

Smart farming for the future

Equipment:

Efficient planting machinery

Livestock:

Importance of biosecurity

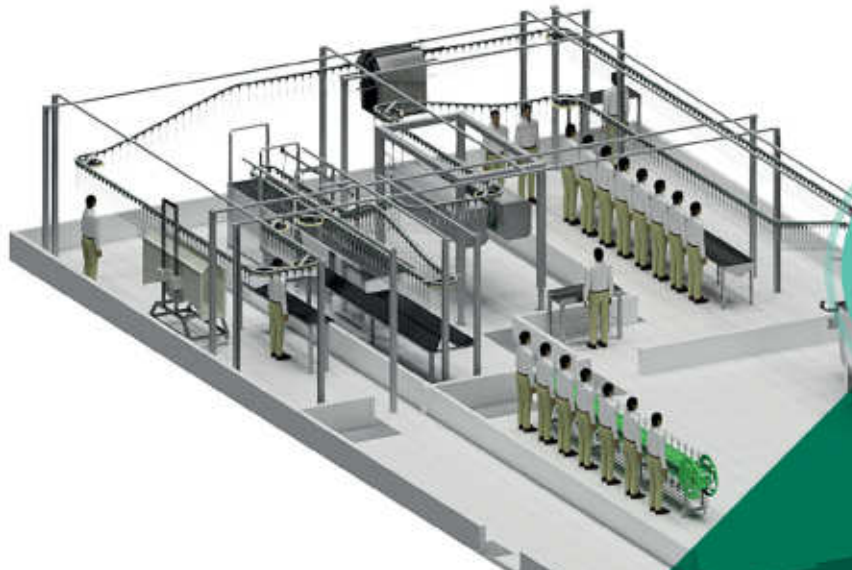
Aquaculture:

Modern fish farming practices



AgriTechnica Asia & Horti Asia - p8

Poultry
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2022



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EVENTS 2022

March

11-13

China International Fisheries ExpoZhangzhou, China
www.fishexpo.cn

16-18

AgriTek-FarmTekNur-Sultan, Kazakhstan
www.agriastana.kz

23-25

Water India ExpoNew Delhi, India
www.waterindia.com

23-26

IISM - International Indonesia Seafood & MeatJakarta, Indonesia
www.iism-expo.com

April

08-11

FarmTech AsiaIndore, India
www.farmtechasia.com

12-14

Aquapro ExpoMoscow, Russia
www.aquaproexpo.ru

May

18-20

China Animal Husbandry ExpoChengdu, China
www.caaa.cn

25-27

AgriTechnica AsiaBangkok, Thailand
<https://www.agritechnica-asia.com/>

25-27

Horti AsiaBangkok, Thailand
www.horti-asia.com

Vietnam and Cambodia strengthen agricultural cooperation



Image Credit: Adobe Stock

The two countries look to build on the existing cooperation in the field of agricultural trade.

VIETNAM'S PRESIDENT NGYUEN Xuan Phuc's recently visited and met the delegation from Cambodia's Ministry of Agriculture and Rural Development to discuss strategies on strengthening bilateral cooperations in agriculture.

According to the Cambodian Minister of agriculture, forestry and fisheries, Veng Sakhon, despite difficulties due to the pandemic, cooperation in agriculture between the two sides still achieved remarkable results. In particular, Vietnamese companies investing in rubber plantations in Cambodia have harvested latex in an area of 100,000 ha, with an export value of about US\$200mn in the

first 11 months of 2021.

Vietnam is the largest importer out of 90 countries importing agricultural goods from Cambodia. According to Vietnam's Ministry of agriculture and rural development (MARD), the country wishes to accelerate the implementation of cooperation projects in the fields of agriculture and aquaculture with Cambodia.

The two sides also agreed to step up cooperation in agriculture, forestry and fishery; strengthen control of timber import and export activities; prevention and control of diseases on plants and animals, and technical training for several collaborative projects.

Japan formalises grants for Fiji

THE GOVERNMENT OF Japan has recently formalised two grant agreements worth US\$2.59mn (\$300 million Japanese Yen) to the Government of Fiji through Japan's Economic Social Development Programme (ESDP).

The funding assistance will enable the procurement of heavy machinery equipment for fisheries, agriculture and waterways.

Kawakami Fumihiko, Ambassador of Japan, highlighted that this assistance was in response to the needs for agriculture, fisheries development and waterways management by the relevant Ministries, and will meaningfully help build Fiji's resilience against natural disasters and the socio-economic impact of COVID-19.

The provisions of heavy machinery will be utilised in post-disaster recovery, rehabilitation and ultimately support Fiji's national development priorities.

Third edition of the Tropical Fruit Congress to be held at Macfrut 2022



Image Credit: Macfrut

The Tropical Fruit Congress will include a conference, technical workshops and a thematic exhibition area with a special focus on avocados.

AVOCADOS WILL BE under the spotlight at the European congress dedicated to tropical fruit, scheduled at the Rimini Expo Centre during Macfrut, the international point of reference for the fruit and vegetable industry.

Macfrut will host several vertical technical focus sessions, which are meant to enhance the content offered during the upcoming 39th edition, including the third edition of the Tropical Fruit Congress. Coordinated by NCX Drahorad, the event is set to take place on 6 May 2022, with a spotlight on avocados, the tropical fruit said to be increasingly attracting the attention of sector professionals and consumers for its superfood qualities and its versatility.

The Tropical Fruit Congress will include a conference, technical workshops and a thematic exhibition area. It will be a great chance to gather information on these trends and analyse them and allow participants to find out how they can play a part in promoting the consumption of avocados by adopting strategies based on quality, sustainability, knowledge of market dynamics and a focus on consumers.

