

African Farming

and Food Processing

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

Impacting

Africa's cocoa production

Optimising

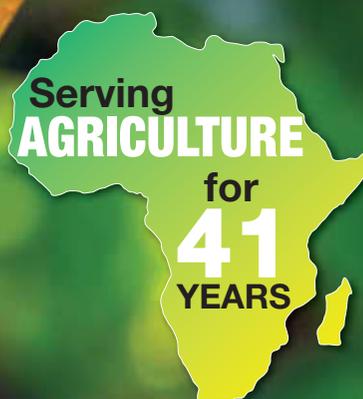
livestock nutrition

Smart tillage

solutions



Vaccination for poultry. p13



Annual Agricultural Buyers' Guide

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Who supports poultry processors to achieve top results?



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Contents

News and Events 04

A topical digest of news, views and events including the Farmers' Calendar.

Poultry 10

Chlorine dioxide for water treatment

Biomin's Mycofix PRO-tect

Importance of vaccination

Livestock 14

Nutrition and feeding

Pig farming solutions

New research on pig diets

Crops 18

Enhancing cocoa production

New report on trends in food production

Fight against fall armyworm

Optical sorting

Equipment 24

LEMKEN's iQblue connect

AI to combat locusts

Precision Planting

AGCO's Challenger MT 800

BKT unveils range of AGRIMAX V-FLECTO sizes

ARTOLIO project



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Innovative solutions for pig farming, p16



LEMKEN's iQblue connect.p24

Country	Representative	Telephone	Fax	Email
India	Satyanarayan Naidu	+91 98 33055655		satyanarayan.naidu@alaincharles.com
Nigeria	Bola Olowo	+234 8034349299		bola.olowo@alaincharles.com
South Africa	Sally Young	+27 (0) 824 906 961	+27 46 624 5931	sally.young@alaincharles.com
UAE	Murshid Mustafa	+971 554706472	+971 4 448 9261	murshid.mustafa@alaincharles.com
USA	Michael Tomashefsky	+1 203 226 2882	+1 203 226 7447	michael.tomashefsky@alaincharles.com

Editor: Fyna Ashwath E-mail: fyna.ashwath@alaincharles.com

Editorial and Design team: Prashant AP, Mariam Ahmad, Miriam Brtkova, Praveen CP, Robert Daniels, Matthew Hayhoe, Manojkumar. K, Nonalynka Nongrum, Unique Pattnaik, Abhishek Paul, Samantha Payne, Rahul Puthenveedu, Deblina Roy, Vinita Tiwari and Louise Waters

Publisher: Nick Fordham

Magazine Manager: Richard Rozelaar
Tel: +44 207 834 7676
Email: richard.rozelaar@alaincharles.com

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

Middle East Regional Office:
Alain Charles Middle East FZ-LLC
Office L2-112, Loft Office 2,
Entrance B, PO Box 502207
Dubai Media City, UAE
Telephone: +971 4 448 9260
Fax: +971 4 448 9261
E-mail: post@alaincharles.com

Production: Srinidhi Chikkars, Swati Gupta and Nelly Mendes
Email: production@alaincharles.com

Subscriptions: circulation@alaincharles.com

Chairman: Derek Fordham

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Farming Calendar 2021

APRIL

07-09	FoodAgro Africa www.expogr.com/tanzania/foodexpo/	DAR-ES-SALAM
15-17	AgriTech Expo Zambia www.agritech-expo.com	CHISAMBA

MAY

27-29	IDMA AND VICTAM EMEA 2021 www.idmavictam.com	ISTANBUL
03-05	agrofood & plastprintpack Ethiopia www.agrofood-ethiopia.com	ADDIS ABABA

JUNE

16-18	Agritec Africa www.agrofood-nigeria.com	NAIROBI
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JULY

06-08	agrofood & plastprintpack Nigeria www.agrofood-nigeria.com	LAGOS
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SEPTEMBER

06-12	IATF 2021 www.intrafricantradefair.com/en	KIGALI
02-05	Iran agrofood www.iran-agrofood.com	TEHRAN

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

Boosting renewables in food and agriculture

THE FOOD AND Agriculture Organisation of the United Nations (FAO), and the International Renewable Energy Agency (IRENA) have partnered to accelerate the deployment of renewable energy technologies in agri-food, fisheries and forestry chains and sustainable bioenergy through the signing of a collaborative agreement.

Signed by FAO director-general QU Dongyu and IRENA director-general Francesco La Camera in a virtual meeting, the new memorandum of understanding aims to improve the profitability and sustainability of the food and agriculture sectors by accelerating the use of renewables and sustainable bioenergy while fostering climate action and resilience. Energy-smart agri-food practices based on renewables can increase both agricultural productivity, food chain decarbonisation and food security.

IFAD to mobilise US\$500mn fund for small-scale farmers

THE INTERNATIONAL FUND for Agricultural Development (IFAD) is launching a new climate fund dedicated to channelling climate finance to small-scale producers.

The IFAD's Enhanced Adaptation for Smallholder Agriculture Programme (ASAP+) aims to mobilise US\$500mn to reduce climate change threats to food security, lower greenhouse gases and help more than 10 million people adapt to weather changes. It will help countries achieve their nationally determined contributions set under the Paris agreement. Austria, Germany, Ireland and Qatar have already pledged commitments.

Gilbert F. Hougbo, president of IFAD, said if investments to help rural small-scale farmers adapt to climate change do not substantially increase, we risk widespread hunger and global instability.

"It is unacceptable that small-scale farmers who grow much of the world's food are left at the mercy of unpredictable weather patterns, with such low investment to help them to adapt," said Hougbo.

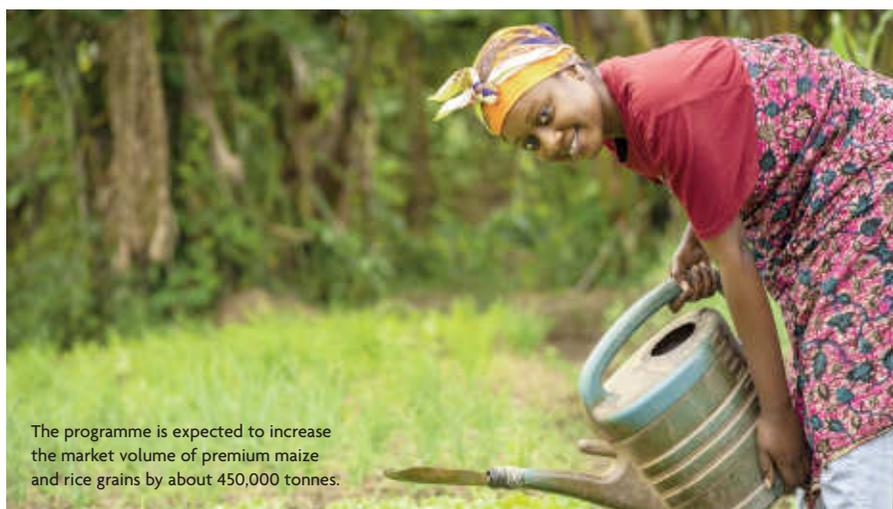
Mastercard Foundation supports women farmers' recovery and resilience in Nigeria

APPROXIMATELY 10,000 WOMEN in Nigeria will be selected as direct beneficiaries of a two-year agricultural intervention as Value Seeds launches its COVID-19 Recovery and Resilience Intervention Project in partnership with the Mastercard Foundation.

The programme is expected to increase the market volume of premium maize and rice grains by about 450,000 tonnes. It will create indirect jobs in the value chain of crops, including input traders, farm workers, transporters, logistics officers, marketers and agro-processing workers.

"The effects of the COVID-19 pandemic have aggravated constraints affecting farmers' productivity by making inputs more expensive and market logistics more tedious for the smallholder farmer. We intend to improve farmers' yields by providing access to improved seeds, quality crop production inputs, and strengthening their capacity to produce optimally," said George Kabutha, project lead, Value Seeds.

"Value Seeds advocate that a bottom-ups agricultural transformation is the best path to inclusive economic growth to build the



The programme is expected to increase the market volume of premium maize and rice grains by about 450,000 tonnes.

Image Credit: Anno/ Adobe Stock

resilience of the Nigerian population. The goal of the project is in alignment with the Mastercard Foundation COVID-19 Recovery and Resilience Programme, which focuses on the provision of direct support to companies in the agricultural value chain, specifically to ensure that smallholder farmers have access to markets and to maintain food security,"

said Chidinma Lawanson, country head Nigeria, Mastercard Foundation.

Through this intervention, Value Seeds contributes to re-igniting the Nigerian economy and ensure food supply chains enhancement, thereby increasing the economic health of smallholder farmers while improving employment indices.

OPEC Fund signs US\$20mn development loan to improve sustainable agriculture in Malawi

THE OPEC FUND for International Development has signed a US\$20mn development loan agreement with Malawi to improve the livelihoods of around 1.3 million people living in rural areas.

The funding will support the 'Transforming Agriculture through Diversification and Entrepreneurship' programme, aligning it with Sustainable Development Goal 2 on food security, improved nutrition and sustainable agriculture. The objective is to strengthen the value chains and improve the resilience and capacity of smallholder farmers and rural organisations in Malawi.

The programme will provide better infrastructure (including new roads) and access to rural financial solutions, enhanced partnerships with the private sector and inclusive business development services. Climate smart interventions will help to combat land degradation and improve agricultural productivity. The programme supports Malawi's National Agriculture Policy (NAP), which aims to achieve sustainable agricultural transformation to boost growth in the agricultural sector, increase income for farm households, improve food and nutrition security for all Malawi and boost agricultural exports.

The OPEC Fund is co-financing the programme with the International Fund for Agricultural Development as well as private sector enterprises, beneficiaries and the government of Malawi. To date, the OPEC Fund has approved 22 loans in Malawi for a total of more than US\$207mn. The approved finance relates to operations in the health, agriculture, transport, education, and water and sanitation sectors.

OFID was established in January 1976 by the then 13 member countries of OPEC, including the UAE. It is the development finance institution established as a channel of aid to developing countries.

AgriTech Expo Zambia launches eLearning platform

DLG AGRICULTURE HAS announced that they have launched the AgriTech eLearning Platform. The AgriTech eLearning platform offers a digital arena where interactions between farmers, equipment manufacturers and suppliers can be carried out with ease. The AgriTech eLearning platform is



Image Credit: ImageIn/Adobe Stock

open and free to access for all. "Our ever-growing network of farmers can filter and select content ranging from farm management best practices, crop protection techniques, equipment and technology highlights all delivered by experts, exhibitors and institutions through engaging videos, top tips, informational articles and much more," said Christopher Armstrong, marketing director, AgriTech Expo Zambia, DLG International.

AgriTech Expo Zambia will be back in Chisamba, Zambia for the seventh edition, from 15-17 April 2021.

In addition to the new site layout, the attendees will experience the all-new Bayer Networking Zone and the Livestock Zone. The Livestock Zone will offer visitors a live auction and animal show as well as interactive workshops and actual livestock in the field.

FAO declares 2021 as International Year of Fruits and Vegetables

THE DIRECTOR-GENERAL OF the Food and Agriculture Organisation of the United Nations (FAO), QU Dongyu, has launched the International Year of Fruits and Vegetables 2021 (IYFV) with a call to improve healthy and sustainable food production through innovation and technology and to reduce food loss and waste.

According to a news release by FAO, the IYFV 2021 is dedicated to raising awareness about the important role of fruits and vegetables in human nutrition, food security, and health.

The FAO director-general described the initiative as 'a unique opportunity to raise global awareness'. He noted that the COVID-19 pandemic had challenged people to find new ways to combat hunger and malnutrition, and said that IYFV would highlight the role of digital technologies in improving nutrition and market opportunities.

"In the current health crisis we are facing around the world, promoting healthy diets to strengthen our immune systems is especially appropriate," Qu said.

While noting the challenges in improving production and agri-food chains, the FAO director-general encouraged countries to see the International Year as an opportunity to improve infrastructure, farming practices thereby supporting small scale farmers. He



Image Credit: arrowsmith2/Adobe Stock

Advocacy for fresh produce is consistent to strengthen the role of smallholder and family farmers.

emphasised fruits and vegetables were a good way for farmers to create cash crops.

Fruits and vegetables are good sources of dietary fibre, vitamins and minerals and beneficial phytochemicals. FAO and the World Health Organisation recommend that each adult consumes at least 400 grams of fruit and vegetables daily to prevent chronic diseases, such as cancer, diabetes, heart disease and obesity, as well as to counter micronutrient deficiencies.

The FAO director-general noted that food loss and waste in the fruits and vegetables sector remains a problem with considerable consequences, and that 'innovative technologies and approaches are of critical importance', as 'they can help to maintain

safety and quality, increasing the shelf life of fresh produce items and preserving their high nutritional value'.

Food loss and waste reduction improves food security and nutrition, reduces greenhouse gas emissions, lowers pressure on water and land resources and can increase productivity and economic growth.

Up to 50% of fruits and vegetables produced in developing countries are lost in the supply chain between harvest and consumption.

Advocacy for fresh produce is consistent to strengthen the role of smallholder and family farmers, and fosters broader market options for millions of rural families. Gender equity opportunities are also noteworthy, as women often play leading roles for their households in producing and consuming fruit and vegetables.

The International Year of Fruits and Vegetables 2021 falls within the UN Decade of Action on Nutrition (2016-2025) and the UN Decade of Family Farming (UNDF 2019-2028). These observances reinforce each other while providing greater visibility to small-scale producers and raise awareness on food security and nutrition.

FAO celebrated the first - ever observance of the International Day of Awareness of Food Loss and Waste on 29 September 2020.

Rwanda's new cooling centre will help deliver farmers' produce to market quickly

THE RWANDAN GOVERNMENT has formally launched the African Centre of Excellence for Sustainable Cooling and Cold Chain (ACES) that is hosted in-country by the University of Rwanda.

At the inception meeting, a high-level cross-department team was established to lead the centre's development. In collaboration with the core technical partners — the University of Birmingham and UN Environment Programme's United for Efficiency (UNEP U4E) — progress in setting up the centre has quickened with the official endorsement of planned activities.

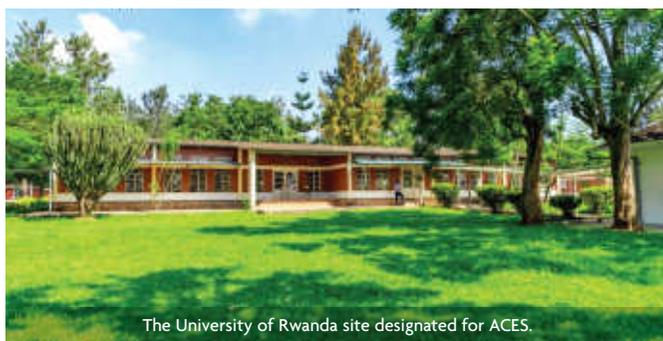
ACES will help get farmers' produce to market quickly and efficiently — reducing food waste, boosting profits and creating jobs as well as look to improve cold-chains for vaccines and health, now recognised globally as a key challenge for COVID -19 immunisation.

