatoes and cucumbers to suppress soil-borne nematode pests, although clearly not aware of what was at 'the root' of the problem.

"Omex Vigga is a natural soil amendment product applied to the root zone to protect plants from nematode attack" said Omex's export director Peter Prentis. "This new product is a highly concentrated water-soluble suspension based on garlic extract obtained by cell burst technology," said Alan Lowes, regional director at Omex. The garlic extract contains 'allicin' co-formulated in Omex Vigga with another naturally occurring plant extract acting as a synergist.

"Sulphur is the key active component in Omex Vigga as 4,000ppm elemental sulphur (S) and 10,000ppm sulphite (SO₃),



Egyptian farmers have traditionally planted garlic amongst cucumber and tomato crops to suppress nematodes.



Soil removed around a tomato plant to reveal galls on the roots caused by *Meloidogyne* nematodes. The friable sandy and free draining soil typical of greenhouse cultivation is ideal for movement of the free living juvenile nematode stage (Picture courtesy: Omex)

with a dual activity - to manage nematodes and provide a biostimulatory boost to crop growth and development," said Peter Prentis. "Highly successful trials have been carried out on greenhouse tomatoes in southern Spain" he said, adding how the dossier on Omex Vigga has been submitted for EU (European Union) registration.

"Omex Vigga is a preventative control product" said Alan Lowes, explaining how it kills free-living soil-borne juvenile nematodes by contact. It is not systemic and therefore cannot enter the plant to kill established root-feeding adults, but, by the same token, does not present any residue problems for harvested produce. "There is no withholding period for Omex Vigga" Alan said.

"We will be recommending Vigga for use at the planting stage to provide crucial base-line protection at planting and thereafter. Growers faced with severe nematode infestations on established crops may still have to use an appropriate

chemical nematicide to provide a single 'big hit', but, thereafter, they can apply Omex Vigga in tandem with Omex Bio20 for extended protection," says Peter Prentis. "Vigga will protect the crop from nematodes while Bio20, a nutritional biostimulant targeted at the root system, repairs the damage caused by nematode invasion and feeding."

The greenhouse tomato crop is the initial main target for this novel product and quite rightly and logically so. Tomato is susceptible to nematode attack and, especially, from root knot nematodes, which are the most prevalent and damaging to tomatoes. Greenhouse and outdoor cropping systems equipped with micro/drip/trickle irrigation systems are 'tailor made' for the dual delivery of Vigga and Bio20 in a combined chemigation/fertigation operation.

Omex intends to extend and expand the use of Vigga into other greenhouse crops, outdoor fruit and vegetable crops and field crops including wheat and potatoes. [Ⓔ]



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Large grain storage facility for Uganda

FRAME, ONE OF Europe's largest manufacturers of corrugated storage silos, has supplied a number of commercial silos to several well known clients in East Africa, primarily into the flour milling sector. Such clients include Bakhresa Group, Mikoani Traders, Coast Millers, Mbagala Bulk Grain Handlers & Millers and Mount Meru Millers Ltd. It would now seem that there are opportunities in large agricultural cereal storage facilities in the region.

In November 2011, having seen a number of FRAME silo installations in Uganda, Jim Middleton of Engineering Solutions (U) Ltd, based in Kampala, a leading supplier of Massey Ferguson tractors as well as a number of other leading brands of agricultural equipment, approached Frame to submit prices for an 'on-farm' cereal storage facility for a complete new storage, handling and drying facility to be erected near to the Murchison Falls Park, in north west Uganda.

Oola Lolim Farm, Lolim village, Nwoya district has a total of 1,396 ha, of which currently 485 ha have been cultivated. The eventual aim is to cultivate 1,011-1,133 ha; the rest, because it close to waterways, is too wet to work for most of the year, will be planted with trees.

Currently, maize is grown, with sunn hemp as a cover crop in the 'off season'; in the longer term, soya beans will be grown as a break crop.

From the basic information provided, Frame prepared the offer based on three no. FRAME FP 12/15 silos, each silo with a capacity of 1,073 tonnes based on maize @ 750 kgs/cu m. The standard FRAME galvanising specifications of 450 grammes/sq m for both the sidewall and roof sheets and spun galvanising fixings were included.

The layout of the silos was based on the typical European arrangement of filling via bucket elevator from a gravity intake pit to be constructed on site and a chain conveyor over the silos, with a catwalk to both supporting the conveyor as well as providing access to each silo. This design allows for easy future extension as well as minimising maintenance costs and the need for a support tower for the bucket elevator. The conveyor included electrically operated outlet slides.