Thomas Drahorad, president of NCX Drahorad said, “The aim of the Tropical Fruit Congress is to provide a unique opportunity for professionals in the industry to exchange views and keep up to date on market trends, technical innovations and best practices in logistics and trade.”

New Holland introduces forklift for fruit and vegetables

NEW HOLLAND CONSTRUCTION has announced the launch of the F50C rough terrain forklift, adding a new product to its line-up of light construction equipment.

The F50C has been designed for use in specialty crop operations such as vineyards, orchards and other fruit and vegetable applications, and features unique specifications, including an automatic load control system and integrated bin clamp.

The F50C is equipped with an automatic load control system for rough terrain forklifts. This feature provides on-the-go mast cushioning to stabilise the mast under load, allowing operators to work efficiently and safely over any terrain without fear of material loss. A key by-product of load control provides a more comfortable operating experience by reducing shock from the mast. The additional stability while transporting and loading materials will help operators, as New Holland will offer a 12ft mast with a 5,000-lb lift capacity as standard.

It also offers an integrated hydraulic produce bin clamp which allows the operator to carry multiple produce bins safely in a single pass.

The F50C rough terrain forklift made its public debut at the 2022 World Ag Expo in Tulare, California.

Bühler completes City Group mill project in record time



Image Credit: Bühler

Guests take part in the Rupshi mill tour.

BÜHLER AG, A SWISS multinational plant equipment manufacturer has formally handed over the Rupshi Flour Mill to the City Group in Dhaka, Bangladesh after achieving a record completion time of 24 months, since the December 2019 signing of the contract.

The handover ceremony took place at City Group’s production plant on the bank of the Shitalakshya River, 30 km outside of the capital, Dhaka. The Rupshi flour mill is City Group’s largest flour mill, with eight milling lines producing 625 tn each. According to City, the mill can produce a total of 6,150 tns per day of flour under one roof.

City Group director Md. Hasan said, “We are very happy to have one of the largest flour mills on our site. And we want to congratulate Bühler for being a partner on our journey, to provide affordable nutrition.”

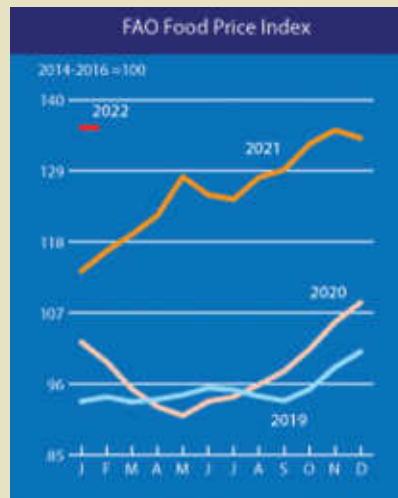
Stefan Bürgi, Bühler project director, explains the challenges faced working during the pandemic and said that the customer’s needs and requirements were worked out together so that a fully dedicated team could work on the project.

FOOD OUTLOOK

THE FAO FOOD price index averaged 135.7 points in January 2022, higher than in December 2021. The FFPI's rebound in January was led by solid gains in vegetable oils and dairy sub-indices, partially offset by a decline in sugar prices for the second consecutive month.

The FAO Cereal Price Index averaged 140.6 points in January, up marginally from December and 12.5% above its level one year ago. World wheat prices eased in January, down 3.1%, with increased seasonal supplies in Australia. Maize export prices were firmer in January, gaining 3.8% since December. The completion of main-crop harvests in major suppliers and purchases by Asian buyers also raised international rice prices in January by 3.1%.

The FAO Vegetable Oil Price Index averaged 185.9 points in January, up 4.2% month-on-month, marking an all-time high. The rise reflected higher quotations for palm, soy, rapeseed and sunflower seed oil. Palm oil prices rebounded in January, underpinned by concerns over a possible reduction in export availabilities from Indonesia, as well as subdued output in key producing countries. Rising crude oil prices also lent



support to international vegetable oil values.

The FAO Dairy Price Index averaged 132.1 points in January, up 2.4% from December 2021. In January, prices for dairy products rose, with the steepest increases in skim milk powder and butter. Expectations for milk production in Oceania to remain below its average levels in the months ahead added to the tightening in global markets. Processing and logistics delays due to COVID-19-related labour shortages further

contributed to higher dairy prices.

The FAO Meat Price Index averaged 112.6 points in January and lifted the index value 17.3% above its corresponding month a year ago. Bovine prices increased, underpinned by global import demand exceeding exports, mainly from Oceania. Pig meat quotations rose slightly, as labour shortages and high input costs dampened global supply, countering the downward pressure from China's slowdown in imports. By contrast, ovine and poultry meat prices softened further, despite COVID-19 and avian flu-related production and transportation delays.

The FAO Sugar Price Index averaged 112.8 points in January, down 3.1% from December, marking the lowest level in the past six months. The January decline in international sugar price quotations was mostly related to favourable production prospects and good harvest progress in major exporters, India and Thailand. In addition, lower ethanol prices in Brazil exerted further downward pressure on world sugar prices in January. However, the strengthening of the Brazilian Real against the US Dollar prevented more substantial sugar price declines.

CropLife India welcomes launch of 'Kisan Drones'

CROPLIFE INDIA, AN association of 15 R&D driven crop science companies, has praised the Government of India for initiating the use of drones for agrochemical spraying, in the Union Budget 2022-23, according to RuralMarketing. The use of drones will be promoted for crop assessment, digitisation of land records, spraying of insecticides and nutrients.

To promote agricultural drones, the government will facilitate a fund with blended capital raised under the co-investment model through NABARD to finance agri startups and rural enterprises in a public-private partnership (PPP) mode. The fund would finance startups for agriculture and rural enterprise relevant for the farm produce value chain. The activities of these startups will include inter-area support for farmer producer organisations (FPOs), machineries for farmers on a rental basis at the farm level and IT-based services.