ACES brings together multi-disciplinary UK and in-country expertise with commercial partners to develop and demonstrate ways of delivering affordable lowest carbon emissions cooling and cold-chain systems while meeting Africa's social and economic cooling needs. Associated "Living Labs" will conduct research and offer technical assistance, demonstrations and knowledge transfer. The first Living Lab is anticipated in rural Rwanda, with others to follow in additional countries.

Dr. Mujawamariya Jeanne d'Arc, Rwanda Minister of Environment, said, "The Rwanda Cooling Initiative with UNEP U4E has assisted the development of the National Cooling Strategy in 2019 and it is now providing the foundation for ACES, which will bring together talent from across Africa to develop and deploy world-class cooling solutions. The Rwandan government supports the establishment of the centre with our partners over the months and years ahead."

Researchers from the University of Birmingham, Cranfield University, London South Bank University and Heriot Watt University are applying their expertise with rural cooling and cold-chain, backed by funding from the UK Department for Environment, Food and Rural Affairs (Defra).

The project's first cooling needs and gap assessment report is nearing completion, after in-country interviews with representatives



The University of Rwanda site designated for ACES.

Image Credit: University of Rwanda

from agricultural co-operatives and communities across Rwanda, as well as key ministries, private companies and NGOs.

Dr Papias M. Musafiri, vice chancellor of the University of Rwanda, said, "We are delighted to announce that the University has designed part of the Rubirizi campus as the site for ACES. The layout of the site is under development. The location is ideally situated in the capital of Kigali, with existing facilities and space for demonstration of new technologies and future expansion. We also established an interdisciplinary cohort of experts from across the University's colleges to underpin the development of ACES' cooling solutions."

Rwanda is one of the least urbanised countries in Africa with 73% of the workforce employed in agriculture. In sub-Saharan Africa, 54% of workers rely on the agricultural sector. A further challenge is that agriculture in Rwanda is dominated by six million small and marginal farmers, each on average farming less than 0.6 ha of land.

Project co-developer and technical lead Toby Peters, Professor of Cold Economy at the University of Birmingham, said, "Farmers need robust means of getting perishable produce to urban markets and medical staff must move temperature-sensitive vaccines to rural communities, but cold chain logistics must be sustainable. The centre's progress means we move closer to this goal in Rwanda and the wider continent without using fossil fuels — giving Africa the means to feed millions of citizens effectively and meet export targets to drive growth."

Women in Food and Agriculture mentorship programme

THE WOMEN IN Food and Agriculture (WFA) Digital Festival brought together more than 600 representatives from the global food and agriculture sector.

The event held in December 2020 was developed to take the place of the annual face-to-face event and allowed attendees to learn from a range of on-demand and live sessions as well as network with the community and join interactive roundtables.

In the closing statements, attendees were encouraged to support the advancement of diversity in the food and agriculture industry by taking part in the annual Women in Food and Agriculture Survey which was produced in partnership with Alltech.

Following on from the 2019 survey, the 2020 version acted as a barometer to track change over the last 12 months, regarding representation of women, across the industry.

This global survey which could be completed in six languages, received results from more than 2,500 representatives from the food and agriculture industry.

Jamie Chadwick, editorial director for Urner Barry and chairperson of the WFA Digital Festival encouraged the audience by explaining, "If you have already completed the survey, do ask your colleagues to take part and share their opinions on the industry. The more people who complete

this, regardless of gender, the better we can understand where the barriers to women are in our industry so please do your bit to improve diversity in our sector."

On the last day of the festival the WFA team also announced an exciting new mentorship scheme to benefit women across the global food and agriculture sector.

Olympia Theocharous, head of content for WFA, explained, "In last year's global WFA survey which contained 2,500 respondents from the global food and agriculture industry, results showed that 75% of women said our industry's lack of mentors was a significant barrier to progression. To address this we

are launching the WFA Mentorship scheme. It aims to pair off mentors and people who want to be mentored, to support women from a range of backgrounds to develop their careers in our industry.

"We are looking for women who want a mentor and people of all genders to act as mentors to help support the next generation of leaders in our industry. For anyone who wants to get involved or wants more information you can find this in the 'community' section of the WFA website."

For more information about the WFA Mentorship scheme, visit www.wfasummit.com/wfa-mentorship-scheme

Nestlé focuses on regenerative agriculture and moving to renewable electricity

AS A SIGNATORY of the UN' Business Ambition for 1.5°C' pledge, Nestlé is taking measures to halve its emissions by 2030 and achieve net-zero by 2050. Actions focus on supporting farmers and suppliers to advance regenerative agriculture, planting hundreds of millions of trees over the next 10 years and completing the company's transition to 100% renewable electricity by 2025. In addition, Nestlé is continuously increasing the number of 'carbon neutral' brands.

Paul Bulcke, Nestlé chairman, said, "The board recognises the strategic importance of taking decisive measures to address climate change. It supports accelerating and scaling up our work to ensure the long-term success of the company and to contribute to a sustainable future for generations to come."

Nestlé's work to get to net-zero spans three main areas:

The company is already working with more than 500, 000 farmers and 150, 000 suppliers to support them in implementing regenerative agriculture practices. In return, Nestlé is offering to reward farmers by purchasing their goods at a premium, buying bigger quantities and co-investing in necessary capital expenditures. Nestlé expects to source more than 14 million tonnes of its ingredients through regenerative agriculture by 2030, boosting demand for such goods.

Nestlé is scaling up its reforestation programme to plant 20 million trees every year for the next 10 years in the areas where it sources ingredients.

In its operations, Nestlé expects to complete the transition of its 800 sites in the 187 countries where it operates to 100% renewable electricity within the next five years. The company is switching its global fleet of vehicles to lower emission options and will reduce and offset business travel by 2022. It is also implementing water protection and regeneration measures and tackling food waste in its operations.

South African stone and pome fruit producers set transformation goals

MEMBERS OF THE South African stone and pome fruit industry have made a collective pledge, along with other South African fruit organisations, to set ambitious agri-transformation goals that will bring the industry together.

At the end of October 2020, representatives from Hortgro Pome, Stone and the DFDC (South Africa's first black fruit producer organisation) came together with the aim to align the industry strategy and to develop "an implementable, measurable, and future-focused transformation strategy and blueprint for the DF that is equitable, fair and just for all." Hortgro represents South Africa's stone and pome fruit growers.

The transformation goals set by the collective deciduous fruit industry include: a new criterion for monitoring transformation progress, a multi-media strategy for communicating the USPs of the Deciduous Fruit Industry, a plan to identify and assist new and existing black agri-entrepreneurs to become successful agri-businesses, and finally, the identification of successful business models for the industry's value chain.



Hortgro develops the plum, peach, nectarine, apple and pear categories in the UK.

Image Credit: RED

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SupPlant to develop technology to aid small farmers in Africa

SUPPLANT, AN ISRAELI precision agriculture company, was granted US\$2mn from the National Centre for Research and Development of the Government of Poland to develop new smart irrigation technology suited for small farmers with land that is smaller than 10 ha.

SupPlant's technology is being used by farmers in 14 countries around the world including Australia, Mexico and South Africa. This grant is supporting the development of more advanced technology, a mobile application which will avoid the need for physical sensors, and a smart water valve which will communicate with SupPlant's application.

The technology will be developed in SupPlant's new offices in Poland over the next 30 months alongside Professor Waldemar Treder who specialises in plant management from the Research Institute



Image Credit: SupPlant

The technology will assist small farmers to manage their water budgets efficiently, save water, reduce costs, improve productivity and yield.

of Horticulture in Skierniewice.

By changing the basic concept of irrigation methods and sensing the plant's stress, this unique technology will assist small farmers to manage their water budgets efficiently, save water, reduce costs, improve productivity and yield.

SupPlant uses agronomic algorithms, sensors, artificial

intelligence and cloud-based technology in order to achieve more resilient crops while saving on resources and increased yields. SupPlant's algorithms use information from plant and soil sensors (soil moisture, stem\trunk diameter, leaf temperature and fruit size), sent to the cloud every 30 min. The algorithms identify the stress

status of the plant, and calculate the optimal irrigation plan. The plan is sent to the farmer as recommendation or sent to the irrigation controller for a fully autonomous irrigation system.

Smallholder farmers in Africa are dealing daily with the unpredicted climate that is changing rapidly and the constant lack of irrigation water. SupPlant wishes to make their technology available to these vulnerable populations. By changing the basic concept of irrigation methods and using hyper-accurate and hyper-local weather insights, this unique technology will be able to save water, reduce costs, improve productivity and yield.

"SupPlant has been able to reduce water consumption by 30% while increasing production yields by 20% by using the world's largest ag-tech data set based on 31 crops and used globally, in 14 countries," said Ori Ben Ner, SupPlant's CEO.

Marel acquires duck processing solutions provider

MAREL, A FOOD processing company, has acquired PMJ, a global provider of advanced processing solutions for the duck industry

PMJ's complementary product portfolio of primary processing, including waxing and automated evisceration, will make Marel a full-line provider of duck processing solutions.

With this, Marel will be in a stronger position to expand its customer base in the duck segment, leverage its global sales and service network and expand to new markets. Together, the two companies will be at the forefront of modernising the duck market in partnership with their customers.

PMJ's management team will stay on board and ensure business continuity for employees and customers, serving as the duck knowledge centre.

The global duck market is a large and growing market. The

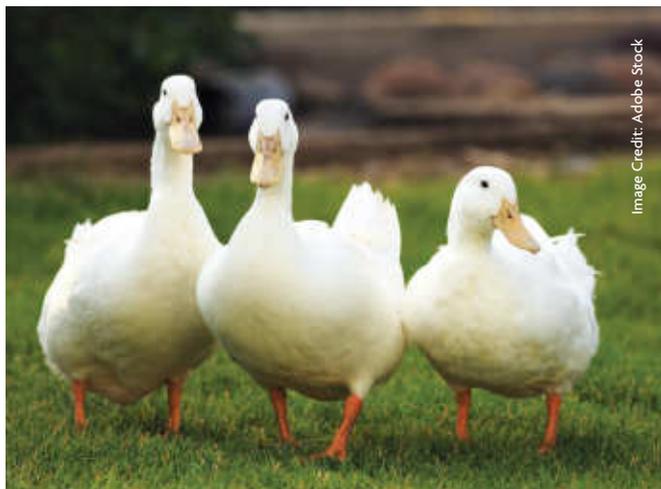


Image Credit: Adobe Stock

Together, the two companies will be at the forefront of modernising the duck market in partnership with their customers

value of the global market for duck meat is estimated to be around US\$7.2mn (EUR six billion). The annual volume of the duck meat market is currently 4.5mn tonnes, with 70% of this volume in China, where Marel already has an established presence. PMJ has built long-standing relationships

with many of the largest duck processors in the world, and together with Marel's global sales and service network and digital platforms, the companies will extend their global reach and strengthen customer support.

Roger Claessens, executive vice-president of Poultry at

Marel, said "It is a logical step for Marel to expand its third pillar within poultry processing alongside broilers and turkey. Technical expertise and an impressive track record of continuous product innovation are defining characteristics of both PMJ and Marel. The high quality of PMJ's solutions reflects the company's 23 years of dedication to duck processing. With our combined efforts and continued focus on innovation, we will be in a stronger position to transform the duck industry in partnership with our customers."

Bas van der Veldt, CEO of PMJ, stated, "Our expertise in duck processing technology, our innovative solutions and our experienced employees, combined with the broad processing knowledge and worldwide coverage of Marel, will be the next step forward in serving our customer base even better."

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Ensuring the bacterial safety of poultry is essential, and water is the most critical resource in the poultry broiler process. We take a look at why Chlorine Dioxide is fast becoming one of the most effective solutions for optimal water treatment.

Chlorine Dioxide – No More ‘Fowl’ Play



Image Credit: Enaqua

In comparison to chlorine, Chlorine Dioxide is effective across a wide pH range.

FOR POULTRY BROILERS, providing water of a suitable microbiological quality is both a necessity and a challenge, as broilers consume approximately 1.6 to 2.0 times as much water on a weight basis as feed. It is an essential nutrient in bird metabolism and nutrition.

Additionally, high microbial loading in poultry drinking water places an additional strain on the bird, in that the microorganisms can compete for available nutrients, and the energy expended on combating the ingested microorganisms is energy not expended in weight.

“Companies are beginning to look for alternatives to chlorine for a variety of reasons and are now looking to Chlorine Dioxide as the preferable disinfectant,” said Brandon Mitchell, Director of Enaqua, a water solutions specialist company in South Africa.

“Water solutions by design, entail performance monitoring and on-site specialist support to protect your investment. The functionality of the design as well as the ongoing process management is tantamount to the success of each individual system,” he added.

The main motivators of Chlorine

Chlorine Dioxide has a lower environmental toxicity when compared to other residual bearing disinfectants.

Dioxide within poultry drinking water treatment include:

Cost effectiveness

The value derived from improved efficacy not only ensures a cleaner water distribution, but water storage will require less effort and disinfection between cycles.

Poultry broiler performance

Through effective disinfection of poultry broiler drinking water via the maintenance of a low Chlorine Dioxide residual within the distribution, water is effectively removed as a vector for infection.

Biofilm destruction

A key property of Chlorine Dioxide is that it is effective at penetrating and removing biofilm, unlike chlorine, which biofilm has proven to be resistant to.

Practicality

In comparison to chlorine, Chlorine Dioxide is effective across a wide pH range and has

significantly fewer side reactions, is less corrosive, can be used in a lower concentration and forms fewer disinfection by-products.

Environmental safety

In general, Chlorine Dioxide has a lower environmental toxicity when compared to other residual bearing disinfectants. The predominant disinfection by-products of chlorine dioxide are chlorite and potentially chlorate. Both are subject to degradation to harmless chloride.

Well designed, precise water solutions are fast becoming the difference between an organisation that is responsible and at the forefront of innovation, and those that are straggling behind, using invasive and ineffective chemicals that jeopardise the product quality, the environment and the costly equipment used in the poultry broilers, whether it be at the drinking water phase or the process water used.

Selection of the correct disinfection system, installation, maintenance and then traceability are key components to the completion of a successful water management plan, which essentially aims to close the biosecurity hole in the poultry industry. **E**

BIOMIN launches Mycofix PRO-tect

MYCOTOXIN DEACTIVATION AND animal nutrition company BIOMIN has launched a new mycotoxin and endotoxin deactivation product specifically designed for the fattening period.

