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Far Eastern Agriculture

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Roxell launches Oxsano tunnel fan with innovative motor

ROXELL, ONE OF the leading manufacturers of automated feeding, drinking, nesting and heating systems, is launching the Oxsano variable speed tunnel fan in fibreglass.

The innovation was introduced because the growth stages of chickens and changing weather conditions require flexible ventilation that can handle variation. The variable speed tunnel fan provides tailor-made ventilation. The motor technology is innovative, linking high energy efficiency to a stable, healthy and animal-friendly house climate. In addition, the direct driven fan blade ensures hassle-free operation every day for many years. This approach also requires fewer parts, resulting in a simpler and more durable design. The life of this tunnel fan is increased by the use of fibreglass that prevents rust formation.

In the Oxsano tunnel fan, performance starts with the aerodynamic design and a uniquely shaped fan blade. This design, complete with an innovative motor, achieved a top ranking in the Bess lab tests. The company stated that this tunnel fan is among the most powerful on the market with an airflow of 30 300 CFM* and an efficiency ratio of 20 CFM/watt* (*at 10" static pressure – Bess Lab test n° 21281 and 21285). It is therefore registered as a 55-inch fan with a high capacity.

Image Credit: Roxell

The fan uses a speed controller that controls runs according to the actual need with reduced energy consumption.

Variable speed is made possible by the speed controller in the motor. The transition between ventilation levels is also seamless, which is good for the well-being of the animals in the house.

FAO to endorse the International Day of Plant Health annually

THE FOOD AND Agriculture Organization of the United Nations (FAO) has welcomed a UN decision to establish an annual International Day of Plant Health, an issue said to be critical in addressing global hunger as plant pests and diseases cause massive crop losses and leave millions without enough food. The observance, to be held every 12 May, was championed by Zambia and unanimously adopted by the UN General Assembly in a resolution co-signed by Bolivia, Finland, Pakistan, the Philippines, and Tanzania. The day is a key legacy of the International Year of Plant Health, which was marked in 2020-2021.

The resolution sets out that healthy plants constitute the foundation for all life on Earth, as well as ecosystem functions, food security and nutrition, adding that plant health is key to the sustainable development of agriculture required to feed a growing global population by 2050.

Four agri-tech centres come together to boost innovation in global sustainable farming

Image Credit: Adobe Stock

The partners will seek to establish new, joint opportunities for innovative public-private partnerships in agrifood science and business.

FOUR UK AGRI-TECH centres – CHAP, CIEL, Agri-EPI and Agrimetrics – have formed a sustainable farming partnership with world-leading agricultural research and training organisation, Wageningen University & Research (WUR) in the Netherlands.

The new partnership will pursue advancing science and innovation to help meet the challenges of sustainable global food production, including the reduction of its environmental impact.

Recognising the agri-tech centres' position as the hub of UK agri-food innovation, WUR approached them with a proposal to collaborate. The partners will seek to establish new, joint opportunities for innovative public-private partnerships in agrifood science and business.

The partnership will explore opportunities in areas such as regenerative agriculture; crop, pest and endemic disease management; data platforms and modelling; automation to address labour shortages; genomics; and precision agriculture and aquaculture. These are in alignment with the UN Sustainable Development Goals and the aims of the European Green Deal.

A senior team from the agri-tech centres returned recently from a successful trip to the WUR, where the partners learned more about each other, toured the impressive facilities and discussed common goals.A representative from the UK Embassy in The Hague joined the visit to support the partnership's development.

Healthy soil best bet for carbon storage: EASAC

A NEW REPORT released by Europe's National Academies of Sciences provides evidence that a transformation to regenerative agriculture holds promising keys to reducing climate risks while providing the growing world population with food and enhancing biodiversity.

The report states agriculture is the main driver of global deforestation and land conversion, and food systems account for more than a third of global greenhouse gas emissions, making it a major contributor to climate change.

"Transforming agriculture is the planet's greatest untapped treasure for coping with the climate crisis. Today's large-scale conventional agriculture has a huge negative impact on soil. Soil erosion, the loss of flora and fauna and thereby nutrients in soils, has become a major factor in Europe," explained Thomas Elmqvist, professor and one of the lead authors of EASAC's first-time scientific analysis of the potential of regenerative agriculture. The report shows that restoring biodiversity in soils, particularly in grasslands can dramatically increase their capacity to capture and store carbon.

The study further makes a claim that a growing number of farmers, particularly the smallholders, are struggling with harvest and livestock losses while trying to adapt to the increasingly irregular weather conditions caused by the changing climate.