The Standard Operating Procedure (SOP) for use of drone application for crop protection in agriculture, forestry and non-cropped areas was released in December 2021.

Water stress management solutions for crops

AGRI-BIOTECH COMPANY Elicit Plant has closed its financing round to boost the development of its water stress management solution in agriculture, with support from the European Circular Bioeconomy Fund (ECBF).

The US\$18.28mn funding round will be used to accelerate the development and commercialisation of its first two BEST-a products. Established in 2020, the ECBF supports companies developing innovative technologies, circular business models and sustainable, bio-based products.



The technology naturally stimulates plants' metabolism.

FAO's agreement with China to boost rural agriculture

The agreement marks the official launch of the third phase of the FAO-China South-South Cooperation Programme after China's announcement of an additional US\$50mn in funding.

CHINA'S RAPID MODERNISATION and the growth of urban sprawl has left many Chinese citizens leaving rural areas in search of "better opportunities". The Food and Agriculture Organization of the United Nations (FAO) has partnered with the Chinese authorities with the aim to revitalise the rural economy through its main occupation, agriculture.

The agreement underlines "China's effort to prioritise the development of agriculture and rural areas through the ongoing rural revitalisation strategy" and FAO's mandate in food security and nutrition, agriculture, fisheries, and forestry, including providing technical assistance to its members in the field of sustainable development and resilient livelihoods.

"This is an important agreement, both in terms of synergy between China's experience and FAO's priorities and also for China's continuous contribution to promoting South-South and Triangular Cooperation, to transform agrifood systems and to achieve Better Production, Better Nutrition, a Better Environment and a Better Life for all, leaving no-one behind," FAO director-general QU Dongyu said.

The overarching goal of Phase-3 of the FAO-China SSC Programme is to support developing countries in achieving sustainable agri-food systems transformation and to contribute to the implementation of the 2030 Agenda and Sustainable Development Goals (SDGs), especially SDG1 and SDG2.

Phase-3 of the FAO-China SSC Programme covers six key thematic areas: agricultural production and productivity; value chains and trade; tropical agriculture and dryland farming; resilience building; emergency response, and global governance



Image Credit: Adobe Stock

The FAO-China SSC Programme has reached more than 100,000 direct beneficiaries and several hundred thousand indirect beneficiaries.

and traditional agricultural areas. Special focus will also be given to food loss and waste, innovation and digital agriculture, among others.

Yielding substantial results

In 2009, the FAO-China SSC Programme was established with an initial contribution of US\$30mn for Phase-1, allowing exchanges of knowledge and experience between China and other countries of the global South. In 2015, China contributed an additional US\$50mn for phase-2 of the programme.

The FAO-China SSC programme has

An important agreement, in terms of synergy between China's experience and FAO's priorities."

achieved substantial results to date. Under the flagship South-South and Triangular Cooperation Programme, a total of 25 national, regional, inter-regional and global projects have been implemented to support agricultural development and food security in line with countries' priorities and needs, according to the FAO.

The Programme has reached more than 100,000 direct beneficiaries and several hundred thousand indirect beneficiaries at the grassroots level in rural areas. Chinese experts fielded in host countries have transferred practical and adaptable technologies by providing demand-driven demonstrations and training in collaboration with local counterparts.

In addition to the field projects, more than 50 global capacity development events and activities have been organised with the participation of thousands of government officials, technical experts, small-scale farmers and other stakeholders from more than 100 FAO member states. ■

AGRITECHNICA ASIA & HORTI ASIA to feature leading technologies

THE AGRITECHNICA ASIA & HORTI ASIA 2022, marks the start of a series of physical events as well as digital information and business networking. Marked as one of the leading international trade fairs, it will take place from 25-27 May 2022 at BITEC, Bangkok, Thailand and is being organised by DLG (German Agricultural Society) and VNU Asia Pacific.

“With an innovative mix of specialised events, live demonstrations of modern agricultural machinery and new digital services, we are offering an adapted and enhanced event



Image Credit: Agritechnica Asia

The event emphasises agricultural engineering solutions that are both relevant and important to the development of agriculture in the Asian markets.

programme for the industry by taking into account both our

customers’ feedback and the current challenges of the

COVID-19 pandemic,” said project manager Katharina Staske, DLG. “The upcoming AGRITECHNICA ASIA and HORTI ASIA Regional Summit will be a place for networking with a special focus on the local agriculture in Thailand. Through our digital solutions, participants on-site will be able to connect with experts worldwide.”

With visitors expected from more than 65 countries, the event will also feature industry voices lending expert opinions.

For more information, visit www.agritechnica-asia.com

Industry to re-unite at VIV Europe, 2022



Image Credit: VIV Europe

The show will be held at the Jaarbeurs venue, where all safety measures are already in place to organise international trade shows.

VIV EUROPE, THE World Expo of animal protein business is set to be held from 31 May - 2 June 2022, for its 24th edition. The show is organised in Utrecht, the Netherlands, every four years and brings together the global gathering of the feed-to-food industry for the production and processing of poultry meat, eggs, pork, beef, fish and dairy.

Approximately 600 exhibitors from 47

countries and around 25,000 visitors from 144 countries are expected to mark their presence at the event. With Europe being one of the most developed markets in terms of food quality standards, VIV Europe is a good platform to introduce innovations in animal production to a global audience.

VIV Europe 2022 will be co-located with VICTAM International at the Jaarbeurs fairground in Utrecht. The

combination of these two shows is said to bring extra value to all participants in the feed production equipment, feed milling, feed handling and storage, compound feed, feed ingredients and feed additives sector. The ‘Feed to Food’ concept of VIV Europe together with the strong network of VICTAM in feed technology and animal feed processing will deliver a complete platform to exhibitors and visitors.