“More of our customers are becoming aware of the effects that mycotoxins can have in fattening animals. Although fattening animals have shorter lifespans than breeding animals, mycotoxins can still have devastating effects on animals and, consequently, on producers’ profits,” said Ursula Hofstetter, head of global product management for Mycotoxins at BIOMIN.

A variety of mycotoxins are found in broiler and pig feedstuffs at levels below the regulatory limits and guidance levels. Even below these limits, mycotoxins can have harmful effects on animal health, welfare and performance.

Mycotoxins affect gut intestinal integrity and allow pathogens to enter the intestinal tract, resulting in decreased nutrient uptake and lower weight gain.

“In addition to damaging gut integrity, mycotoxins can disrupt herd and flock uniformity, damage the immune system

contribute to vaccine failure and increase bacterial contamination of carcasses,” said Hofstetter.

In addition, high endotoxin (lipopolysaccharide or LPS) loads in the gastrointestinal tract of the animal contribute to inflammation, effectively wasting energy that would otherwise lead to growth.

Tailored protection

Because of the impacts of varying levels and combinations of mycotoxins, BIOMIN offers a complete mycotoxin risk management toolbox under the Mycofix umbrella, proven to deliver return on investment in commercial operations.

“It’s important for products to be targeted to the animal and its stage of life as well as the specific types of mycotoxins present,” said Hofstetter. “We pride ourselves in helping our customers determine the level and type of mycotoxin threat faced by their animals and helping them choose the right scientifically-sound solution based on their unique needs.”

The Mycofix line utilises three mechanisms – adsorption, biotransforma-

tion and bioprotection – to guard against the harmful effects of mycotoxins as well as endotoxins. Mycofix PRO-tect joins Mycofix Select, Mycofix Focus as the solutions best adapted to fattening animals.

The Mycofix product line constitutes the only mycotoxin risk management solution backed by six EU authorisations, ensuring the components are safe and effective.

Supporting animals and profits

BIOMIN representatives and technical experts take care to provide recommendations based on individualised assessments, matching the correct Mycofix solution – including both product and dosage – to the challenge on a producer’s site. This ensures the best outcome for the animals, and the best return on investment for the producer.

“At the end of the day, we’re not just supporting the well-being of animals, we’re supporting the well-being of our customers, too,” said Hofstetter. “We’re proud that we’re able to offer Mycofix products, science-backed solutions that offer absolute protection against mycotoxins and endotoxins, that benefit both animals and producers.”



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Peter Arts, area manager Africa at Hendrix Genetics BU Layers, explains how administering vaccines to poultry can keep a number of diseases at bay.

The importance of vaccination

VACCINATION PLAYS A crucial role in the management of the health of poultry flock, by helping prevent a number of poultry diseases. Vaccination is a process in which the healthy chickens are infected in a controlled way with a dead or weakened pathogen. After the vaccination, the birds' own immune system will respond to the vaccine by activating an army of cells designed to attack and destroy the invaders before they cause damage to the bird. After the attack, several specialised immune system cells remain, called memory cells. These memory cells will remember the infectious agent to which the bird is vaccinated. If in later life an encounter with the infectious agent takes place, the bird's immune system is capable of a quick 'detect and destroy' mechanism, resulting in protection from the disease and therefore preserving the productive health of the flock.

Vaccination requires energy of the bird and can be stressful and painful for the chicks, as each vaccination will result in a defense reaction. This stimulated immune response caused by the vaccine could negatively affect the bird's appetite and therefore, growth. Therefore it is advised to keep the number of vaccinations to a minimum, especially during the first weeks of life as the goal is to stimulate the chicks as much as possible to grow. Any vaccination during the rearing period should be well thought off, always check that the chicks are fit and healthy prior to vaccination and that they have recovered from the previous vaccination. A well-balanced design of the vaccination programme is therefore essential.

Please follow these recommendations when administering vaccines:

- Always follow the instructions of the vaccine manufacturers when storing, handling and administering the vaccines
- Keep a record of the vaccination programme
- Always clean and sterilise the vaccinating equipment thoroughly after use.
- Only vaccinate healthy birds, isolate sick birds from your flock
- Make sure the crew is trained in proper vaccine administration
- For vaccines administered via drinking water, make sure the drinking system is clean and make sure the minimal required drinking time is followed, as stated by the vaccine manufacturer. Discard the drinking water afterwards, wash the drinkers and provide fresh water for the birds
- Make sure that the vaccines get properly distributed over the entire poultry house when administered via water or spraying
- Monitor the result of the vaccination (antibody titer test)
- Always destroy unused mixed vaccines after the task has been completed

Any vaccination during the rearing period should be well thought off, always check that the chicks are fit and healthy prior to vaccination and that they have recovered from the previous vaccination.



Image Credit: Hendrix Genetics

There are different ways to administer vaccines to poultry flock.

Vaccination procedures

There are different ways to administer vaccines to poultry flock, it is crucial that the correct method is used for each vaccine. Several frequently used methods to administer vaccines to chickens are listed below, keep in mind to always safeguard the correct dose of the vaccine:

Intramuscular injection

This method involves the use of a needle to insert the vaccine into the breast muscles of the chickens. The use of an automatic syringe can speed up the process as it makes the technique relatively easy and does not harm the bird. Regularly check the equipment to ensure that the correct dose is administered. Train the crew in administering the vaccine at the right position in the breast muscles. Special care must be taken to ensure that the needle does not pass through into one of the key organs. Good hygiene and proper vaccine handling procedures can prevent unnecessary contamination.

Subcutaneous injection

In this case, the vaccine is injected under the skin, usually at the back of the neck. Sufficient attention must be given to ensure that the vaccine is injected into the chicken (not just into the feathers).

Ocular

The vaccine is administered to the chickens' eye via an eyedropper. From here the vaccine makes its way into the respiratory tract via the lacrimal duct.

Nasal

The vaccine is introduced into the chickens' nostrils either as a dust or as a drop.

Oral

The vaccine is given in the chickens' beak. From here it may make its way to the respiratory system or it may continue to the digestive tract before entering the body.

Drinking water

Adding the vaccine to the drinking water of the flock. This vaccination method is less time consuming and less stressful. The



Image Credit: Hendrix Genetics

Always clean and sterilise the vaccinating equipment thoroughly after use.

recommended technique is as follows:

- All equipment used for vaccination is carefully cleaned and completely free of disinfectants and detergents (keep in mind

that live vaccines administered via drinking water can be destroyed by disinfectants and soap)

- Only use cold, fresh and clean water (drinking water quality)
- Open the vaccine bottle under the water
- Make sure the birds are thirsty to stimulate the intake of an adequate dose of the vaccine.
- All the water present in the drinkers and nipple lines should be consumed prior to vaccination

Spray

The vaccine is sprayed onto the chickens, or into the air above them, by making use of a suitable spray applicator, that controls the spray droplet size. The vaccine will fall onto the chickens and enters the body of other chickens as they pick at the shiny vaccine droplets. The chickens might also inhale small quantities. It is important to ensure an even distribution to all birds in the flock.

A well-designed vaccination programme is important, but it will only be effective when combined with proper management, good nutrition and a well-followed biosecurity programme. The combination of these aspects will decrease the disease pressure significantly and it will therefore increase the likelihood that the flock will perform to its genetic potential. **E**

Tip: Never mix flocks of different ages, prevent any contact between new flock in rearing and the flock in production at all times. Apply strict biosecurity rules to prevent disease spreading from the older flock (which is already protected by their immune system) to the flock in rearing. Always visit the flock from young to old and prevent any possible contamination at all times (change shoes and wash hands carefully).

Marel manufactures three million poultry shackles

IN DECEMBER 2020, Marel's manufacturing site in Dongen released its 3,000,000th poultry processing shackle since production began in 1987. A shackle may seem a simple metal hook, but it is a truly essential component in the poultry industry. Marel is the leading global provider of advanced processing systems and services to the poultry, meat and fish industries.

A shackle in an overhead conveyor is like a freight car on a railroad, responsible for the safe transportation of products from one point to another. It's a cleverly designed construction, fit to hold the legs of all thinkable chicken species and sizes worldwide.

For Marel – Stork at the time – Hugo van den Elshout took up the job to construct the shackles in 1987. Back then, the production was mostly done manually on an anvil, like in a blacksmith shop. That process has evolved significantly in the last three decades.

Today, advanced machinery, including a hydraulic press, a bending machine and a welding robot, is used to produce shackles.

Having a focus on food safety and innovation, Marel develops

reliable and efficient automated solutions, in cooperation with customers from all over the world.

Facts and figures

Marel started the specialised production of shackles in Dongen

back in 1987. The milestone of the first million pieces was reached in 1998. In 2011, the 2,000,000th shackle was produced. On average, around 90,000 pieces per year leave the factory, some 350 shackles on a daily basis. In top seasons, this number can increase up to 550 shackles a day. The production of three million shackles took some 1,950,000 kilos of material; this is about the weight of 1,950 Suzuki Swift cars. When stretched out, all of the used material would extend from Dongen (the Netherlands) to Malaga (Spain), which is more than 3855km.

Personification

Today, with 33 years of experience, Hugo van den Elshout is still Marel's own unwavering "Captain Hook", making sure that every shackle leaving the factory is of highest quality and in pristine condition. In this respect, Hugo is the personification of Marel's reliability and consistency.



Image Credit: Marel

Hugo van den Elshout, who is responsible for the shackle production at Marel Dongen proudly shows the 3,000,000th shackle.

The challenge of improving animal productivity is fuelling the need for innovations to achieve the right feeding strategy.

Keeping livestock fit and healthy



Automated feeding systems are helping to improve the general feed efficiency of the farm.

Image Credit: Adobe Stock

A HEALTHY DIET and the right feeding strategy is one of the most important requirements for high performance and well-being of livestock.

Several innovations and research in nutrients and feed strategy are constantly aiming to optimise the welfare of livestock.

Turning red seaweed into feed supplement

Sustainable agriculture company CH4, plans to build the first farm and processing plant, in South Australia, to turn red seaweed into a feed supplement for cows in order to reduce their methane production by 90%.

Each farm would be capable of producing about 400 tonnes of dry weight milled seaweed a year – enough to feed up to 20,000 cows.

Cattle is a major contributor to greenhouse gas emissions, with each of the 1.5 billion cows on the planet producing

around 100kgs of methane per year.

The farms are based on research by Australia's CSIRO, which found that the red seaweed *Asparagopsis* mixed with regular cattle feed at a rate of 100 grams per cow per day, reduced methane production by 90%.

"We are optimising our processes, optimising the hatchery work we are doing in South Australia and New Zealand, we are optimising the in-water architecture that's going to be used, and we are doing

The use of automatic feeding systems allows for the use of different feeding strategies in a simple and labour free manner. It also improves the general feed efficiency of the farm.

that in Port Lincoln at the moment, and we are optimising the freeze-drying processing work," he said.

Poultry nutrition

Research presented by Wageningen University & Research (WUR) has shown that if broilers have to forage and peck the larvae, they move more, which improves their welfare

During the research, live black soldier fly larvae were offered in different quantities and at different times during the day. "We saw that the broilers were motivated all day long to get to the larvae," said researcher Allyson Ipema.

Automation

The use of automatic feeding systems allows for the use of different feeding strategies in a simple and labour free manner. It further improves the general feed efficiency of the farm.

GEA, experts in automated feeding systems are helping farmers around the world feed their herds according to demand and achieve their best performance in milk production.

Measuring out fodder is made easier.

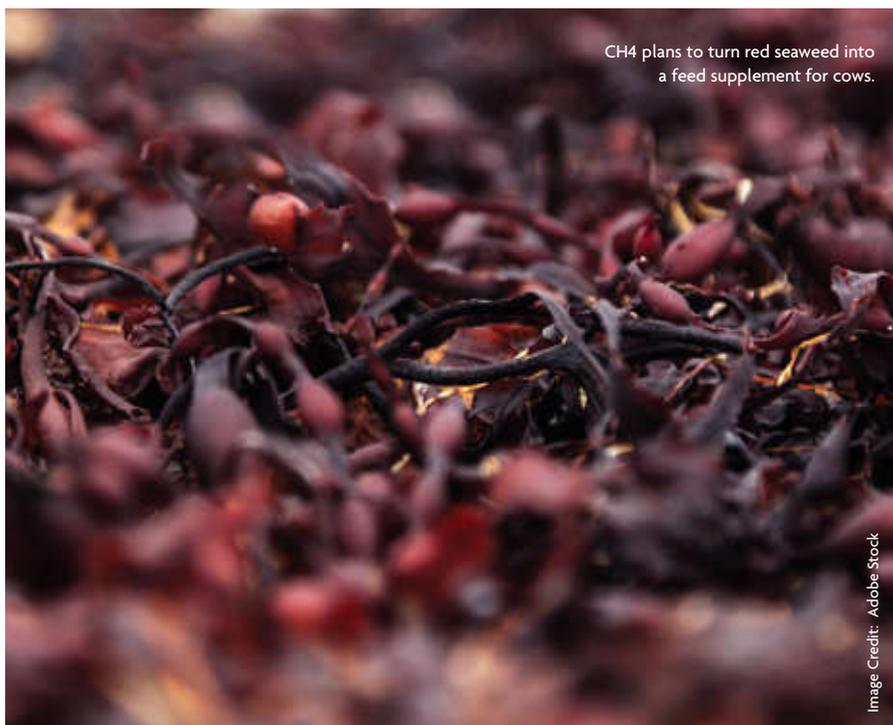
GEA has developed automated feeding systems, where even small batches can easily be mixed and distributed according to plan.

Evonik has unveiled AMINONIR Portable, a mobile NIR service with a world's-first feature: amino acid calibrations.

AMINONIR Portable enables reliable determination of energy, nutrients in feed raw materials and feed as well as amino acids in feed raw materials on-site and independently from the laboratory.

The handheld device connects to the tablet or cell phone of the user. Only mobile signal reception and a handful of feed or raw materials without further sample preparation are required to determine their quality at almost any location within minutes.

"The efficiency of animal feeding, and the ecological footprint of livestock farming, strongly depend on the nutritional quality of raw materials and feeds," said Dr Stefan Mack, head of service marketing in the Animal Nutrition business line at Evonik.



CH4 plans to turn red seaweed into a feed supplement for cows.

Image Credit: Adobe Stock

"We have always supported our customers in optimising those. Now, as the first in the world, we're offering a comprehensive mobile solution. This will allow for timely

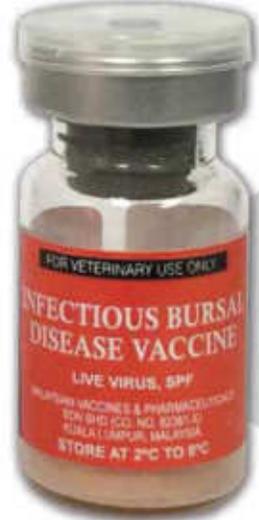
quality checks and decision-making at critical steps in feed production which is very difficult to achieve when relying only on the traditional lab setup." **B**



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WEDA Dammann & Westerkamp will provide a wide range of innovative solutions for pig farmers during the digital EuroTier 2021.