Taking drone-assisted pest management to new heights

Image Credit: Clariant

Synergen DRT helps to control the drift and volatility of fine droplets during application.

CLARIANT HAS LAUNCHED Synergen DRT, the drift control agent and biological activator specifically for drones. As one of the leading global suppliers of specialty chemicals for agriculture, Clariant has launched DropForward, a focused approach to providing precision application with adjuvants and co-formulants. Synergen DRT is the first solution to come out of our DropForward concept.

Developed in Clariant's high-tech facilities in Germany, and under real-life conditions in Brazil, this high-performing adjuvant allows the application of standard pesticides under the low volume conditions of small drone tanks. Drones were used in several field tests in Brazil, in crops such as coffee, cotton, orange and wheat, spraying at low volume in experimental plots where increased coverage and deposition were observed with the addition of Synergen DRT in the application tank, resulting in higher product efficiency.

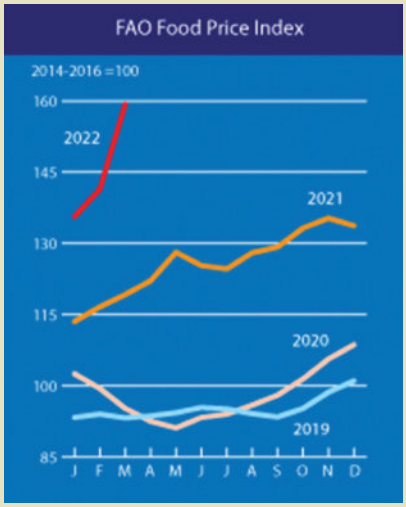
"Synergen DRT helps to control drift and volatility of fine droplets during application and helps improve the coverage and penetration of the actives in the leaves, boosting biological performance as well as making drone spraying more sustainable and environmentally friendly," said Fabio Caravieri, Clariant's head of marketing, industrial and consumer specialties.

FOOD OUTLOOK

THE FAO FOOD Price Index (FFPI) averaged 159.3 points in March 2022, up12.6% from February reflecting all-time highs for vegetable oils, cereals and meat sub-indices, with significant rise in sugar and dairy.

The FAO Cereal Price Index is up 17.1% from February, marking its highest level on record since 1990. This month's increase reflected a surge in world prices of wheat and coarse grains, largely driven by conflict-related export disruptions from Ukraine and, to a lesser extent, the Russian Federation. Significantly reduced maize export expectations for Ukraine, a major exporter, on top of elevated energy and input costs, underpinned a 19.1% increase in world maize prices month-on-month.

The FAO Vegetable Oil Price Index is up 23.2% from February and hitting a new record high. The sharp rise of the index was driven by higher sunflower, palm, soy and rapeseed oil prices. International sunflower seed oil



quotations increased substantially in March, fuelled by reduced export supplies amid the ongoing conflict in the Black Sea region. Noticeably, volatile and higher crude oil values also lent support to international vegetable oil prices.

The FAO Dairy Price Index is up 2.6% from February, marking the seventh consecutive monthly increase and lifting the index 23.6% above its value a year ago. Quotations for butter and milk powders rose steeply, underpinned by a surge in import demand for near- and long-term deliveries, especially from Asian markets, and solid internal demand in Western Europe.

The FAO Meat Price Index is up 4.8% from February, also reaching an all-time high. In March, pig meat prices registered the steepest monthly increase on record since 1995, underpinned by supply shortfalls of slaughter pigs in Western Europe.

The FAO Sugar Price Index is up 6.7% from February, reversing most of the previous three months' decline and reaching levels more than 20% above those registered in the corresponding month last year. Good harvest progress and favourable production prospects in India, a major sugar exporter, contributed to easing the price hike and prevented larger monthly price increases.

Powering restaurants with peanut-based chicken

HAOFOOD, A STARTUP creating peanut protein-based alternative chicken, and five restaurants in Shanghai partner to offer peanut-based chicken via food science and technology.

"We want to unite the past, present, and future," said Haofood's CEO, Astrid Prajogo. "The past being traditional menus by dedicated chefs, the future being plant-based meat, and the present being customers' experiences today."

The five restaurants using Haofood's products to revitalise their menu are Green Friday, Topolino, STYX, Wrap and Roll, and The Pawon. The CEO describes one of Haofood's aims in working with these restaurants as being part of their mission to make eating good food forever possible.

Red Dot Design awards STEYR tractors

THE RED DOT Design Award, one of the world's largest design competitions, has recognised the STEYR Terrus CVT tractor as a winner in the 'Product Design' category

STEYR is a regional agricultural brand of CNH Industrial, the American-Italian Agricultural machinery company. The company has been awarded the 2022 Red Dot Design Award for its Terrus CVT Tractor, the latest in a series of accolades for this vehicle.