VIV Europe presents a key subject reflecting one of the trending topics of the moment every year and this year’s focus will be on the synergy between local food production and global supply chains. A special section will be dedicated to this theme in ‘Hall 9’ at VIV Europe with the purpose of accelerating the discussion on the required global expertise to boost local practices in a sustainable way.

According to the organisers, most of the exhibitors showcasing at VIV Europe offer solutions for multiple animal species, with poultry and pork in the lead. While important sections are dedicated to aquaculture and dairy, with strong support from key global partners, VIV Europe also represents the leading poultry event in the world.

Visit <https://www.viveurope.nl>

Mechanisation: a direct alternative to manual planting



Image Credit: Adobe Stock

Increased overall accessibility to farming equipment leads to the mechanisation of Asian farmlands.

Government subsidies, increased mechanisation and integration of precision technology are driving planting machinery sales in Asia, according to a Mordor Intelligence report.

PLANTING EQUIPMENT AND machinery have been slowly replacing manpower, for reasons concerned with capability and efficiency. Machinery companies are at the forefront of innovations, thriving to implement precision technologies that are said to be far more capable than bare hands.

According to a market report by Mordor Intelligence, the planting machinery market in the Asia Pacific region is projected to grow at a CAGR of 3.7% during the study's forecast period between 2020-2025.

India and China are said to be leading the race in agricultural automation, with the governments of both countries increasing focus on subsidies, initiatives and ownership schemes for small-medium agricultural landowners. In addition, access to tractor ownership has given a major boost to sales of mechanised equipment that can be paired with farming vehicles such as rotors, fertiliser sprays and planting

equipment.

Countries in Southeast Asia are also said to boast a burgeoning equipment rental market, granting machinery access to farmers who simply cannot afford a full purchase. Countries such as Japan, Korea and China, on the other hand, face challenges pertaining to labour shortages, especially in agriculture, forcing both small and large owners to be machine reliant instead.

John Deere and Yanmar Holdings, are two of the leading planting equipment

“The burgeoning equipment rental market in Southeast Asia grants machinery access to farmers who simply cannot afford a full purchase.”

manufacturers in the region who offer solutions for small-medium planting operations.

John Deere 1745 Compact Planter:

The compact planter is designed for small fields and narrow-road transport by John Deere making it perfect for rural conditions in the region. The planter is said to be compatible with a wide range of tractors, including older models that possess lower hydraulic flow. As many as four configurations with row spacings are offered at 15, 20 and 30 inches with pivot-fold transport from the cab in only 40 seconds, thus increasing efficiency.

Yanmar Rice Transplanter:

The continent's most popular grain, rice, can be transplanted using Yanmar's walk-behind transplanter models. The walk-behind AP4 model is lightweight at only 155kg, making it a very affordable option. The AP4 boasts an easy-to-handle 3.5 horsepower (ps) with a hydraulic lift system. According to the company, four rows can be transplanted simultaneously at a width of 300mm using a 4-position pitch adjustment, with a simple lever operation. ■

Harnessing efficiency and quality



Image Credit: Adobe Stock

The programme acts as a preconditioning process to optimise mash feed and to achieve target moisture levels for optimal feed milling.

Reducing operational costs is the key to profitability, and Kemin's innovative solution helps to achieve just that, while maintaining optimum feed quality.

FEEED REPRESENTS THE single largest cost of raising livestock according to Kemin Industries, a supplier of specialty ingredients for human and animal health and nutrition, pet food, aquaculture, nutraceutical, food technologies, crop technologies and textile industries.

Therefore, it has become essential that the feed is milled efficiently to keep the cost low and safely protected from harmful organisms. Kemin devises effective solutions for improving the milling efficiency and safeguarding the feed and feed ingredients from mould and pathogens, such as Salmonella.

Kemin's millSMART programme provides products, services and solutions to

optimise process control and deliver outstanding productivity, quality and feed safety for customers in the feed processing and storage industry. The company says that it is one of the cornerstones of its application engineering technology.

According to Kemin, millSMART is a programme designed to improve the processes, productivity, pellet quality and profitability in running a feed mill. The programme acts as a preconditioning process to optimise mash feed and to achieve target moisture levels for optimal feed milling.

The process uses the preconditioning solution prepared by mixing millSMART Milling Aid and water. The solution is

Reducing the overall production cost while safeguarding the feed from mould."

subsequently added to the mix to optimise the mash feed and the company boasts a range of milling aids for various application needs.

Kemin claims millSMART's application helps in increasing feed throughput, reducing energy input and enhancing pellet durability and feed digestibility. The programme is also known to minimise moisture loss and feed shrinkage and achieve the target feed moisture level. The programme is aimed at reducing the overall production cost while safeguarding the feed from mould.

A meta-analysis conducted by Kemin included 85 field trials around the world with different diet formulas for different types of livestock at varying growth stages. Kemin claims the integration of the millSMART technology, revealed positive financial results through three key aspects such as improved feed weight, reduced energy consumption during the pelleting process and overall improvement in feed quality, thus re-iterating its purpose of enabling profitability. ■

Sustainable egg farming helps reduce carbon footprint

Global Food Partners collaborates with Hendrix Genetics to develop a cage-free model farm and a training centre in Indonesia.

GLOBAL DEMAND FOR food supply has reached new heights and the need for continuous large-scale production of commodities such as eggs are also on the rise. The environmental impacts of large-scale commercial production are detrimental, according to climate-change experts.

As reported by *Business Insider India*, the carbon footprint metrics of traditional egg farming are some of the highest among food groups. According to its study, every kilogram of eggs consumed produces 4.8 kgs of CO₂e (Carbon Dioxide Equivalent) which includes CO₂ and other greenhouse gases such as methane.