Innovative solutions for pig farming

WEDA DAMMANN & Westerkamp, specialists for pig husbandry, house equipment, feeding and environmental control technology, will take part in the digital EuroTier from 9-12 February 2021.

The following novelties will be on display at WEDA Dammann & Westerkamp:

House equipment: Innovative Farrowing pens - solutions such as WEDA FT30, WEDA FiT and WEDA MoreFlex for more animal welfare and farm animal husbandry.

Animal welfare: With Be.Well, WEDA Dammann & Westerkamp are aiming to meet the demands of owners for new product solutions that focus on animal welfare and animal protection.

House equipment: Hy.Board - flexible, hygienic plastic modules for individual stable concepts



With Be.Well, WEDA aims to meet the demands of owners for new product solutions on animal welfare and animal protection.

Image Credit: - Adobe Stock

WEDA FiT pen is equipped with a service corridor to allow the stable staff a safe access to all relevant working areas within the pen without having to enter it.

Today, more than ever, the health and performance of the animals are the basis for economically successful pig husbandry.

WEDA Dammann & Westerkamp are offering new, closed pen modules made of plastic, where individual elements are hermetically sealed and cannot enclose any bacteria or other sources of infection.

Electronic Sow feeding/dry feeding: Opti.Station - the new form of electronic

sow feeding

WEDA offers a flexible mechanical ESF system which can be individually adapted to the respective animal group. Liquid feeding: Easy.Touch. With the new program interface Easy.Touch, offers completely new and simple operating possibilities.

Climate technology: Veco.Mate:WEDA's climate control system Veco.M - the computer for a better climate in the pig house. 

EXEO Capital announces multi-million-dollar investment in Dairyland

EXEO CAPITAL, ONE of the leading pan-African private equity investment manager, has announced the investment by its Food and Agribusiness fund, Agri-Vie Fund II, in Glacier Products Limited.

Glacier is the producers of Kenya's ice-cream and chocolate brand Dairyland. The investment is subject to receipt of regulatory approvals and is expected to be completed in the coming weeks.

FSSC-certified Glacier has experienced strong growth over the years and is a common household brand, with its reach spanning across Kenya, Tanzania, Uganda, South Sudan, Ethiopia and Rwanda. Dairyland has received many honours, including the SOMA Award for securing the top spot in the Consumer Products' segment and the Superbrands East Africa status for

maintaining brand leadership in East Africa.

Sunil Shah and Minesh Shah, directors of Glacier, said, "We are delighted to partner with EXEO Capital, who share our vision of continuing to grow the leading and trusted brand. Glacier will benefit greatly from EXEO's sector expertise, as the company enters its next phase of growth."

EXEO Capital currently has approximately US\$250mn assets under management, and has completed more than 25 transactions in several growth sectors across East and Southern Africa over the past 12 years.

Paul Nguru, Partner at EXEO Capital, commented, "This investment is a great addition to our growing food and agribusiness portfolio on the continent. Our partner, Glacier, has laid a solid foundation, which combined with EXEO Capital's sector

knowledge, strategic insights, and extensive pan-African networks, will steer the company towards continued sustainable growth."

Swathi Rao, associate vice-president at I&M Burbidge Capital, the lead transaction advisor to Glacier, added, "We are delighted to have advised on this transaction for our client, Glacier. It is a fantastic business with really exciting brands and products. The partnership ethos and shared values between Glacier and EXEO were evident throughout the transaction."

EXEO Capital is a pan-African alternative investment firm that operates from Cape Town, Nairobi and Mauritius. The firm focuses on investing in and building businesses for sound financial returns as well as positive impact and is known for its investment activities in the food and agribusiness sector through the Agri-Vie Funds under its management.

Signis' effectiveness in pig diets recognised in new research

AB VISTA HAS welcomed the publication of a new peer-reviewed research paper, 'Stimbiotic supplementation improved performance and reduced inflammatory response via stimulating fibre fermenting microbiome in weaner pigs housed in a poor sanitary environment and fed an antibiotic-free low zinc oxide diet'

The study investigated whether stimbiotic inclusion could improve performance, influence intestinal microbiota and fermentation activity, and reduce pro-inflammatory cytokines in piglets compared to fructo-oligosaccharide and mannan-oligosaccharide in good sanitary or poor sanitary environments.

The study results show that the stimbiotic shifted the intestinal microbiome to favour fibre fermentation, which likely contributed to reduced inflammatory response and improved performance in good and poor sanitary conditions compared to the other additives tested.

"As a stimbiotic, Signis stimulates the microbiome to ferment fibre, increasing nutrient digestibility and enabling the fermentation of fibre sources that would

otherwise be undegraded. Unlike prebiotics, which are utilised as a substrate for bacteria, stimbiotics act as signalling molecules for specific groups of beneficial bacteria. They are supplemented at the range of gram per tonne rather than a kilogram per tonne in the case of prebiotics," Dr Gemma Gonzalez, AB Vista's research manager and one of the paper's authors, said,

The paper was written by representatives of Chungnam National University, Daejeon, South Korea; Universitat Autònoma de Barcelona, Bellaterra, Spain and AB Vista, and published by Plos One.

AB Vista is an animal nutrition technology company offering pioneering products and technical services to the global animal feed industry. AB Vista is part of AB Agri, the agricultural division of Associated British Foods, one of Europe's largest food and retail companies.

Antimicrobial growth promoters (antibiotics and zinc and copper; AGP) have long been used to improve growth

performance of piglets through mitigating enteric disease-associated mortality and morbidity. However, due to concerns of antimicrobial resistance and environmental pollution, the use of AGP in swine production has been reduced or banned in many countries. There is considerable interest in monogastric nutrition to increase the fibre fermenting microbiota in the large intestine to minimise dysbacteriosis and improve energy extraction from the fibre fraction of feed, which has long been ignored as a source of energy for growth.

The term stimbiotic has been introduced recently and is defined as non-digestible but fermentable additives that stimulate fiber fermentability but at a dose that is too low that the stimbiotic itself could contribute in a meaningful manner to volatile fatty acid production. STB improves the fermentation of fibre that is already present in the diet. Therefore, unlike prebiotics that are quantitatively fermented by the microbiome, STB improves the fermentation of fibre present in the diet.



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Cocoa is essential to the lives of millions of smallholders. *Fyna Ashwath* finds out how increased partnerships and improved working conditions for farmers will help realise the enormous potential of the world's major producers.

Long-term financing and training are necessary to help cocoa farmers advance.

Enhancing the cheer of cocoa farming

AS A PRODUCER of around 70% of the world's cocoa, West Africa, mainly Ghana and Cote d'Ivoire, is poised to transform its cocoa sector, with government initiatives to boost productivity as well as private-sector efforts in this direction.

For instance, the Ghana Cocoa Board, as well as institutions including the African Development Bank and the Japan International Cooperation Agency welcomed the disbursement of US\$200mn to boost cocoa productivity, in June 2020.

In September 2020, the government of Ghana announced a 28% increase in the guaranteed producer price it pays to farmers for the 2020/21 growing season. The price rise is due to the

"The impact of the measures the government has put in place will start being felt in a few years, with the expected rise in volumes of production," said Hajia Adamu-Zibo.

implementation of a price floor of US\$ 2,600 per tonne and a living income differential of US\$400 per tonne, to put more money into the hands of farmers. Cote d'Ivoire is taking similar steps.

In Cameroon, the AfDB committed to provide funding to the Institute of Agriculture Research for Development, where research is focused on creating adapted seed varieties.

The strengthening of the industry continues to depend on initiatives for better partnerships as well as improved working and living conditions for farmers.

Partnering for growth

Ghanaian company, Federated Commodities, is exploring global partnerships to tap more into the global cocoa industry. "We are looking to seal important contacts in Europe and America as we seek sustainability partnerships that will be of mutual benefit. In Africa, we are looking at maybe getting partners in Cote D'Ivoire as well as South Africa because these are two strong cocoa markets. We possess the knowledge as far as cocoa is concerned and an ideal partner would be someone who has the technical

expertise to process on a large scale,” said CEO Hajia Adamu-Zibo, in an interview with AfricaLive.net.

“Indeed, cocoa has been an important commodity for our country. Cocoa is not just a cash crop for us, it has also become part of our politics. The cocoa sector feeds about 800,000 people in the country and issues that affect the industry can be quite emotive. Unfortunately, our industry has suffered a dip in production in recent times occasioned by climatic changes as well as factors such as disease. The impact of the measures the government has put in place will start being felt in a few years, with the expected rise in volumes of production,” added Adamu-Zibo.

“The government is focusing on increasing production while also encouraging diversification in the overall agriculture sector to improve the sector and boost our national revenue. Cocoa and cashew processing will help add value and put even more people to work. It will, further, help more companies like us benefit from the industrialisation drive of the Ghanaian economy.”

Welfare of farmers

Cocoa farmers work very hard, often under strenuous conditions, yet do not earn enough to cover their basic needs. Although the worldwide chocolate market is valued at US\$103bn, on average, farmers earn only around 6% of the chocolate industry’s total revenues. Many cocoa farming communities in West Africa lack access to education, potable water, and basic social amenities.

Furthermore, labour practices on cocoa farms are problematic. In a bid to reduce production costs, farmers are inclined towards child labour.

The director of Impact at the Fairtrade Foundation, Louisa Cox, cited in an interview in the Guardian last year, that ‘long-term finance, training and technical services, and helping farmers diversify beyond cocoa’ is needed to help address child labour in the cocoa industry.

“Access to financing has always been a problem for the farmers. Farmers’ lives are improved when we facilitate access to inputs and credit facilities so that they effectively carry out their pre- and post-harvest work. We are big on helping farmers by assisting them add value their livelihoods. Going forward, we intend to help more farmers improve their living income by helping them get



Many cocoa farming communities in West Africa lack access to education, potable water, and basic social amenities.

In a bid to reduce production costs, farmers are inclined towards child labour.

sustainability programs that will see them get paid more,” said Hajia Adamu-Zibo.

Olam International underlines the importance of addressing the long-term wellness and operational resilience needs of those small-scale farmers in emerging markets who provide much of the world’s ingredients and raw materials.

Driving sustainability

COVID-19 has transformed our eating habits. Ingredient development and innovation experts see emerging trends playing out in the new year. As consumers place increasing importance on diets and well-being, there is bound to be growing interest in the health benefits of cocoa, too. However, while catering to the demand and need for varied options, the industry needs to continue the emphasis on sustainable practices.

Trends in research on sustainability initiatives include increasingly multi-disciplinary collaborations, such as on climate smart cocoa, improved soil fertility and productivity and living incomes.

In a nutshell

Africa’s cocoa production stands to gain greatly from the African Continental Free Trade Area. However, there is need to address criticisms regarding exploitative labour practices, with smallholder farmers receiving their rights. Improving the working conditions and improvements in financing should be of immediate concern. **B**

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New report on technologies and forecasts in food production



Image Credit: Adobe Stock

Vertical farms could be set up in or around supermarket distribution centres, delivering large quantities of fresh produce to consumers within a day of harvest.

2020 HAS BEEN a challenging year for the food and agriculture industries, with COVID-19 having impacted the entire food supply chain from field to consumer.

The recent IDTechEx report, “Vertical Farming 2020-2030”, explores the key technological and market factors that could lead to the vertical farming industry’s success or failure.

The industry has seen a particular surge in interest in vertical farming. Vertical farming involves growing crops indoors in stacked layers under a controlled environment, enabling year-round highly efficient crop production in almost any location, including in the middle of cities. By enabling rapid, local production, vertical farming can reduce the miles that food must travel before it reaches consumers and enable production to be increased to reflect local changes in demand. Vertical farms could be set up in or around supermarket distribution centres, delivering large quantities of fresh produce to consumers within a day of harvest, circumventing the supply chain issues exposed during the worst of the pandemic.

However, despite the advantages and money raised by vertical farming, there are challenges. Many start-ups have struggled with running costs and high up-front costs that can lead to a difficult trade-off between

expensive automated equipment that save money later and cheaper, more manual equipment that can lead to high operational costs.

According to the IDTechEx report “Plant-Based and Cultured Meat 2020-2030”, the market for novel meat substitutes is expected to exceed US\$30bn by 2030.

Another alternative food system that has benefitted from the pandemic is the alternative proteins space. The report says that this trend is set to continue. As this market grows, it will create significant opportunities for companies throughout the value chain, including protein providers, hardware manufacturers and chemical companies, particularly as technological advances lead the field in new directions, such as meat products created from cultured animal cells and proteins derived from novel fermentation techniques.

Agricultural biologicals

An area of agricultural technology that could benefit from this is the industry for agricultural biologicals. This is an umbrella term for crop protection and enhancement tools derived from nature, including biostimulants, biopesticides, and biofertilisers. Unlike conventional agrochemicals, which tend to be based on small molecules and chemicals derived from mineral

sources, agricultural biologicals cover a wide range of products, such as plant extracts, insect pheromones and genetically engineered bacteria that manipulate the microbiome of crops.

Agricultural biologicals are growing quickly. Over the last decade, the market has expanded by 500%, ten times the rate of growth of the chemical pesticides market.

The IDTechEx report “Biostimulants and Biopesticide 2021-2031” provides a technical overview of the emerging space around agricultural biologicals, evaluating the opportunities and challenges facing the industry and forecasting the market size over the next decade, predicting that the market for agricultural biologicals will reach US\$19.5bn by 2031.

As food production continues to evolve in 2021 and beyond, synthetic biology, genome editing, and other genetic technologies will play an increasingly important role in agriculture. Genome editing technologies such as CRISPR and TALENs have been a particular source of excitement, potentially allowing for precise and low-cost genetic genome modifications for crop improvement.

Despite the challenges seen in 2020, the outlook for AgTech is bright, with numerous opportunities for innovative companies in the space.

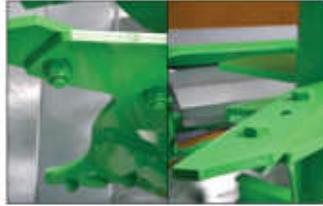
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- Fully automated welding and cutting
- In accordance with european standards



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44B
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Farmers in Nigeria will soon gain access to a biological tool for fall armyworm that poses risks to food security and livelihoods.

Partnering to combat fall armyworm



Fawligen has been undergoing several regulatory trials and evaluations.

Image Credit: Adobe Stock

THIS INVASIVE SPECIES can cause significant harm to crops including maize and sorghum. Tonnes of maize are lost annually in Africa, enough to feed tens of millions of people and representing huge economic losses.