The award is determined by an international design jury who, this year, evaluated a record number of international entries from companies and design studios.

The Terrus CVT tractor combines styling and features focused on operator comfort and ergonomics.

Image Credit: STEYR Tractors

Image Credit: Adobe Stock

The first phase of the current plan focuses on aspects such as green agricultural development, modernisation and rural infrastructure development among others.

Promoting agriculture and rural development in China's southwest

The World Bank funds China as it looks to spur rural development, using agriculture as its enabler.

THE WORLD BANK'S board of executive directors has recently approved a US$320mn loan to promote green agriculture and rural development in China's Southwest region.

The funding will contribute to global public goods, including reducing agricultural plastics pollution and greenhouse gas emissions (GHG) from farming, and improving biodiversity protection and restoration while strengthening the institutional capacity of local governments to integrate environmental objectives in government rural revitalisation plans and investments. The World Bank financing will complement over US$4.69bn of China's own resources.

According to the World Bank, the Guangxi Zhuang Autonomous Region and the Guizhou province are among the bottom four poorest areas of mainland China's 31 administrative regions. Agriculture continues to represent a sizable part of their economies, with larger than national average rural populations in both provinces.

The data further claims that despite rapid gains in poverty reduction in recent years, two-thirds of the rural population have incomes below US$5.50 per day, the poverty line for upper-middle-income countries. Increasing unsustainable agricultural practices, natural resource degradation and GHG emissions are undermining sustained agriculture and rural growth in these areas.

The first phase of the current plan focuses on consolidating and sustaining

> **"Eradication of absolute poverty through green agricultural development and modernisation."**

recent gains in the eradication of absolute poverty through green agricultural development and modernisation, rural infrastructure and public services delivery, and rural governance improvement.

The programme is expected to be 94% funded by the government, mostly at the provincial level, to support the achievement of the targeted results. Programme activities will comprise institutional capacity building at the village and county levels, training and agricultural extension services for farms and cooperatives, financial incentives to farmers and food processing companies to promote climate-smart and greener agriculture technologies and practices, and investments in rural wastewater and solid waste management services.

The programme also includes investments in monitoring, evaluation and verification of environmental outcomes and supports the development of programme-based budgets to better link resource use with outcomes at the local government level. ■

CP Foods expands green areas to bolster food security

CHAROEN POKPHAND GROUP and CP Foods showcased a successful result of the first phase of CPF Rak Nives at Phraya Doen Thong Mountain Project, Lopburi province in Thailand.

The 'green' initiative aims to help conserve and restore 115 ha of watershed forest and bolster food security for communities surrounding the area.

Since 2016, CP Foods has collaborated with Thailand's Royal Forest Department and local communities around the Pasak watershed forest to conserve, restore and plant more trees in the areas, which is considered an important water source for the country.

Image Credit: CP Foods

The project supports the community to undertake fish breeding and nursery projects, while creating sources of income.

In the first phase between 2016-and 2020, the company has been able to restore 955 ha and is currently in the process of implementing the second phase with plans to restore a further 159 ha of forest.

To promote sustainability and food security in the forest, CP Group and CP Foods chairman, Soopakij Chearavanont and the executives recently planted 1,000 Wild Champak Trees and released 100,000 fish into natural water sources to be crucial food sources and occupation for communities in the future.

TAFE unveils heavy-haulage tractor for Indian applications

TAFE - TRACTORS AND Farm Equipment Limited, through one of its tractor manufacturer companies, Massey Ferguson, have recently launched their MAGNATRAK series in India.

The new tractor for the Indian market was unveiled at a ceremony in Kolhapur city, in the state of Maharashtra. The brand new Massey Ferguson 8055 MAGNATRAK in the 50 hp range, is the first of the MAGNATRAK series.

According to TAFE, the MAGNATRAK series is said to be designed with advanced technology and performance in mind, with utility at a low operating cost, and is suited for heavy haulage operations.

The premium haulage tractor is paired with TAFE's MAGNATORQ engine for maximum torque and high fuel efficiency. The engine boasts a best in class torque figure of 200 Nm, enabling the tractor to pull heavy trolleys, both off-road and on-road. The engine and the transmission are tuned to deliver exceptional productivity with high road speeds resulting in more savings, faster load completion cycles and high fuel efficiency.