Each silo was offered with a very efficient level floor aeration system, with backward curved centrifugal fans providing on airflow of approximately 7cu m/tonne/h. In addition, temperature cables with multiple sensors and a wall-mounted microprocessor to provide an accurate indication of the temperature of the stored crop was included.

For the reclaim, the design incorporated manual remotely controlled central and intermediate outlet slides in the silo base, each feeding a FRAME model CV 250mm diameter 'U' trough screw conveyor to be positioned in a trench within the concrete base. The CV



screw conveyors fed a chain conveyor to be positioned at the side of the line of the FP silos, with a short cross conveyor to feed the main elevator, this machine is to be used to gravity feed to a small bagging facility via an electric two-way diverter as well as being the main intake elevator.

All of the mechanical-handling equipment was offered with a capacity of 50 t/h based on dry maize. FRAME CST 'permanent' sweep augers were included in each silo for the final clearing of the stored cereals.

The final contract for the equipment was confirmed in January 2012; FRAME prepared drawings for the general arrangement of the silos as well as mechanical-handling equipment and the civil works were carried out by local contractors.

FRAME included for the supply of the specialist lifting jacks and the supervision of the erection and installation of the silos and ancillary equipment. Engineering Solutions (U) Ltd provided other tools and labour to complete the project; it also included the electrical control panel and cabling etc to complete this initial phase of the project.

In October 2012, initial costings of the next phase of the project were prepared: The FRAME scope of supply included two additional bucket elevators and an another chain conveyor. These machines were required to feed a PPR 3/9 Rotary drum pre-cleaner, with a PA 60 aspirator. A wide selection of screens was also included.

In addition, to complete this phase of the project, Engineering Solutions (U) Ltd purchased a continuous mixed flow dryer with capacity of 20 t/h based on maize, from a UK manufacturer. The final contract was agreed in January 2013 and the equipment supplied for the 2013 season.

The installation of the equipment supplied by FRAME for this part of the project was undertaken by Engineering Solutions (U) Ltd.

The next phase of the project will be the inclusion of a large capacity 'wet' silo to receive incoming maize and then feed the continuous dryer

Improvements in farm silos from Symaga

SYMAGA, A LEADING manufacturer in grain storage, in 2014, enlarged its range of farm silos, offering 3.80 meters diameter with 45° and 60° hopper and increasing the capacity up to 85 cu m. It also provided, on demand, a new model, diameter 2.50 metres with stainless steel hopper. Symaga enhanced steel coating, setting the standard coating in Z600, which offers 33 per cent more protection compared to the previous model, which was launched last year, with a full range of diameters and accessories.

By investing in its factory, Symaga has become the first industrial silo manufacturer with CE certification. From 2013, Symaga has certified the



manufacture of industrial and farm silos with CE marking according to EN 1090, which ensures reliable manufacture, as CE-marking requires inspections inside the factory and certification from a notified organisation (NB), factory production control (FPC), welding quality

control and END tests on: welding, periodic corrosion and mechanical over regular materials as well as the finished product.

Symaga aims to position itself in the livestock market as one of the main suppliers of equipment or full-line projects for poultry and pigs.

To achieve this objective, in 2013 the company acquired PAL, extending its poultry offer, and developed a programme for new products and improving existing ones. This year, it has launched a new building for broilers and turkeys and is redesigning all pig boxes and feeders.

Case IH leads the way to efficient sugar cane harvesting in Mauritius

CASE IH PRESENTED its powerful agricultural equipment solutions for the sugar cane industry at the Africa Sugar Cane Harvester Camp that took place from 26-31 October in Mauritius. The event was successfully attended by the most relevant representatives of corporate customers and large agro-industrial farms operating in the sugar cane and bio-ethanol sectors in several African countries, including Sudan, Mozambique, Tanzania, Kenya, Zimbabwe, Nigeria and Sierra Leone.

The Sugar Cane Harvester Camp provided participants with insights into advanced farming practices for large-scale sugar cane production and presentations of the Case IH offering, including the Austoft 8000 Series of industry-leading sugar cane harvesters. Attendees also had the chance to test-drive Case IH sugar cane harvesters and high-horsepower tractors during real, in-field working operations.

The camp was organised by Case IH in collaboration with its local dealer, Mechanization Co Ltd, and with the support of La Moisson Limitée, a local contracting company and a Case IH customer for more than 40 years, which provided the machines used for the demonstrations.

Mathew Foster, vice president at Case IH and



responsible for Europe, Middle East and Africa, understands this is a strategic event for the company: "The sugar cane sector has become increasingly competitive and diversified and at Case IH we want to make sure that farmers are well equipped to tap any new growth opportunity."