Sustainability, in broader terms, is the need of the hour. Global Food Partners (GFP), a Singapore-based consulting firm specialising in cage-free egg production, are hoping to drive the change, one cage-free farm at a time. Their recent research collaboration is with Hendrix Genetics/PT Indonesia, for a leading multi-species animal breeding company, on a new cage-free training centre and model farm in Indonesia, set to open in 2022.

In June 2021, GFP, the Faculty of Animal Science at the Universitas Gadjah Mada and Aeres University of Applied Sciences announced a partnership to develop a cage-free egg training centre at Universitas Gadjah Mada's Bulaksumur Yogyakarta campus in East Java, Indonesia. The centre will bring together egg producers and other industry stakeholders to improve the long-term sustainability and competitiveness of the cage-free egg industry in Indonesia and across Asia.

As part of the collaboration, Hendrix Genetics Layers Indonesia will supply 3,000 layer hens to the farm on an annual basis and support the model farm on an ongoing basis by providing technical knowledge on keeping laying hens in cage-free housing systems. The Faculty of Animal Science UGM will host the training centre, provide land, buildings, infrastructure, staff, daily maintenance, and other resources for this collaboration. GFP and Aeres' team of cage-free production experts will design and develop the course content and will provide ongoing support and technical expertise for the training centre and model farm.

Jayasimha Nuggehalli, GFP's COO and co-founder, said, "We're thrilled to welcome Hendrix Genetics, a leader in the field, to our team of cage-free experts in Indonesia. We're confident this partnership will help optimise cage-free production in the country and across the region."

According to GFP, the goal of this model farm is to optimise the management of cage-free laying hens under tropical conditions and showcase best practice cage-free farming practices. This model farm will be open to farmers, veterinarians, researchers, students, and all others who are interested in the latest insights in cage-free management. On-farm training on animal handling, egg production



The goal of the model farm is to optimise the management of cage-free laying hens under tropical conditions and showcase best practice cage-free farming practices.

and animal welfare will be provided to those interested in developing their skills. The daily performance will be recorded and analysed to provide accurate indicators and predictors that can serve as tools for future cage-free flocks. ■

Image Credit: Adobe Stock

The need for viable protein production

The superior phytate-degrading properties of HiPhorius enables precision nutrition with the use of digestible calcium for optimum broiler performance.

Significant increases in prices for non-renewable resources have sky-rocketed the need for sustainable animal protein, and the DSM-Novozymes alliance aims to address the demand.

THE ASIA-PACIFIC POULTRY market is expected to grow at a CAGR of 7.8% over the period of 2020 to 2025, according to a report by Mordor Intelligence.

The growing demand for protein consumption thanks to rapid urbanisation has resulted in a fast-paced development of infrastructure and biotechnological facilities necessary for sustained production of protein requirements.

According to Novozymes, a global biotechnology company, animal protein producers have relied on phytases as an alternative to inorganic phosphate for both economic and sustainability reasons for decades. Rock phosphate is a non-renewable resource that needs to be managed efficiently. As prices of this important source of phosphorus have increased over recent years and pressure for more sustainable animal protein production grows, more attention has been given to

phytases to deliver greater efficiency.

Novozymes has recently partnered with DSM, a global company in health, nutrition and bioscience, to develop its new generation phytase, HiPhorius.

According to the joint venture, HiPhorius is a complete phytase solution designed to help poultry producers achieve sustainable and profitable protein production. Its commercial release will aim to improve the market standard for phytase technology and enable access to high potency phytase, giving producers more flexibility in diet optimisation.

HiPhorius aims to deliver consistent

“The solution intends to offer more out of less feed by using end-to-end digital services.”

improvements in animal performance through efficient phosphorous utilisation. The product is said to be a complete phytase solution for poultry, swine and aquaculture species and is designed to help farmers achieve sustainable and profitable animal protein production.

HiPhorius enables producers to expect increased efficiency, improved thermostability and access to digital services, giving producers opportunities to reduce feed costs. According to the DSM-Novozymes alliance, the superior phytate-degrading properties of HiPhorius enable precision nutrition with the use of digestible calcium for optimum broiler performance. The solution intends to offer more out of less feed by using end-to-end digital services for intelligent phytase nutrition.

HiPhorius bridges the gap, allowing a significant reduction of phosphorous in monogastric diets. The addition directly contributes to a significant decrease in phosphorus emissions from poultry, swine and fish farming. Novozyme claims that this not only optimises value for the farmer but also reduces the negative environmental impact of animal production. ■

Technology to nod farming in the right direction



Image Credit: Adobe Stock

Technologies are put to test in an industry dominated by traditional practices. With challenges such as global hunger, can smart-farming tech solve the puzzle while maintaining sustainability?

Sensors help monitor plant and fruit growth.

SMART FARMING REPRESENTS the application of modern Information and Communication Technologies (ICT) into agriculture, leading to what can be called a ‘Third Green Revolution’, according to the smart farming thematic network, SmartAKIS.

The ‘third green revolution’ can be attributed to the rise in technological applications such as the Internet of Things (IoT), precision sensors, geo-positioning systems, robotics, analytics and so on.

According to the Asia Development Bank (ADB), innovation can help farmers increase agricultural productivity and meet evolving demand in a sustainable way. The modern approach towards smallholder farms can be one with increased usage of technology, that directly translates to labour productivity. Improved technologies and practices are helping farmers increase

productivity while reducing the overuse of chemical inputs and water, says ADB.

Asia contains nearly 60% of the world’s population according to Worldometers.info, and its food supply needs are nothing short of gargantuan. Here we look at examples of smart farming technologies being implemented across the eastern part of the continent, that aim to achieve complete food security through modern ways, for its growing population while battling climate change.