Several initiatives have been taken to control the pest. The FAO, for instance, has advanced global action to control the spread and damage of fall armyworm, designed to support and scale up efforts through a strong and innovative coordination mechanism.

Farmers in Nigeria, the first country where Fall Armyworm (FAW) was detected in Africa in 2016, will soon get access to a biological tool that will prevent an infestation of the pest.

The product which is called Fawligen belongs to the new IRAC mode of action Group 31 (host-specific occluded pathogenic viruses). It contains a nucleopolyhedrovirus specific to the Fall Armyworm pest and has been undergoing several regulatory trials and evaluations across several African countries since early 2018.

To ensure that farmers in Nigeria which have the largest maize acreage in Africa of five million hectares can protect their crops from severe injury and economic damage caused by the FAW infestation, Golden Agri Inputs Limited (GAIL), a member of the FMN Group have partnered with AgBiTech as its exclusive distributor for Fawligen in the country.

“We will continue to pursue partnerships in all areas of our core competence, particularly in Agribusiness, where we hope to further strengthen our leadership position. I believe this partnership with AgBiTech is especially important because it offers farmers an efficient option of pest management products that prevent yield losses, said Boye Olusanya, the group managing

director at FMN.

“Nigerian farmers who are looking to protect their investments will be happy to learn that Fawligen is a terrific addition to a lineup of products under GAIL/FMN that have been developed to do just that.”

Fawligen is manufactured by the global leader and innovator in biological pest control, AgBiTech LLC. According to Dr Shachi Gurumayum, head of Africa & South Asia for AgBiTech, “Fawligen has been tested and evaluated by the International Institute of Tropical Agriculture (IITA) for two consecutive years in Nigeria. Having access to a safe and effective biological control for FAW will be a welcome relief to many of the Nigerian farmers affected by FAW.”

Adriano Vilas-Boas, AgBiTech CEO, said the company continues to invest in leading products and international expansion. “This partnership in Nigeria is a very important step for AgBiTech. The uniqueness of our Fawligen leveraged by the robust GAIL/FMN market platform will bring Nigerian growers a valuable choice to effectively and sustainably manage FAW,” added Vilas-Boas. 

“Fawligen has been tested and evaluated by the International Institute of Tropical Agriculture (IITA) for two consecutive years in Nigeria.”

SeeTree raises funding to scale globally and expand into new crops

SEETREE, AN AI-POWERED, end-to-end service that provides growers with intelligence on trees and tree clusters, has raised US\$30m in a Series B funding round led by the International Finance Corporation (IFC), the private sector arm of the World Bank Group.

This third round of funding, one of the largest investment rounds for the Israeli agtech company, will enable SeeTree to scale globally, expand its R&D and customer-oriented teams and broaden its services to cover new crops.

Other investors include Citrusuco, one of the world's largest orange juice producers with sales to more than 100 countries; Orbia Ventures, corporate VC of Orbia, a global provider of innovative solutions for rapid urbanisation and water and food scarcity that owns Netafim, the leading drip irrigation system in the world; and Kubota, a Japanese manufacturer specialising in tractor and agricultural equipment. Existing investor Hanaco Ventures, one of the leading Tel Aviv and New York-based VC who led the Series A round, is participating as well.

"All of our new investors are true partners who believe in the power of our platform to



SeeTree's system enables the creation of personalised cultivation plans for each tree or cluster of trees.

increase productivity and help address the impact of the climate and other major challenges in agricultural production today and going forward to the future," said Israel Talpaz, SeeTree co-founder and CEO.

"Artificial intelligence can revolutionise agriculture and have a transformative impact on productivity, the environment and the livelihoods of farmers," said Stephanie von Friedeburg, interim managing director and executive vice president and chief operating officer of IFC. "We are excited to invest in SeeTree's technology and help leverage precision agriculture in emerging markets."

With operations in Brazil, the US, Chile and South Africa and a team of 120 professionals, SeeTree monitors more than 50 million trees worldwide, which will grow to

one billion trees by 2023.

"We started with citrus and are servicing the largest citrus growers globally. We have a strong playbook and will continue scaling within citrus. We are now equally focused on growing our offerings into new crops such as almonds, olives and hazelnuts, where we are already deployed and supporting farmers," said Talpaz.

SeeTree's system identifies every tree's health and growth rates in a farmer's grove and enables the creation of personalised cultivation plans for each tree or cluster of trees. SeeTree collects ultra high-resolution images captured by drones and multi-spectral sensors, tree and soil samples and analyses the data through the platform's machine learning algorithms. Ultimately, farmers receive an easy-to-use product with features such as tree health, pest and disease tracking.

"Our vision is to enable the Tree Farming 4.0 Revolution with the Intelligence-per-Tree that we provide. SeeTree as a standalone solution, can reduce operational expenses by 20-40%. By connecting SeeTree to tractors and irrigation systems, we can unlock additional optimisations to further increase the value to our farmers," said Talpaz.

Sortex delivers 99% reduction in shells for Stahmanns Pecans

NEW MEXICO-BASED PECAN farming and shelling business Stahmanns Pecans carried out extensive testing of optical sorters to resolve a problem that was affecting its profitability: removal of small 2 mm shell pieces from its pecans. The company has seen a 99% reduction in shells, using Sortex technology. Furthermore, Stahmanns has also nearly tripled its output and managed to retain its entire staff count while increasing profitability during the current COVID-19 climate.

The company shows its strong commitment to sustainability and environmentally-friendly harvesting practices through minimal pesticide usage, continuous experimentation with alternative forms of irrigation to improve its water use efficiency, and reduced transportation emissions thanks to its on-site shelling plant. Processing the pecans on-site also ensures that Stahmanns' pecans remain fresh and can be delivered quickly to grocery stores, re-bagging companies, bakeries, restaurants, and other consumer goods brands across the United States.

"We are all about continuous technological improvement and producing a high-

value, high-quality product for our customers," said Rafael Roviroso, director of operations at Stahmanns Pecans. "We offer an assortment of pecan sizes in both Western Schley and Bradley varieties. All of our pecan nuts are packed full of nutrients including: healthy fats, dietary fibre, protein, iron, and essential B vitamins."

Shell removal

With shared commitments to sustainability, digitalisation and food safety, Stahmanns approached Bühler with the intention of resolving its problem with shell removal. "Over the years we have tried out many different color sorters, but our issue has always been removal of the tiny 2 mm x 2 mm pieces of shell. After conducting extensive testing with other brands, the SORTEX A and SORTEX F blew the competition out of the water for us; the speed and precision are unmatched," said Roviroso.

Stahmanns benefits from Bühler's InGaAs technology which enables detection of defects that are otherwise invisible to the naked eye; this combined with visible color separation allows Stahmanns to remove the maximum amount of foreign material (FM)

for the safest, most reliable end product.

"Before investing in Sortex we would find approximately seven shells per one lb. of pecans, now with Sortex we find around one shell per 30lb. after our first pass, that's an unimaginable improvement which translates to just over a 99% reduction," noted Roviroso.

Using Bühler's patented PROfile technology, the SORTEX A and F can detect shells, fragments, shape defects and FM as small as 2 mm in size.

PROshape is an intelligent detection technology which inspects product based on shape criteria when the defective product is the same color as good product. Secondly, PROsize is an ideal solution to separate undersized and oversized produce, as well as broken produce. And finally, PROcolor maximises commodity value by defining multiple grades of quality product.

The adjustable chute of the SORTEX F can be easily configured for a high throughput for better yields, as well as multiple re-sorting which significantly minimizes the loss of good products for Stahmanns while providing the company with greater flexibility and control.

LEMKEN's iQblue connect is certified for TIM

THE INDEPENDENT AGRICULTURAL Industry Electronics Foundation (AEF) has certified iQblue connect for Tractor Implement Management (TIM) following comprehensive conformity tests, making LEMKEN the first manufacturer to be awarded this certification for implement control.

The smart iQblue connect retrofitting kit, which was already awarded a silver medal at Agritechnica 2019, offers the unique opportunity to use the benefits of TIM control for smart tillage. Combined with the ISOBUS interface on the tractor, iQblue connect allows data to be exchanged between the tractor and implement. As a result, the implement is able to control certain tractor functions automatically, for example the ground speed or spool valves.

This flexible retrofitting solution allows existing tillage implements to be automated. Farmers merely need a single iQblue connect module, which can be used with a range of



Image Credit: LEMKEN

implements. The module is connected to the tractor via its ISOBUS interface. It also features GPS and a mobile data connection for communication, for example with a farm management system. The system automatically adapts to the implement it is connected to at any time and therefore substantially reduces the user's workload.

For ploughs, LEMKEN offers GPS-based working width

control as a first step. Here, iQblue connect transmits implement data on the plough's GPS position and current working width to the TIM to enable the hydraulic control unit on the tractor to automatically control the cylinder for the plough's working width. This ensures that the plough always produces a precise and straight furrow. At the same time it also allows operators to

plough towards a target furrow, vastly increasing the efficiency when ploughing wedge-shaped fields.

In semi-mounted cultivators, the working depth can be detected by a sensor. In this case, iQblue connect collects the area-specific target working depth from digital maps, and the TIM adjusts the working depth of the tine section and levelling tools to the changing soil conditions in the field via the tractor's hydraulic system.

An important prerequisite for using iQblue connect is that the tractor has TIM functionality with AEF certification. AEF is a neutral multi-vendor organisation that works to promote the increased use and standardisation of electronics in agricultural technology. Its members include all leading agricultural technology manufacturers.

iQblue connect is compatible with implements by other manufacturers and will be available from October 2021.

CLAAS AXION 960 CEMOS awarded Sustainable Tractor of the Year 2021

CLAAS AXION 960 CEMOS has been selected as Sustainable Tractor of the Year 2021 by an international jury of 24 specialist agricultural journalists. The award is intended to honour tractors that stand out due to their sustainable technology.

Every year a jury of agricultural journalists from 25 countries presents the Tractor of the Year Awards. Normally, the winners are awarded alternately at EIMA or Agritechnica. Due to the coronavirus pandemic, the award ceremony took place virtually for the first time.

For CLAAS, the award underlines the relevance and uniqueness of the CEMOS for Tractors dialogue system.

"With the CLAAS AXION 960, thanks to CEMOS system, a big step towards a more sustainable farming has been done. All the technology available on this tractor is easy to use as never before. The optimisation of all the technology and all the electronics, last but not least the optimisation of tyre pressure, allows this tractor to have a remarkable fuel saving and a much more efficient performance on field and in any working condition," explained the jury.

CLAAS introduced the latest Stage V AXION 900 large tractor series in September 2020. A new option on these models is to

optionally equip or retrofit them with a CLAAS CTIC tyre inflation system and the self-learning CEMOS for tractors dialogue system. This recently received the "DLG approved" label for achieving fuel savings of up to 16.8% fuel savings and a 16.3% increase in productivity when cultivating the DLG test report 7096.

"We are pleased that the AXION 960 with CEMOS on board was able to convince the jury with a package of arguments," explained Christian Radons, member of the CLAAS executive board and responsible for sales and service.

"On our most powerful standard tractor, we not only combine comfort with first-class power transmission, but also with excellent overall performance. The CEMOS for tractors system has significantly increased efficiency on top of the pure effects of ballasting and tyre pressure. This benefits farmers and contractors in terms of time and cost pressure and the environment in many ways. Fuel consumption, CO₂ emissions and soil compaction are only three aspects that are positively influenced by CEMOS for tractors from a sustainability perspective. In addition, the integrated plough assistant also helps with

achieving the ideal settings for ploughs from eight leading manufacturers."

The CLAAS AXION 900 large tractors series cover a range from 325 to 445 hp maximum engine power and comply with emission level Stage V. CEMOS for tractors can be supplied ex-works on the AXION 900 CMATIC, AXION 800 CMATIC and ARION 500/600 CMATIC with CEBIS Touch, and can also be retrofitted to these tractor ranges manufactured since product year 2018.

Using the online calculator, interested farmers and contractors can individually calculate the potential savings and CO₂ savings for their business. As part of the "DLG approved" field test (DLG test report 7096), CEMOS for tractors was able to reduce fuel consumption for all test drivers compared to their settings and at the same time increase the area output for 80% of the drivers, thus proving that it helps make the best drivers even better. The latest generation of CLAAS CTIC tyre inflation systems is available for all AXION tractors.

Headquartered in Harsewinkel, Westphalia, CLAAS is one of the world's leading manufacturers of agricultural engineering equipment.

Artificial Intelligence is helping African farmers predict and control locust behaviour.

Turning to AI in the fight against locusts

A FREE TOOL THAT will help farmers and pastoralists across Africa to predict and control locust behaviour has been launched. Kuzi, the Swahili name for the wattled starling, a bird renowned for eating locusts, is an AI-powered tool that generates a real-time heatmap of locusts across Africa, shows all potential migration routes, and gives a real-time locust breeding index.

Using satellite data, soil sensor data, ground meteorological observation, and machine learning, Kuzi can predict the breeding, occurrence and migration routes of desert locusts across the horn of African and Eastern African countries, and uses deep learning to identify the formation of locust swarms. Kuzi then sends farmers and pastoralists free SMS alerts two to three months in advance of when locusts are highly likely to attack farms and livestock in their areas.

Without preventative measures, a swarm of 80 million locusts can consume food equivalent to that eaten by 35,000 people a day, devastating food stocks for vulnerable communities. Putting in place early detection and control measures, which are critical in desert locust management, will offer farmers and pastoralists a vital tool in the fight against world hunger and food insecurity.

“A new wave of locust upsurge now threatens millions across Eastern and Southern Africa”

Alerts are currently available for Ethiopia, Somalia, Kenya, and Uganda, in the regional languages of Kiswahili, Somali and Amharic, spoken by over 200 million people across Eastern Africa.

“The first international anti-locust conference was held in Rome in 1931, and yet Africa continues to experience locust invasions almost 100 years later, with the worst locust invasion in 70 years occurring in 2020, threatening food supplies for millions of people across Eastern Africa. There has to be a better way to do this, one that has the local communities being central in the fight against locusts,” said John Oroko, CEO of Kuzi’s creator, Selina Wamucii.



Image Credit: Adobe Stock

Locusts threaten food supplies of millions of people throughout Africa.

“A new wave of locust upsurge now threatens millions across Eastern and Southern Africa, exacerbating food insecurity for already vulnerable communities, amidst the challenges of the COVID-19 pandemic. We have a responsibility to develop and deploy locally-bred solutions that address these challenges faced by our vulnerable rural communities,” added Oroko.

The free tool is currently available to users in Somalia, Ethiopia, Kenya and Uganda with plans to roll out to cover the rest of Africa.