The MAGNATRAK also features practical styling elements that include an aerodynamic single-piece bonnet with a one-touch front opening system. The spacious platform and an adjustable seat is designed for operator safety and comfort. An industry first, the MF 8055 comes with powerful projector headlamps and Tri-LEDs for better visibility and brightness at night.

Image Credit: Massey Ferguson

The tractor is suited for heavy-duty operations like sugarcane haulage and heavy tonnage loads.

The MAGNATRAK series is well-compatible with a wide variety of agricultural applications like reversible mouldboard plough (RMB), rotavator, post-hole digger, threshers and newer applications such as the baler.

Provivi and Syngenta launch pest control technology for rice crop

PROVIVI, A LEADING provider of pheromone-based crop protection solutions, and Syngenta Crop Protection, one of the world's leading agriculture companies, have announced the commercialisation of 'Nelvium', a new mating disruption solution, to effectively and safely control detrimental pests in rice.

According to Syngenta, pheromones have been utilised in agriculture for more than 30 years as a pest control method. This will be the first time this innovation has been applied to rice in Indonesia, the world's third-largest rice producer and one of the world's biggest rice consumers.

Corey Huck, head of Global Biologicals at Syngenta Crop Protection said, "We are committed to accelerating innovation that drives sustainable agriculture practices, and we're very excited by the potential of this partnership with Provivi. Pheromones will be an exciting new addition to our portfolio, providing farmers with greater choices in managing insect resistance, reducing pesticide residue in crops, and addressing consumer demands. Our launch in Indonesia is a key milestone; we look forward to exploring more opportunities to introduce Nelvium, as well as other technologies, in partnership with Provivi."

Image Credit: Syngenta

Nelvium is Indonesia's first mating disruption product and will help rice growers manage key pests more effectively.