Far-reaching initiative to promote sustainable and resilient agriculture intensification in South Asia

Climate-smart agriculture

The International Fund for Agricultural Development (IFAD), SAARC Agriculture Centre (SAC), International Food Policy Research Institute (IFPRI) and SAARC Development Fund (SDF) have launched a partnership for scaling-up climate-smart agriculture in South Asia.

The central objective of the partnership is to develop evidence-based strategies to collectively tackle the impact of climate change in the region.

The partnership will focus on promoting sustainable and resilient agricultural intensification in South Asia through building the capacity of institutions and enhancing skills, to scale-up climate-smart strategies and technologies.

Abdelkarim Sma, lead regional economist, IFAD, said, “The agreement will strengthen IFAD’s partnership with SAARC

to work together on improving food security and to benefit smallholder agriculture in the region. The project will look at climate-smart agriculture technologies and practices in the context of farming systems that integrate benefits for adaptation, nutrition, women and youth.”

The consortium kicked off with an initial pilot investment of about US\$3.1mn provided by IFAD, SAC, IFPRI and SDF. The partner organisations believe that the size of investment will grow in the coming years.

The SAARC Agricultural Centre (SAC) will promote and support regional cooperation among SAARC Member States (SMS) in fostering sustainable and resilient agricultural adaptation in South Asia. Currently, cross-border cooperation between national agricultural research and extension systems (NARES) in South Asia has largely remained constrained due to lack of capacity.

Esala Ruwan Weerakoon, secretary-general of SAARC said, “This multi-country project is the first of its kind in the region, which has been launched at a time when climate change has emerged as a major threat to the agricultural landscape. Given what is at stake, the SAARC Agriculture Centre has taken this far-reaching initiative to promote sustainable and resilient agriculture intensification in South Asia.”

A thorough mapping exercise will be

Developing smart agriculture is a trend for agricultural production around the world, including Vietnam.”

conducted at the regional level on the impact of climate change, to identify agro-ecosystems and cross-disseminate viable technologies and practices which will help to accelerate impacts and outreach of the current national research efforts.

Urban food production to address the issue

According to OpenGov Asia, Hanoi, Vietnam’s capital city has implemented many high-tech agricultural production models to move towards smart agriculture. However, the city will have to pay more attention to promoting the application of science and technology as well as training high-quality labour resources.

According to the deputy director of the Municipal Department of Agriculture and Rural Development, Ta Van Tuong, developing smart agriculture is a trend for agricultural production around the world and in Vietnam, including Hanoi.

The city currently has 164 hi-tech agricultural production models, including 105 involved in crop production, 39 in

livestock, 15 in fisheries, and one model combining cultivation and husbandry. The value of hi-tech agricultural products currently accounts for nearly 35% of the total value of agricultural production in the city, according to OpenGov. Tuong said that high-tech agricultural models are increasingly blooming and bringing efficiency to the city’s agriculture.

OpenGov further stated that Hanoi’s agriculture sector has promoted the application of scientific advances to agricultural production, including the technology of greenhouses with automated watering systems, cooling systems to help stabilise temperature and humidity, automatic feeding lines, artificial insemination using biological products and automatic oxygen generators in aquaculture.

Tran Duy Quy, the chairman of the Vietnam Association of Rural Development Sciences, said that developing smart agriculture and applying advanced science and technology to production was crucial. With a densely populated city like Hanoi, the application of science and technology in production will help transform traditional agriculture into smart agriculture, thereby increasing incomes for farmers. It will help solve the problems of land shortage, improve the living environment, and reduce pollution.

Earlier this year, the Ministry of Information and Communications (MIC) approved an e-commerce plan to boost the sale of farm produce and accelerate distribution to avoid congestion during harvesting season. It aimed to keep farm produce prices stable and eliminate intermediary merchants.

Two sites, Postmart and Vo So, have been assigned to place farm produce on sale and farmers will be trained in digital skills. Through the programme, farmers learn operating in the digital environment, registering accounts to display products on the sites, registering online payment accounts and implementing the process of packaging, connection, and delivery.

In August, the Ministry of Information and Communications (MIC), Vietnam unveiled a plan to register domestic farming households on e-commerce sites to connect, advertise, and introduce their products. The plan aims to create new distribution channels for domestic farming and is said to be the first breakthrough made in strengthening the digital agri-economy. ■



Urban food production practices are steadily on the rise, even in densely populated cities like Hanoi.

Increasing banana yield and quality

OMEX offers a full programme of foliar nutrients to improve banana crop health and nutrition.

ARGUABLY THE MOST popular fruit in the world, the banana leads the way in terms of global consumption. Asian countries dominate the banana market with the Philippines, India and China consistently making the top five countries with the highest production according to the Food and Agricultural Organization of the United Nations (FAO).

OMEX is an R&D based company that designs, develops and markets soluble nutrient products. The company's programme for the high volume fruit offers high technology solutions for the modern grower with foliar products specially formulated for application from seed treatments through to harvest. When applied together with basic fertilisers, the programme is said to have significantly increased marketable yield and quality resulting in greater profits to the farmer.

We take a look at the company's banana programme advisory, a comprehensive guide with steps for each stage of the yielding process using Omex products:

- Applying Kingfol Zinc during planting at 9ml/m² onto sets, promotes healthy, strong roots, with good vigour.
- At sucker emergence, farmers are advised to apply Seastar F at 1-2l/ha, Seastar F is an organic growth stimulant formulated to aid immature plants at risk of damage from stress conditions.
- At sucker pruning, DP98 at 1lt/ha can be used with systemic fungicides against Sigatoka disease as an enhancer, DP98 also encourages carbohydrate storage in the false stem. Apply 3 or 4 times up to 150/180 days post-emergence.
- At sucker selection applying Bio 20 can improve stress and disease resistance and increase stem carbohydrates in preparation for flowering.
- Applying Bio 20 at shooting helps to maintain leaf concentrations of all the essential macronutrients together with other micronutrients that are vital for chlorophyll and protein synthesis.
- Applying OMEX Bio 20 is beneficial at hand emergence and flowering as auxins help cell division and early fruit enlargement. The mother plant's root system loses activity as the suckers appear. The

high technology solutions for the modern grower with foliar products specially formulated for application from seed treatments through to harvest."