Farmers can sign up for the free SMS alerts with any mobile device, with or without an internet connection, and capture the GPS location of their farm. **E**

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Image Credit: Precision Planting

Precision Planting's new Reveal row cleaner stays engaged with the soil, allowing tine depth to be gauged from the cleaned surface, not the surface on top of soil residue.

Six planter upgrades to help farmers

PRECISION PLANTING, A specialist in precision agriculture technology solutions, has shared six planter upgrades to help farmers achieve a picket fence crop stand in 2021

"When you pass a picket fence, think about your planter," said Bryce Baker, marketing manager at Precision Planting. "The structural integrity, longevity of the pickets, setting the posts - building a sturdy, straight fence and building a picket fence crop stand have real parallels, whatever crop farmers plant."

Baker added that farmers can make affordable upgrades to their existing planter equipment to produce a crop stand that looks good and is profitable. "Begin with the base iron of your planter and row units," said Baker. "It doesn't matter the colour or brand. You can have the best seed placement, the best yield and simple-to-use technology."

Precision Planting experts shared six planter upgrades and customisations that farmers can make to their existing planters to help them achieve a good stand and profitable crop in 2021:

Move debris from where you will build your fence / Move residue with help from a row cleaner.

Precision Planting has announced a new row cleaner called Reveal. The technology is a row cleaner that stays engaged with the soil, allowing tine depth to be gauged from

the cleaned surface, not the surface on top of soil residue.

"Reveal offers farmers independent tine depth and pressure adjustment, so they can determine how deep the tines engage, and then set that independent of pressure," said Justin McMenemy, director of product at Precision Planting.

Measure the post layout for your fence / Add sensors on row units to measure and diagnose planter seed placement.

"Like a doctor uses x-ray technology to diagnose medical issues, planter row unit sensors help farmers diagnose the planter," said McMenemy. "There are five things worth sensing on the planter to see a real impact on the crop: Seed, row unit ride, downforce, the soil environment seeds are placed in and fertiliser rate."

"Through our research farm trials at Precision Planting, we have seen that a two-inch seed depth only wins 21% of the time," said Jason Webster, lead commercial agronomist and director of the Precision Technology Institute. "Sensors help us move that win rate up."

Dig holes where you will place the fence posts / Create the seed trench.

"Consistent germination of seeds starts with planting at the correct depth, and now farmers have tools, SmartFirmer and SmartDepth, that allow them to know how deep to plant, and then set that depth right from the cab," said Baker.

Anchor the fence to the hole / control planter downforce in variable fields.

"A major component of creating a furrow with structural integrity that anchors the seed is downforce control," said McMenemy. "Automated downforce control ensures the same weight on the gauge wheels of every row, even across the variation of a field or from equipment.

Secure the area around the post with concrete / Incorporate planter-applied fertility around the seed.

"Our trials have shown that planter-applied fertility drives increased profit and can be done with the same fertiliser dollar," said Webster. "Moving from off-planter fertiliser to planter-applied is about reallocation, not necessarily more fertiliser. Planter-applied or banded nitrogen, instead of broadcast, means we apply nitrogen right alongside the seed, where it needs it."

Fill the post hole / Get the right soil density around the seed and close the furrow.

"Seeds need to be surrounded by soil, not air, to get uniform heat and moisture," said Webster. "To avoid yield loss, the goal is not simply seeds touching soil but seed firmly against the soil."

"The last part of the row unit that encounters the furrow destroys it," said McMenemy. "If you can't find the furrow, that's what you want - seeds tucked in and no evidence of the planter pass."

AGCO introduces Challenger MT800 Series track tractors

AGCO CORPORATION, HAS introduced the Challenger MT800 Series track tractors.

These machines boast new engine and transmission combinations, an enhanced track and chassis system, more hydraulic and hitch options and a redesigned operator-friendly cab.

"The new MT800 Series is a great addition to the Challenger line of track tractors and a perfect example of AGCO's commitment to serve the producers who require a proven, dependable high-horsepower tractor to pull today's heavy tillage and planting implements," said David Soliday, AGCO senior tactical marketing manager.

Image Credit: AGCO



These machines boast new engine and transmission combinations, an enhanced track and chassis system, more hydraulic and hitch options and a redesigned operator-friendly cab.

Tremendous power and fuel efficiency

Whether the task at hand is deep ripping, subsoiling, installing tile or high-speed planting, the MT800 Series offers the power to get the job done quickly and efficiently.

The Challenger Accu-VT continuously variable transmission is engineered to optimise the benefits of track tractors. Accu-VT can achieve ground speed from 65 feet per hour to 25 mph, all at reduced engine speed. The Tractor Management System automatically controls engine speed and transmission ratio to ensure constant ground speed.

"The Accu-VT allows producers to pull the heaviest implements through the toughest conditions with maximum torque and minimum fuel usage," Soliday added. "The transmission continually adjusts to optimise fuel consumption based on load. When no torque is needed, fuel savings are even more significant."

Maximum power transfer, minimal soil compaction

This efficient powertrain is harnessed to an innovative undercarriage backed by more than three decades of track system experience.

"The MT800 Series offers a suspended undercarriage and the widest offering of track belt choices on the market," Soliday noted. "The longer wheelbase provides ideal track-to-ground contact, improving flotation and minimising soil disturbance and compaction while also maximising power transfer."

The MT800 Series' two-track design affords advantages over quad-track tractors. There are fewer components to maintain, which helps reduce operating costs. There's also less weight, which allows horsepower to be directed to the task at hand, instead of moving the machine. Numerous ballasting options — including front and chassis weights — are available to improve machine balance, headland quality and drawbar pull capacity.

Increased operator comfort and productivity

Further improvement in operator comfort in both field and road conditions is achieved through the Challenger SmartRide suspension.

Challenger Guide smart farming guidance package options allow an operator to connect the MT800 Series tractor to a multitude of systems available on the market today. Systems such as Challenger Guide Contour Assistant and the TI Headland automated operating sequence, for example, save operators time and improve the quality of work, especially on headlands.

Multiple rear hitch systems are available to connect the Challenger MT800 Series's power to any number of implements.

AGCO offers the only tractors on the market available with a steerable three-point hitch.

This feature allows the MT800 Series to make headland turns closer to the centre point of wide implements when under high draft loads. It also reduces the amount of steering power needed while maintaining a higher draft force.

"This feature really allows an operator the ability to make steering adjustments and continue pulling a ground-engaged implement forward instead of sideways," Soliday added. "This reduces stress on the implement while allowing the

operator to keep rolling."

High-performance hydraulics

To meet the needs of today's most sophisticated implements, the Challenger MT800 Series is equipped with a hydraulic system that is entirely dedicated to the valves, hitch, drawbar control and power beyond.



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AN ANNUAL GUIDE to suppliers of equipment and services for agriculture and for the primary processing of produce. The first section of the Directory lists suppliers under classification of their products and services. The second section lists alphabetically company addresses.

The third section lists agents and distributors in Africa geographically. The Directory has been compiled from information submitted by the companies concerned.

While every care has been taken to avoid errors and omissions, they may occur; the Editor would like to be notified of these so that the 2022 edition of the Directory can be kept up to date.

Supplier Listings
start on page 29

Agent Listings
start on page 32

Classified Listings

Abattoirs

Machines 4 Food Ltd.

Agricultural Consultancies

GUANGDONG VTR BIO-TECH Co. Ltd
ICS

Agricultural Equipment - General

AGI
Alvan Blanch Development Co. Ltd.
ICS

Agricultural Projects

ICS

Animal Health Products

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
MALAYSIAN VACCINES AND
PHARMACEUTICALS SDN BHD

Antioxidants

Eurofeed Technologies S.p.A.

Automatic Chain Feeders

Big Dutchman International GmbH

Bag Closing Equipment

Machines 4 Food Ltd.

Bale Handling Equipment

JOSKIN S.A.

Breeding

GUANGDONG VTR BIO-TECH Co. Ltd
Hendrix Genetics

Briquetting Plants

Alvan Blanch Development Co. Ltd.

Broiler Breeding Stock

GUANGDONG VTR BIO-TECH Co. Ltd

Broilers

GUANGDONG VTR BIO-TECH Co. Ltd
MALAYSIAN VACCINES AND
PHARMACEUTICALS SDN BHD

Cages & Batteries

Big Dutchman International GmbH

Cassava Processing Equipment

Alvan Blanch Development Co. Ltd.

Centre Pivot Equipment

T-L Irrigation Co.

Chicks

GUANGDONG VTR BIO-TECH Co. Ltd

Chicks - Day Old

GUANGDONG VTR BIO-TECH Co. Ltd
MALAYSIAN VACCINES AND
PHARMACEUTICALS SDN BHD

Cocoa Production

Alvan Blanch Development Co. Ltd.

Coffee Processing, Handling & Storage

RIELA Karl - Heinz Knoop e.K.

Colour Sorting Equipment

Alvan Blanch Development Co. Ltd.

Conveyors and Elevators

AGI
Big Dutchman International GmbH
RIELA Karl - Heinz Knoop e.K.

Coolers - Environmental

Big Dutchman International GmbH

Cotton Handling & Storage

JOSKIN S.A.

Crop Drying and Ventilation

AGI
Alvan Blanch Development Co. Ltd.

Crop Handling & Storage

Supertech Agroline ApS
Alvan Blanch Development Co. Ltd.
RIELA Karl - Heinz Knoop e.K.

Disinfectants

Eurofeed Technologies S.p.A.
Intraco Ltd.

Drinking Systems

Big Dutchman International GmbH

Dryers

AGI
Alvan Blanch Development Co. Ltd.
RIELA Karl - Heinz Knoop e.K.

Egg Collection

Big Dutchman International GmbH

Egg Layer Breeding Stocks

GUANGDONG VTR BIO-TECH Co. Ltd
Hendrix Genetics

Egg Layer Parent Breeders - Brown

Hendrix Genetics

Egg Layer Parent Breeders - White

Hendrix Genetics

Egg Layers

Hendrix Genetics

Electronic Monitoring & Control

Supertech Agroline ApS

Expanders for Animal Feed

GUANGDONG VTR BIO-TECH Co. Ltd

Extruders for Food, Feed

Alvan Blanch Development Co. Ltd.

Feed Additive Applicators

GUANGDONG VTR BIO-TECH Co. Ltd

Feed Additives

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
Intraco Ltd.
Unipoint AG

Feed Compound

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd

Feed Concentrates

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
Intraco Ltd.

Feed Flavours

Eurofeed Technologies S.p.A.

Feed Growth Promotant Probes

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd

Feed Ingredients

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
Intraco Ltd.
Unipoint AG

Feed Premixes

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
Intraco Ltd.
Tithebarn Ltd.
Unipoint AG

Feed Processing Plants

AGI
Alvan Blanch Development Co. Ltd.
GUANGDONG VTR BIO-TECH Co. Ltd

Feed Supplements

Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
Tithebarn Ltd.
Unipoint AG

Feeding Systems

Big Dutchman International GmbH

Fertiliser Mixers

AGI

Fertiliser Spreaders

JOSKIN S.A.

Fertilisers

Omex Agrifluids Ltd.

Fish Feeds - General

Alvan Blanch Development Co. Ltd.
Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd

Fogging Machines

Big Dutchman International GmbH

Foliar Fertilisers

Omex Agrifluids Ltd.

Food Flavouring

Eurofeed Technologies S.p.A.

Food Processing Equipment

AGI
LIMA S.A.S.
Machines 4 Food Ltd.
Marel South Africa

Fruit Processing

Alvan Blanch Development Co. Ltd.
Machines 4 Food Ltd.

Genetic Research

Hendrix Genetics

Grain - Drying & Ventilation

AGI
Alvan Blanch Development Co. Ltd.

Grains, Grain Projects & Edible Oils

AGI

Grain - Handling, Cleaning & Processing

AGI
Alvan Blanch Development Co. Ltd.
RIELA Karl - Heinz Knoop e.K.

Grain Moisture Testers

Supertech Agroline ApS

Grasscutting Machines - Forage

JOSKIN S.A.

Groundnut Handling Equipment

Alvan Blanch Development Co. Ltd.

Harvesting Equipment

Alvan Blanch Development Co. Ltd.
JOSKIN S.A.

ICT Equipment & Services

Big Dutchman International GmbH

Industrial Cleaning Machines

Machines 4 Food Ltd.

Integrated Pest Management

Omex Agrifluids Ltd.

Irrigation & Drainage Systems

RKD Irrigacion S.L.
T-L Irrigation Co.

Irrigation Equipment

RKD Irrigacion S.L.
T-L Irrigation Co.

Livestock (Export)

GUANGDONG VTR BIO-TECH Co. Ltd

Livestock Handling

JOSKIN S.A.

Material Handling

AGI

Material Handling - Bulk

AGI

Maize ShellersAlvan Blanch Development Co. Ltd.
RIELA Karl - Heinz Knoop e.K.**Meat Processing and Packaging**LIMA S.A.S.
Machines 4 Food Ltd.
Marel South Africa**Medicators**

Big Dutchman International GmbH

Micronutrients

Omex Agrifluids Ltd.

Milling & MixingAlvan Blanch Development Co. Ltd.
Machines 4 Food Ltd.
RIELA Karl - Heinz Knoop e.K.**Mills - Grain**AGI
RIELA Karl - Heinz Knoop e.K.**Moisture Meters**

Supertech Agroline ApS

Monitoring Equipment

Supertech Agroline ApS

Mould Inhibitors

Eurofeed Technologies S.p.A.

Mould Killers

Eurofeed Technologies S.p.A.

Oil Extraction Equipment

Alvan Blanch Development Co. Ltd.

Packaging Machinery

Machines 4 Food Ltd.

Palletizers

Big Dutchman International GmbH

Pelleting

Alvan Blanch Development Co. Ltd.

Pig Equipment

Big Dutchman International GmbH

Pig FeedEurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd**Pig Feeding/Drinking Equipment**

Big Dutchman International GmbH

Pig FlooringBig Dutchman International GmbH
CARFED International Ltd
Eurofeed Technologies S.p.A.**Pig Health Products**Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd**Pig Housing**

Big Dutchman International GmbH

Plant Protection Chemicals

Omex Agrifluids Ltd.

Plastic Flooring, Poultry

Big Dutchman International GmbH

Poultry Consultancy ServicesGUANGDONG VTR BIO-TECH Co. Ltd
Meyn Food Processing Technology b.v**Poultry Equipment - Drinking**

Big Dutchman International GmbH

Poultry Equipment/Handling

CARFED International Ltd

Poultry Export Trade

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Poultry FeedingBig Dutchman International GmbH
GUANGDONG VTR BIO-TECH Co. Ltd**Poultry Feeding - Primary**Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd**Poultry Health Products**Eurofeed Technologies S.p.A.
GUANGDONG VTR BIO-TECH Co. Ltd
MALAYSIAN VACCINES AND
PHARMACEUTICALS SDN BHD**Poultry Housing**

Big Dutchman International GmbH

Poultry Processing Equipment & SuppliesCARFED International Ltd
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Machines 4 Food Ltd.
Marel South Africa
Meyn Food Processing Technology b.v**Poultry Projects, Integrated**Marel South Africa
Meyn Food Processing Technology b.v**Pumps**

T-L Irrigation Co.