"With this event, we wanted our customers to understand the full advantages of having Case IH machines running in their fields," he continued. "In fact, our brand can leverage on a heritage that no other company has. Case IH is the originator of sugar cane harvesting technology and, with its long-established reputation for high-output equipment, confirms itself as the ideal partner for large-scale sugarcane farmers."

"The sugar cane industry is an important customer segment for Case IH globally, and in

Africa and the Middle East in particular. We are excited to continue our work expanding our presence in this potentially very productive area of the world," said Marty Chamberland, responsible for global strategic initiatives for Case IH, who presented the company and its history.

Case IH offers the most advanced and reliable sugar cane harvesters in the market. The Austoft 8000 Series are the industry's highest capacity sugar cane harvesters and ideally suited for the most demanding productivity and performance needs.

"These machines have exclusive features that further improve their outstanding efficiency," said Yoann Clarisse, Case IH Harvester product marketing specialist, EMEA region, who conducted the test drives. "The Autotracker automatically adjusts the harvester basecutter height through sensors in the hydraulic suspension system. It reduces saccharose losses by up to 33 per cent and roots damage by 27 per cent while it preserves next year's field production. Furthermore, the cutting chamber is more protected thanks to the reduced ingress of soil and rocks. The Autotracker is a Case IH exclusive and it is also available in seeding billet mode."

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AGCO for sustainable agricultural efficiency

AGCO, A GLOBAL leader in technology farming solutions, presented its vision for the future of Africa's agri-food sector to a global audience during the pan-African AgriBusiness Forum 2014, held in Kinshasa DRC in October 2014.

"The private sector can, and does play a significant role in developing the agri-food sector in Africa," explained Nuradin Osman, AGCO's director of operations for Africa and the Middle East, in the run-up to the forum. The global company's focus is for large-scale commercial farmers as well as emerging farmers to access appropriate technology that will boost their productivity, and, in turn, their profitability.

To achieve this, AGCO is developing new technologies adapted for the demands of a diverse African agri-food sector. "Alongside our existing product range, AGCO will introduce modern implements that develop new methods for crop establishment, tillage and planting supporting the conservation farming movement," Osman stated.

The AgriBusiness Forum 2014, entitled "Towards Inclusive Growth: A Vision for Africa's Agricultural Transformation" mirror's AGCO vision to provide technological solutions for an inclusive agri-food sector.

Co-organised by EMRC and DRC's ministry of agriculture (MINAGRI), and in partnership with the UNDP, FPI (Fund for the Promotion of Industry), FAO, Rabobank Foundation, Trust Merchant Bank (TMB), AGCO and others, the forum brought together over 400 people working in and with sub-Saharan Africa to discuss the most pressing issues concerning African agricultural and agribusiness sectors.

Finding solutions for African farming is key to AGCO's vision for its own commercial initiatives in Africa. Technologies need be adapted to the continent's agrarian needs, which AGCO is implementing through developing productivity-boosting hybrid combines, state-of-the-art grain storage and protein technology and the newly launched Fuse Technologies.

Work started on Deutz-Fahr Land

THE INITIAL FOUNDATIONS of the Deutz-Fahr Land project were laid on 14 October at Lauingen, Bavaria, marking the official start of construction on this new industrial area entirely dedicated to the Deutz-Fahr world.

In order for this to be built, a total area of 125,000 sq m was acquired adjacent to the current Deutz-Fahr facility. The new production plant will be an L-shaped construction with 40,000 sq m of covered floor space, oriented towards higher technological standards in terms of painting systems and hydraulic, electrical and electronic testing.

This will take the Lauingen production site's capacity to 8,000 tractors/year on one shift. At the end of the construction work, expected within 2016, the Lauingen production site will occupy a total area of 340,000 sq m with a 138,000 sq m of covered floor space.

The total investment, which comes to US\$92mn, calls for the creation of specific solutions for testing and training activities, as well as a reception and museum area in order to offer a 100 per cent Deutz-Fahr experience to customers and the distribution network.

On hand for the ceremony were Lodovico Bussolati, CEO of Same Deutz-Fahr, Rainer Morgenstern, Same Deutz-Fahr Germany CEO and commercial executive director Europe, the Lauingen and Dillingen district authorities, Aldo and Francesco Carozza, Same Deutz-Fahr vice-chairmen who symbolically launched the works from aboard two Deutz-Fahr 6 Series tractors fitted with front loaders.

"The launch of construction work on the new industrial area" said Bussolati, "represents a decisive milestone in the growth of the Deutz-Fahr brand and accompanies the completion and progress of the high power product range thanks to the new range of tractors up to 440 horsepower.

For these two important factors, the next two years will be fundamental in the history of this brand.

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