Image Credit: Adobe Stock

With basic fertilisers, the programme is said to have significantly increased marketable yield and quality, resulting in greater profits to the farmer.

addition of SW7 @ 0.25 l/ha will improve the uptake of foliar nutrients.

- At fruit filling applying CalMax at 2lt/ha improves fruit firmness.
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Modern fish farming methods to aid Singapore's food supply



Blue Aqua's modern facility plans to rear tilapia, among other fish and shrimp.

Image Credit: Adobe Stock

Singapore aims to achieve sustainable growth in food production, aiming to gradually increase capacity, considering the country's land that comes at a premium.

ACHIEVING FOOD SECURITY, while navigating a global crisis with both economic and social implications, can be challenging for a country of the size of Singapore. The city-state, although known for its powerful global influence, faces significant challenges when it comes to securing nourishment in an economically viable manner for its residents. However, thanks to its prospered economy, the country has been able to import most of its shortcomings, mainly food, and it is as much as 90%, according to the World Economic Forum.

Problem-solving concerning food production has been a major focus for the country, with the "30 by 30" target introduced by the government to build capacity and supply 30% of the nutritional

needs locally and sustainably by 2030.

According to the Singapore Food Agency, the country allocates 720 sq km, which is approximately 1% of the total available land for food production as a result of its highly competitive land use needs. This leaves food and fish farms especially, to intensify focus on higher efficiency while keeping in mind the necessary sustainability factors.

Blue Aqua International, an aquaculture solutions provider in the Asia-Pacific region and the United States has been attempting to scale up production and solve the food security puzzle, one plot at a time.

The company has been sold recently in Lim Chu Kang for the farming of fish for human consumption, by the Agri-Food and Veterinary Authority (AVA) as part of its tenders for new agriculture land. Blue

Scaling up production and solving the food security puzzle, one plot at a time."

Aqua intends to use this 15,575 sq m plot of land at a price of US\$378,000 to implement high technology fish farming.

Dr Farshad Shishehchian, chief executive of Blue Aqua International group, said the new facility will rear tilapia, pompano and grouper. Using its patented super-intensive farming system, Mixotrophic, the company hopes to produce about 600 tonnes of fish and 200 tonnes of shrimp a year.

AVA's food supply resilience group director, Melvin Chow said the farming technologies proposed by the companies that participated during the land sale tender process, have the potential to raise the agricultural sector's productivity and reduce its reliance on labour. "Over time, this will strengthen our local farming ecosystem and spur transformation to bolster Singapore's food security," he added.

AVA's spokesman expects local farms to produce about 10% of Singapore's fish supply, and the authority aims to raise this to 15%, with new technologies increasing the productivity of fish farming systems by at least three times. ■

Case IH unveils Precision Disk 550 Series air drill

CASE IH HAS introduced the new Precision Disk 550 air drill, which is designed to boost yield potential in a variety of crop and tillage practices. The new series drill has a greater tank capacity, a superior parallel-link row-unit and new productivity-enhancing features. Available to order for spring 2023, the new model will help producers get the most out of every seed.

Built on agronomic design principles, the Precision Disk 550 series row unit maintains a parallel-link design with new features and enhancements to boost performance. A new closing system with indexable angle adjustments delivers effective seed trench closing, irrespective of conditions – from conventional to no-till. Angle adjustments are simple, according to Case, with indexed settings from 0 to 13 degrees to match varied fields. Additionally, a range of gauge wheel widths and styles accommodate different field and crop conditions.

The Precision Disk 550T air drill offers a tank capacity of up to 140 bushels to help operators maximise tendering and seeding productivity. A low-profile, rail-guided tank



Image Credit: Case IH

Precision Disk 550 Series boasts a greater tank capacity and a superior parallel-link row-unit.

lid ensures an effective seal and allows for easy access. Plus, high-flotation tire options accommodate these greater tank capacities and reduce compaction, creating further agronomic efficiencies for operators while out in the field.

To help reduce plugging in muddy

conditions, gauge wheel options are now available with an open-spoke design. The 4.5-inch option matches conventional tillage conditions, while a 3-inch option is built to handle tougher, no-till conditions. Additionally, a new seed trench scraper is available to cleanly cut the seed trench.

Mahindra's range of rotavators for operational efficiency

MAHINDRA TRACTORS HAS unveiled its complete range of rotavators for the regional market. This type of equipment is primarily used for land preparation and is drawn by a tractor and utilised for a variety of purposes that include removing residues of past crops in a field, soil preparation, and levelling the earth.

The Mahindra Gyrovator ZLX+ variant is designed for high performance in light and medium soils in both dry and wet soil conditions. Gyrovator SLX model is set for operations in moderate to hard soils for breaking down soil clods or cutting crop residue in the soil. Paddyvator RLX has been designed specifically for puddling purposes and is best compatible with the company's Jivo 365 DI 4WD tractors as claimed by the company.

Other variants in the line-up include the Gyrovator WLX, the lightweight rotary tiller designed to deliver performance in wetlands and is versatile enough to be used in dry soil conditions for puddling and tilling as well.

The company's Mahavator rotary tiller, is



The rotavator series features a sturdy and multi-speed gearbox for high quality of pulverisation.

Image Credit: Mahindra Tractors

specially designed for durability in medium to heavy soils in both dry and wet conditions. The tiller is said to be applicable for purposes like cutting and mixing residue in crops such as sugarcane, cotton and other tough crop residues. Mahindra Tractors have also been successful in integrating technology

into agriculture. India's first 'digital' rotavator, the TEZ-E ZLX is enabled with technology that allows the user to communicate with the vehicle via a mobile application. The operator is allowed to then adjust the speed of the tractor and tiller for increased performance and efficiency.