Raw Materials

Eurofeed Technologies S.p.A.

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Alvan Blanch Development Co. Ltd.**Roll-out Nests**

Big Dutchman International GmbH

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Tithebarn Ltd.

Seed

ICS

Seed Cleaning Equipment

Alvan Blanch Development Co. Ltd.

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SilosAGI
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Big Dutchman International GmbH
Privé SA
RIELA Karl - Heinz Knoop e.K.**Slaughtering Equipment**

Marel South Africa

Slurry DisposalJOSKIN S.A.
T-L Irrigation Co.**Soluble Fertilisers**

Omex Agrifluids Ltd.

SprayersGOIZPER GROUP
RKD Irrigacion S.L.**Sprayers - Crop**

GOIZPER GROUP

Spraying Nozzles & Components

GOIZPER GROUP

Trace ElementsEurofeed Technologies S.p.A.
Omex Agrifluids Ltd.**Traders in Agricultural Equipment, General**

ICS

Trailer Transporters, Livestock

JOSKIN S.A.

Trailers

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Transport Boxes

CARFED International Ltd

Transport Crates for Poultry

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ULV Spraying Equipment

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VaccinesMALAYSIAN VACCINES AND
PHARMACEUTICALS SDN BHD**Ventilating Equipment**

Big Dutchman International GmbH

Vitamins, Minerals & ProteinsEurofeed Technologies S.p.A.
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Water Pipes

RKD Irrigacion S.L.

Watering Equipment

RKD Irrigacion S.L.

Weed Control

GOIZPER GROUP

Weighers - Animal

Big Dutchman International GmbH

Weighing EquipmentAlvan Blanch Development Co. Ltd.
Big Dutchman International GmbH**Supplier Listings****AGI****AGI EMEA Head Office:**Via Bertella 2
Ozzano dell'Emilia
40064- Bologna, Italy**AGI Head Office:**198 Commerce Drive
Winnipeg, Manitoba
R3P 0Z6
SouthAfrica
Tel: +27(0)716335365
Web: www.aggrowth.com
E-mail: africanasales@aggrowth.com

AGI is a global leader in design and manufacturing of farm and commercial equipment. We partner with our customers across 6 continents to deliver full-system solutions. Our catalog includes silos, conveyors, bucket elevators, cleaners, dryers and technology for farmers and grain operators.

Alvan Blanch Development Co. Ltd.Chelworth, Malmesbury
Wiltshire
SN16 9SG
UKTel: +44 1666 577333
Fax: +44 1666 577339
Web: www.alvanblanchgroup.com
E-mail: info@alvanblanch.co.uk

British manufacturers of agricultural machines and complete processing solutions. Specialists worldwide in drying technologies for all materials. Process engineers with 50 years' experience in the African market; with products ranging from grain cleaning, drying and bulk storage, to milling for feed, flour, rice as well as waste and fruit processing.

Agents:Cote D'Ivoire - Alvan Blanch West Africa
Nigeria - Alvan Blanch Nigeria
Uganda - Alvan Blanch East Africa**BALDAN IMPLEMENTOS AGRICOLAS S/A**1500, Baldan Avenue Matao City –
Sao Paulo State
Brazil
Tel: + 55 16 98124 5129
Web: www.baldan.com.br
E-mail: abossini@baldan.com.br



Big Dutchman International GmbH

Auf der Lage 2, Vechta
49377

Germany

Tel: +49 4447 8010

Fax: +49 4447 801237

Web: www.bigdutchman.com

E-mail: big@bigdutchman.de

Big Dutchman is the world's leading equipment supplier for modern pig and poultry production. The product range includes traditional and computer-controlled feeding and housing equipment as well as systems for climate control and exhaust air treatment. The scope varies from small to large, fully integrated turn-key farms.

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Algeria - SARL Mecafa Algeria

Egypt - Commercial Group Edward Y. Nekhela & Co.

Egypt - Eslam Ramadan

Egypt - Eytasmen for Import and Export

Egypt - Mohamed Khaili

France - Soproda (Region Dom-Tom + Continent d' Afrique)

Kenya - Agriculture Equipment Kenya Ltd.

Libya - Agriculture Technology Co.

Morocco - Agri-Art

Nigeria - BD Agriculture Nigeria Ltd.

South Africa - Big Dutchman South Africa (Pty) Ltd.

Sudan - El Shimal for Export & Import and

General Trade

Tunisia - Nizar Laribi

Tunisia - SEMA



CARFED International Ltd

Via Basilicata 10
San Giuliano Milanese
20098

Italy

Tel: +39 02 9881140

Fax: +39 02 98280274

Web: www.carfed.it

E-mail: info@carfed.it

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CARFED products can be seen in the website www.carfed.ch.



Eurofeed Technologies S.p.A.

Via Luigi Einaudi 12
Brandico (BS)
25030

Italy

Tel: +39 030 6864682/

+390309973064

Fax: +39 030 6866560/

+39030772419

Web: www.eurofeed.it

E-mail: info@eurofeed.it

Eurofeed Technologies S.p.A. is an Italian Company that produces and trades feed additives all over the world. We are GMP+Certified. Eurofeed Technologies' portfolio includes: Acidifiers-Antimicrobials-Antioxidants-Aromas-Enzymes-Energising-Electrolyte-Micotoxin Binders-Mold Inhibitors-Natural Adjuvant In Coccidiosis Prevention-Natural Diarrhea Prevention-Natural Growth Promoter Nucleotides-Organic Trace Elements-Pellet Binders-Pet Food-Sanitizing-Vegetable Protein Concentrates-Vitamins.

GOIZPER GROUP

C/ Antigua 4

Antzuola
(Gipuzkoa)

20577

Spain

Tel: +34 943 786000

Fax: +34 943 766008

Web: www.matabi.com

E-mail: spraying@goizper.com



GUANGDONG VTR BIO-TECH Co. Ltd

No.8 Pingbei RDI

Science & Technology Industry

Zone, Nanping, Zhuhai

Guangdou

China

Tel: +86-756-8676888

Fax: +86-756-8680250

Web: www.yidouli.com

E-mail: kris.zhao@vtrbio.com

Our Company has been focusing on biotechnology innovation for 70 years.

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Hendrix Genetics

Villa 'de Korver, Spoorstraat 69
Boxmeer, 5831 CK
Netherlands

Tel: +31 485 319 111

Fax: +31 485 319 112

Web: www.hendrix-genetics.com

E-mail: layinghens@hendrix-genetics.com

Hendrix Genetics is the world's leading breeder of brown and white laying hens, which thrive in both traditional and alternative production systems and in different climatic conditions. The mission is to contribute to profitable and sustainable egg production through continuous genetic improvement of their laying hens achieved via their balanced breeding program.

ICS

12 rue du Soleil

Za Croix Fort

La Jarrie, 17220

France

Tel: +33 5 46352828

Fax: +33 5 46352829

Web: www.ics-agri.com

E-mail: contact@ics-agri.com

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Intraco Ltd.

Jordaenskaai 24

Antwerp

2000

Belgium

Tel: +32 3 2269850

Fax: +32 3 2269852

Web: www.intraco.be

E-mail: intraco@intraco.be

Intraco Ltd. is the specialist in feed concentrates, premixtures, protein meals, feed additives.

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JOSKIN S.A.

Rue de Wergifosse 39
4630 Soumagne

Belgium

Tel: +32 43 77 35 45

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Web: www.joskin.com

E-mail: info@joskin.com

JOSKIN is a 50 years old Belgian based family owned business, European leader in design and manufacture of agricultural machinery, and specialized in manufacturing trailers and tankers for agricultural use. These can transport liquid and solid farm manure, cereals, livestock, etc. JOSKIN also has a complete range of machines for pasture maintenance.



LIMA S.A.S.

456, route de Rosporden
Z.I. Guelen, QUIMPER, 29000

France

Tel: + 33 (0) 298 948 968

Web: www.lima-france.com

E-mail: lima@lima-france.com



Machines 4 Food Ltd.

Unit 40, Second Avenue

Westfield Trading Estate

Midsomer Norton

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United Kingdom

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Batu 21
Jalan Puchong Kajang
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47100, Puchong
Selangor
Malaysia
Tel: 03-8061 5701
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MVP is the "sole veterinary vaccines manufacturer" that produces MY VAC brand of live and inactivated vaccines that are safe and effective in protection against debilitating diseases such as Newcastle Diseases, Infection Branchships, Gumborg Diseases, Fowl Pox, Duck Pasteurellors and Fowl cholera. The vaccines are produced in accordance to GMP that requires significant standard of safety, quality and efficacy.

Agents:

Egypt - Bio Impact Co Ltd



Marel South Africa

Unit 25, Hughes Office park, 422
Oscar Street
Boksburg
Johannesburg
1459
South Africa
Tel: +31 485 586111
Fax: +31 485 586222
Web: marel.com/poultry
E-mail: info.poultry@marel.com

Marel Poultry is the leading global provider of advanced food processing systems and solutions. With the most complete product range and the largest installed base worldwide, Marel offers poultry processing solutions for all processing capacities, from 500 to 15,000 bph, and for all process steps, from live bird handling to further processing and labelling.

Agents:

Nigeria - Teco Ltd



Poultry Processing Solutions

Meyn Food Processing Technology b.v

PO Box 16. Oostzaan
1510 AA, Netherlands
Tel: +31 20 2045000
Fax: +31 20 2045001
Web: www.meyn.com
E-mail: sales@meyn.com

Working with Meyn means you can rely on intelligent, innovative, customized and sustainable poultry processing solutions that enable you to meet the challenges of today's market and tomorrow's society. Your success is our goal. Everyday all over the world.

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Omex Agrifluids Ltd.

Saddlebow Road
King's Lynn, Norfolk
PE34 3JA, United Kingdom
Tel: +44 1553 817500
Fax: +44 1553 817501
Web: www.omex.com

E-mail: agrifluids@omex.com

Omex Agrifluids specialist liquid foliar fertilisers are available from distributors across the Africa and Middle East Region, specifically Kenya, Tanzania, Rwanda, Nigeria, Ghana, Ivory Coast, Cameroon, Zambia, South Africa, Tunisia, Morocco, Egypt, Saudi Arabia, Yemen, Iraq, Lebanon, Kuwait and Senegal. Visit our website www.omex.co.uk/agrifluids



Privé SA

98 avenue du Général Patton
CS30536

Chalons en Champagne
51010, France

Tel: +33 3 26686666
Fax: +33 3 26686699

Web: www.prive.fr
E-mail: contact@prive.fr

Privé is a French company with more than 70 years experience in

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RIELA Karl - Heinz Knoop e.K.

Hansestraße 14
D-4847
Riesenbeck
Germany
Tel: +49 5454 93160
Fax: +49 5454 931699
Web: www.riela.de
E-mail: info@riela.de



RKD Irrigacion S.L.

P. I. La Mora
Paseo de la Acacia
Parc. 13
La Cistérniga (Valladolid)
47193
Spain
Tel: +34 983 401896
Fax: +34 983 401897
Web: www.rkd.es
E-mail: info@rkd.es

RKD is specialised in the manufacturing of Center Pivot and Lateral Move Systems since 1980



Supertech Agroline ApS

Maltgorevej 75471 sonderso
Denmark
Tel: +45 64812000
Web:
Supertechagroline.com/Agrolog.io
E-mail: info@supertech.dk

Supertech Agroline (SA) is a company that develops, manufactures and sells systems for measuring and monitoring relevant properties of stored grains. The company specializes in providing Industry 4.0 and IoT solutions for agriculture and the post harvest industry. SA produces both Moisture Analysers and grain monitoring system AgroLog.



Tithebarn Ltd.

Road 5, Industrial Estate
Winsford, Cheshire
England
United Kingdom
Tel: +44 1606 595000
Fax: +44 1606 59545
Web: www.tithebarn.co.uk
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Hastings, NE
68902-1047
USA
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Fax: +1 402 4624617
Web: www.tiirr.com
E-mail: rgeorge@tiirr.com
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Unipoint AG

Gewerbestrasse 2
Ossingen
8475
Switzerland
Tel: +41 52 305 20 41
Fax: +41 52 305 20 42
Web: www.unipoint.ch
E-mail: info@unipoint.ch

Klinofeed® is the unique feed-additive with a high capacity to bind Ammonium and Mycotoxins. Klinofeed is the original product, EU-registered by Unipoint AG, as feed additive No.: 1g568. Please ask us about Klinofeed: info@unipoint.ch

Agent Listings

Algeria

Fathi Kthiri

Tel: +21652278028 &
+213776162775
E-mail: fkthiri@bigdutchman.com

SARL Mecafa Algeria

01 A Jardin Public Centre
Rouiba W. Alger
16012
Tel: +213 558 363003
Fax: +213 23 855427
E-mail: mec_alg@hotmail.fr

Sarl Mecafa Algeria imp/exp

Siege Social 01 A
Jardin Public centre Rouiba
Algiers
16012
Tel: +213 23855473
Fax: +213 23855427
Web: www.meyn.com
E-mail: mec_alg@hotmail.com

Cote Divoire

Alvan Blanch West Africa

Abidjan
Tel: +225 775 274 29
Web: www.alvanblanchgroup.co
E-mail: africa@alvanblanch.co.uk

Egypt

Bio Impact Co Ltd

88- Almadiyah trade center
6th October City
Oiza, gyp
Tel: 00201092703109
Web: bio-imoact.met
E-mail: mshaker@bio-impact.net

Commercial Group Edward Y. Nekhela & Co.

43, Ibrahim Nawar Street
Zone 6 Nasr City
Cairo, 11391
Tel: +20 2 23547282
Fax: +20 2 23547344
E-mail: edwardnekhela@commercial-group-egypt.com

Eslam Ramadan

Tel: +201159898800
E-mail: eramadan@bigdutchman.com

Eylasmen for Import and Export

10' Teba Street, El-Sharakwa
Elreyad, Kafrelsheikh
Egypt, Cairo
Tel: +201000815050
E-mail: gm@elyasmengroup.com

Meyn Egypt

10 Mahmoud Tawfik Street
6th Zone
Nasr City
Cairo
Tel: +20 2 22703323/2748770
Fax: +20 2 22748828
Web: www.meyn.com
E-mail: sherifgamal@meynegypt.com

Mohamed Khalil

Tel: +2010 01180 033
E-mail:
mkhalilamin@bigdutchman.com

Ethiopia

CORAL COMPANY LTD.

Altaief – Alsalam street, block 22,
house 501
1899 Khartou
Sudan
Tel: +249 912301274

France

Soproda (Region Dom-Tom + Continent d' Afrique)

11C Boulevard De La Marne - Z1
Coulommiers
77120
Tel: +33 1 64209440
Fax: +33 1 64209123
Web: www.soproda.com
E-mail: soproda@soproda.com

Kenya

Agriculture Equipment Kenya Ltd.

Magana Town, Magana road
Off Waiyaki way
P.O Box 66767
Nairobi
00800
Tel: +254 70 3449499
E-mail: rdenz@bigdutchman.com

ICS AGRY KENYA

P.O. box 36800 - Harvester rd
20100 NAKURU
Tel : (+254) 725 998 990
Web : www.ics-agri.com
E-mail : l.deneufbourg@ics-agri.com

Libya

Agriculture Technology Co.

Gergarish Road
Kilo 7
Tripoli
Tel: +218 21 3336724
Fax: +218 21 3330669
Web: www.agritech.com.ly
E-mail: info@agritech.com.ly

Morocco

Agri-Art

38, Rue el jadida Hay Ouedd
Eddahab
Temara
12000
Tel: +212 53 7643061
Fax: +212 53 7643578
E-mail: agriart@agriart.ma

AGROKIT S.A.R.L.

Boulevard Brahim Roudani
Maarif
332 Casablanca
MOROCCO
Tel: +212 661 452 470
Email: aoudjehane.m@gmail.com

Nigeria

ADECO PROJECT ENGINEERING W.A. LT.

Babatunde Atere Street
Omole Phase II
Plot 708A Isheri
Lagos
Nigeria
Tel: +234 709 8729134/ +234 703 0370687
Email: rotimi.babatunde@adeco.nl

Alvan Blanch Nigeria

Abuja
Tel: +44 7753879933 (WhatsApp)
Web: www.alvanblanchgroup.com
E-mail: nigeria@alvanblanch.co.uk

BD Agriculture Nigeria Ltd.

4 Metal Box Road
Off Acme Road
First Floor
Ogba Industrial Scheme
Ikeja
Lagos
Tel: +234 9087256869 /
+4915118408089
E-mail:
togundiran@bigdutchman.com

Teco Ltd

Tel: +234 179000167
Web: www.tecogrouping.com
E-mail:
caaladewolu@tecogrouping.com

Saudi Arabia

CANAHILL

PO BOX 25867
RIYADH
11476
Tel: +223 76794679
Web: http://www.ics-agri.com
E-mail: ics.mmk@gmail.com

Senegal

Terragrisen

Villa N°9354 SICAP
Sacré-Cœur 3
BP 24908 Poste de Ouakam
Dakar
Tel: +221 33 8278811
Web: www.ics-agri.com
E-mail: dioum.ics@gmail.com

South Africa

Big Dutchman South Africa (Pty) Ltd.

P.O.Box 276, Edenvale 1610
Johannesburg
South Africa
9 Terrace Road, Eastleigh
Edenvale
Johannesburg
1610
Tel: +27 11 4521154
Fax: +27 11 6094908
Web: www.bigdutchman.co.za
E-mail: sales@bigdutchman.co.za

Spartan Equipment Ltd (Meyn)

Midrand poultry supplies (PTY)
PO Box 136, alfway House
1685, ransvaal
Tel: +27 11 3182239
Fax: +27 11 3182272
Web: www.meyn.com
E-mail: sparquip@iafrica.com

Sudan

CORAL COMPANY LTD.

Altaief – Alsalam street, block 22,
house 501, 1899 Khartou, Sudan
Tel: +249 912301274

El Shimali for Export & Import and General Trade

Gereif West Block 83 B. 33
Khartoum, Sudan, 11111
E-mail: Sales@elshimali.com

French Technology Company

House N°331, Block 21
Close to Abdalla AlTayebStreet
Riyadh, Khartoum
Tel: +249 0155 153338
Web: www.ics-agri.com
E-mail: phg@ics-agri.com

Tunisia

ABSCISSE DES INDUSTRIES ALIMEN- TAIRES (AIA)

Bureau B32 Megrine, N°10 Avenue
Habib Bourguiba, 2033 Tunis, Tunisia
Tel: 00 216 71 425 750
Fax: 00 216 71 428 918
Email:habib.hmani@aiamaghreb.com

Nizar Laribi

Tel: +216 29 517 024,+216 99 054 35
E-mail: nlaribi@bigdutchman.com

SEMA

7, Rue Bayrem, Ettounsi, Den Den, 2011
Tel: +216 20 246446
Fax: +216 71 948018
E-mail: sematunisie@gmail.com

Uganda

Alvan Blanch East Africa

Kampala
Tel: +447710395339 (WhatsApp)
Web: www.alvanblanchgroup.com
E-mail: info@alvanblanch.co.uk

Zambia

Aqua Mec

87, Rhodespark Provident, Lusaka
Tel: +260966861172
E-mail: marc@aqua-mec.com

Zimbabwe

Aqua Mec

Zimplot House, Northridge Clos
Northridge Park, Highlands, Harare
Tel: + 263775740054
E-mail: marc@aqua-mec.com

BKT launches new Agrimax V-Flecto sizes

The range of BKT's lead product, AGRIMAX V-FLECTO, is expanding. A new size is already available and further three are being developed and will soon join 18 others.

The new size is VF 710/70 R 42, which will soon be followed by VF 750/70 R 44, VF 710/75 R 38 and VF 710/55 R 38.

The objectives of new agriculture are ambitious: working better and sustainably, saving time and optimising resources.

Machinery and tyres must make a significant contribution to improving results, from every perspective.

For this reason, BKT says it has developed AGRIMAX

V-FLECTO which meets all these needs, improving tractor performance on every type of terrain. It is a revolutionary tyre which brings together in a single product a range of 'combined' solutions to optimise the work and performance of high-powered tractors.

First of all, this tyre makes it possible to maximise loads without changing tyre pressure, regardless of speed, managing to carry 40% more weight than a standard tyre of the same size and with the same recommended rim. At the same time soil compaction is reduced thanks to a wider footprint area and a 10% wider tread.

The great strength is then durability, which is 10% longer than the standard equivalent, a characteristic which means a benefit in terms of productivity and optimisation of farm work.

The ultra-resistant casing and the special strengthened bead allow AGRIMAX V-FLECTO to exploit all the tractor's potential both in the field and on the road, where it can also reach high speeds.

It is the first BKT tyre, which makes use of NRO (Narrow Rim Option) Technology, conforming to the standards recorded by the European Tyre



The tyre helps maximise loads without changing tyre pressure, regardless of speed.

Image Credit: BKT

and Rim Technology Organization (ETRTO). This marking makes it possible to use standard rims and not dedicated rims which are instead needed for VF tyres of the same size.

Thanks to all these winning characteristics united in a single solution, AGRIMAX V-FLECTO has quickly become one of BKT's most successful products, to the extent that the company has increased the range of sizes available. Launched in 2017, initially in the size VF 710/60 R 42, this tyre has been meeting the most demanding performance needs. For this reason AGRIMAX V-FLECTO sees its success increasing more and more in only three years, to the extent of being now available in 22 sizes.

The right tyre at the right time is a sustainable choice because it makes it possible to save on time, consumption and resources. This is why BKT Research never stops and continues to expand an already rich catalogue of over 2,700 products.

Machines 4 Food Ltd

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Used Fatosa 325 litre Bowl Cutter unloader

Mincers & Mixer Grinders

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Used Seydelmann 130 Mixer grinder
Used Weiler 16 inch Grinder whole meat block
Used Working 600/200 Mixer Grinder
Used Stephen MCH 15 Emulsifier

Vacuum Packers & Shrink / dip mc's

New ATM Packman single Vacuum Packer
New ATM large single Vacuum Packer
New ATM double chamber Vacuum Packer
Used GSP 45 Flowrapper for plain film
Used Interpack Year 2016 Flowrapper
Used Ulma Pacific whole chicken wrapper

Mixers & Tumblers

New Unihall 225 litre concrete style tumbler
New Fatosa 150 litre single paddle Mixer
Used 150 litre single paddle Mixer, tipping
Used Rasco 1,300 litre Mixer, twin paddle



Used Rasco 200 twin paddle Mixer
New Sammic liquidiser, 2 speeds, 3 heads
Continuous Coating drum, wire belt
Hobart M802 Mixer with bowl lift
Scansteel 400 litre, Twin Ribbon Mixer
New Fatosa 80 litre single paddle, tipping mixer
Dicers, Flakers, Graters
Used AEW 350 Bandsaw sliding table
Used Marchant Schmidt 2 stage cheese cutter
Unichel Model E Transizer, Year 2019
Grassell ST 200 strip cutter, very tidy

Miscellaneous

New Lazy Sazy 1200 mm diameter, nylon top
Used IPM Crusader Inline tray washer
Used Handtmann VF 80 Vacuum Filler
Used Backsaver Doloy tipper, mobile
Used Solo Bolans 250 sanitel Press
New tote bin tipper variety of heights
Used Mobile tote bin tipper
Used Tote bin tipper fixed to floor
Water incline crows foot
Various conveyors
Griffe vertical screw with horizontal feed screw

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ARTOLIO project to support small olive oil producers across the Mediterranean

THE US\$3.5MN ARTOLIO project is coordinated by Israel's Agricultural Research Organisation and sees the participation of nine partner organisations from Cyprus, France, Greece, Israel, Jordan, Palestine and Spain.

ARTOLIO, in addition to focusing on process improvement, sustainability and energy efficiency, will contribute to establishing a new level of superior quality for extra virgin olive oil.

Members of the Mediterranean countries of Israel, Greece, France, Cyprus, Palestine, Jordan and Spain are participating in the project.



The project aims to provide knowledge in marketing and sales, as well as to provide technology that helps improve the global visibility of the local product.

ARTOLIO's objectives and commitments

Among the results of the project, a substantial improvement in the quality of the extra virgin olive oil is expected. In line with the EU's commitments to reduce CO2 emissions and protect the environment, it also aims to help producers implement sustainable development methods and best energy efficiency practices. Likewise, ARTOLIO's objective is to apply the methodology so that it can be replicated in other Mediterranean regions of the EU.

In addition, the project aims to provide knowledge in marketing and sales, as well as to provide technology that helps improve the global visibility of the local product. To do so, ARTOLIO will provide a digital system in which it intends to bring together producers, experts, buyers and consumers, with the goal of also activating the existing knowledge and culture surrounding extra virgin olive oil.

The European Union funds ARTOLIO under the ENI CBC Med Programme. It has a total budget of US\$3.5mn, with 90% of the funding provided by the European Union (US\$3.1mn).

The project launch meeting was held in October 2020 and the completion date is February 2023.

ADVERTISERS INDEX

Company	Page
AGI International.....	9
Baldan Implementos Agrícolas S.A.	36
Carfed International Ltd	7
Eurofeed Technologies S.p.a.	27
Guangdong VTR Bio-Tech Co., Ltd	17
Institut de Sélection Animale B.V.....	11
Joskin SA, Ets	21
Machines 4 Food Ltd.....	33
Malaysian Vaccines and Pharmaceuticals Sdn Bhd	15
Meyn Food Processing Technology B.V.....	2
Omex Agrifluids Ltd.....	19
Prive S.A.....	25
RIELA	35

AlgaEnergy and Laboratoire M2 partner up

AlgaEnergy, a US subsidiary of Spain-based AlgaEnergy and a specialist in microalgae biotechnology, has signed global product distribution and product development agreements with Laboratoire M2, that develops natural and sustainable disinfectant products.

AlgaEnergy formulates and produces sustainable, microalgae-based crop inputs for the world's growers. Laboratoire M2's THYMOX products, derived from the anti-microbial power of thyme oil and other natural oils, are used in crop and indoor agriculture, as well as in turf and garden markets.

Under the agreements, AlgaEnergy will gain exclusive global rights to distribute the THYMOX crop protection product in major agricultural markets in Europe, the Americas, Africa and Asia-Pacific. The two companies also signed a license and product development agreement under which their scientific teams will work together to create new, value-added biocontrol products.

Ry Wagner, AlgaEnergy CEO and president of AlgaEnergy's international agribusiness, said, "Laboratoire M2 has developed some of the most innovative natural biocontrol solutions in the market today. These agreements mark AlgaEnergy's entry into the rapidly growing biocontrol sector, and also sets the stage for future innovations coming from our scientific collaboration," said Ry Wagner, AlgaEnergy CEO and president of AlgaEnergy's international agribusiness.

Frank Palantoni, executive director of Laboratoire M2, sees tremendous potential in the new products that will result from these combined technologies.

"This partnership with AlgaEnergy will give the world's growers access to our THYMOX technology, which has been proven in field tests to offer effective protection against some of the most difficult pathogenic problems faced by growers," he said.

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John Deere awarded for robotics

JOHAN DEERE HAS been honoured in the robotics category of the 2021 CES Innovation Awards, which recognise outstanding product design and engineering in consumer technology products.

John Deere is the CES Innovation Award Honouree for its new X Series combines that are equipped with ActiveVision camera technology that helps farmers see inside a grain tank and observe tailings so that they can monitor the condition of harvested grain right down to individual kernels. This technology is fuelled by proprietary algorithms and provides information for farmers to make critical decisions and gather data over time to inform future actions.

"John Deere is honoured to receive this award as it highlights our ongoing commitment to agriculture, innovation and technology. The award recognises our efforts to build cutting-edge smart machines, systems, and solutions that unlock customer economic value through enhanced precision, automation, speed and efficiency previously not possible," said Jahmy Hindman, chief technology officer for John Deere.



The CES Awards recognise outstanding product design and engineering.

Image Credit: John Deere

The X9 1100 is the largest John Deere X Series combine and helps farmers harvest faster without risking grain loss or quality. These machines can thresh, separate, and clean more bushels per hour, or harvest more acres per day, even under unpredictable conditions. Compared with previous models, the X9 1100 can harvest up to 70% more wheat per hour.

The artificial intelligence, computer vision, in-field machine-to-machine communication, integrated sensors and self-driving capabilities included on the X Series make this increased harvesting productivity possible. For example, the combine can automatically adjust itself to adapt to changing conditions to run at peak levels while helping farmers with in-the-moment decision making. The combines also monitor themselves and enable farmers and John Deere service technicians to manage concerns remotely, minimising downtime and supporting profitability.

"Technology and innovation are at the core of how John Deere helps farmers overcome uncertainty and improve efficiency," said Hindman. 



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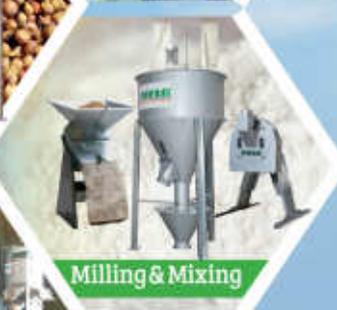
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