Overcoming antimicrobial resistance need of the hour



Image Credit: Adobe Stock

According to the WHO, the misuse and overuse of antimicrobials in animals and plants are the drivers responsible for the growth of antimicrobial resistance.

The World Health Organization has called attention to reduce the usage of antibiotics in livestock and aquaculture production.

LIVESTOCK HEALTH AND productivity are negatively impacted by the presence of endemic and emerging diseases, increasing the amount of resources needed to maintain these animals. This, in turn, increases competition for land, air and water. In response, hundreds of millions of dollars are invested globally on disease mitigation in order to improve livestock health and productivity, yet a systematic process to determine the burden of animal disease on the health and wellbeing of people is still not available.

Battling antimicrobial resistance

The World Health Organization (WHO) is calling attention to the rise of antimicrobial resistance around the world and the necessity to

Scientists at Murdoch University are contributing research to strengthen understanding of infectious diseases and how to stop them by exploring technology and antimicrobial resistance surveillance.

reduce the usage of antibiotics in livestock and aquaculture production.

Antimicrobial resistance occurs when bacteria, or other microbes, mutate over time and no longer respond to drugs, chemicals or other agents designed to cure or prevent infection and disease. When this happens, it becomes harder to treat common infections and increases the chance that people will suffer when diseases that are curable today are no longer curable tomorrow.

According to the WHO, the misuse and overuse of antimicrobials in animals and plants are the main drivers responsible for the growth of antimicrobial resistance.

De Heus Animal Nutrition, a leading partner within the value chain for improving animal health on the farm, has decided to make the reduction of antibiotics one of the company's Global Green Goals. "These goals reflect our ambition towards more sustainable production of feed and food for 2030 by tackling the sustainability issues associated with the feed industry and the production of animal proteins. Additionally, in 2030, the De Heus Animal Nutrition will not use antibiotics as growth promoters or as a preventive measure and we will not use any human critical antibiotics (WHO curatively," the company stated.

Meanwhile, scientists at Murdoch University are contributing research to strengthen understanding of infectious diseases and how to stop them by exploring technology and antimicrobial resistance surveillance.

Overcoming the antimicrobial resistance challenge requires a One Health approach – which recognises that the health of humans, animals and ecosystems are interconnected. At Murdoch University's state-of-the-art Antimicrobial Resistance and Infectious Diseases

(AMRID) Laboratory, Associate Professor in Microbiology Sam Abraham leads the One Health Infectious Diseases research team.

Globally, limited therapeutic options are available to treat bacterial infection in humans from livestock and the rapid transmission of genes responsible for antimicrobial resistance into human pathogens. The research team is exploring how Australian animals may acquire bacteria resistant to last-line antimicrobials.

“Antimicrobial resistant bacteria that emerges and spreads in livestock and other animals is one of the contributors to the global burden of antimicrobial resistance,” said associate professor Sam Abraham.

Dr Abraham’s team is using innovative robotics, genomics and microbiology to study antimicrobial resistance in key zoonotic bacteria emerging in Australian animals. High-throughput robotics and genomics with rapid turn-around time for analysing large data sets are used to identify emerging problems quickly and respond to those problems rapidly. The facility has used its platforms in several national antimicrobial surveillance programmes in livestock.

Their research has demonstrated the emergence of last-line drug resistant bacteria – at low frequency – in livestock, companion animals and wildlife as a result of human derived bacteria entering the animals directly or indirectly through birds.

Discussing strategies

The Schippers Group and Healthy Livestock, an organisation that aims to empower livestock farmers, hosted an online conference about antimicrobial resistance (AMR) that featured leading scientists and practitioners in the field of antimicrobial use in farm animals.

With more than 300 attendees from 60 countries, the conference brought together voices from veterinarians, scientists, practitioners and policymakers to discuss strategies for reducing AMR.

In this half-day conference, experts discussed prevention, early detection and precision medication of diseases in pigs, poultry and cattle. Prevention of diseases can be achieved by improving biosecurity, enhancing resilience and these improvements in farm management are instrumental to reducing antimicrobial use and therefore AMR, according to the Schippers Group.

The conference is a precursor to a larger conference that will be held in Bologna, Italy, in June 2022. With these conferences, the Schippers Group aims to raise awareness of AMR as a threat to animal, human and environmental health, and to contribute to developing robust and sustainable livestock production systems.

The importance of data and improving datasets is paramount to achieving evidence-based policy-making at international and national levels. The Global Burden of Animal Diseases (GBADs) programme will act as an essential piece of a bigger digital transformation at the World Organisation for Animal Health (OIE) and it will act in complementarity with other OIE datasets and work streams such as the Training Platform, Observatory and PVS Pathway. The PVS Pathway is an OIE flagship programme which aims to assess the capacities of Veterinary Services to carry out their missions.

■ The Schippers Group and Healthy Livestock hosted an online conference about antimicrobial resistance that featured leading scientists in the field of antimicrobial use in farm animals.



Image Credit: Adobe Stock

Prevention of diseases in farm management is instrumental to reducing antimicrobial use.

It is obvious to all that animal health and public health are linked and crucial for a sustainable and healthy planet. Thus, the links that GBADs is making with human disease burden studies at the World Health Organization and the Global Burden of Disease are of great interest when one remembers the critical role of animal-sourced food for human nutrition, and that very many animal diseases are transmissible to people. ■



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POULTRY BUYERS' GUIDE

2022

Section One - Supplier listings by categories
Section Two - List of suppliers
Section Three - Contact details of agents in Asia

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Heat Control Systems

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