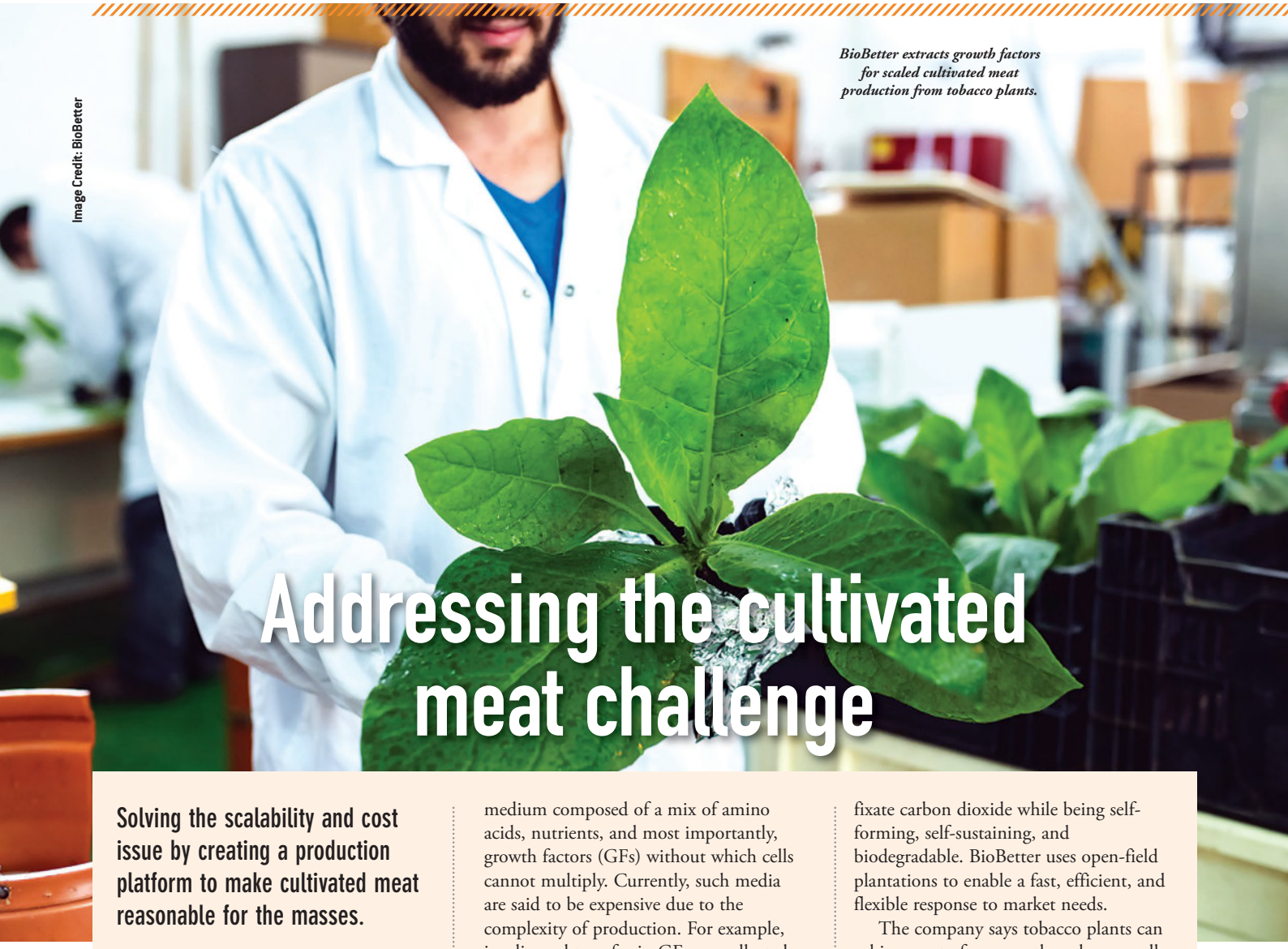


Image Credit: BioBetter

BioBetter extracts growth factors for scaled cultivated meat production from tobacco plants.

Addressing the cultivated meat challenge

Solving the scalability and cost issue by creating a production platform to make cultivated meat reasonable for the masses.

WORKING BEHIND THE scenes of the emerging cultured meat industry, BioBetter, an Israeli food tech start-up is repurposing tobacco plants to create the growth factors necessary for the cellular development of cultivated meat.

The company has announced a new role for the Nicotiana tabacum plant upon discovering it can overcome the hurdle of scaled production in cultured meat. BioBetter claims this landmark botanical breakthrough could significantly reduce the cost of cultivated meat and advance it rapidly to scale up.

According to BioBetter, cultivated meat start-ups often face challenges and hurdles in developing a scalable and cost-effective production platform to make cultured meat affordable for the mass market.

Cell-derived meat requires a culture medium composed of a mix of amino acids, nutrients, and most importantly, growth factors (GFs) without which cells cannot multiply. Currently, such media are said to be expensive due to the complexity of production. For example, insulin and transferrin GFs are collected from livestock, making it difficult to obtain large quantities. Some can be attained via fermentation of yeast or bacteria, but those methods require expensive facilities. The purification process also is complicated and expensive.

"The Good Food Institutes determined that approximately a 100-fold reduction in insulin and transferrin costs is required to make cultivated meat economically viable," explains Dana Yarden, MD and co-founder of BioBetter. "It is estimated that growth factors and cell-culture media can constitute 55-95% of the marginal cost in manufacturing cell-based foods."

Green, animal-free solution

BioBetter harnessed the inherent advantages of tobacco plants by turning them into bioreactors for expression and the large-scale production of proteins. Plant bioreactors use renewable energy, fixate carbon dioxide while being self-forming, self-sustaining, and biodegradable. BioBetter uses open-field plantations to enable a fast, efficient, and flexible response to market needs.

The company says tobacco plants can achieve up to four growth cycles annually and be harvested all year. This translates to more voluminous outputs per square metre of growing space.

BioBetter's uniqueness lies in refining and highlighting the advantages of the tobacco plant platform for production on a huge scale. The start-up applies a proprietary protein extraction and purification technology that enables it to exploit nearly the entirety of the plant, and deliver a high purity product at broad-scale production.

The company currently sources tobacco plants from local growers, but the goal is to eventually source the raw material from tobacco growers globally. Based on cultivation in open fields and BioBetter's proprietary purification technology, the cost of growth factors production is dramatically reduced, finally bringing cost efficiency to cultured meat production. ■

Determining the right feed can prevent diseases in aqua farms

Feed plays one of the most important roles in modern day aquaculture and is also a major influencer in disease prevention and the overall health of the farm.

THE RISE OF global aquaculture is constantly threatened by the increasing number of infectious ailments. Biosecurity and the general well-being of fish have never been more important, with the constant threat of disease breakout affecting the performance of the fishery.

Feeds can be an excellent way to keep shrimp and fish healthy. Technological advances have taken aquaculture feeds from mere growth agents to enablers of excellent fish health.

According to a study by Mordor Intelligence, the Asia-Pacific aquafeed market is projected to witness a CAGR of 5.5% during the forecast period 2022-2027. However, the COVID-19 pandemic is said to have slowed down operations with staff shortages and new sanitary guidelines for the operation of fisheries and processing.

Image Credit: Adobe Stock

Commercial aquaculture considers feed to be an integral part of the process because it completes the dietary nutrient requirement for healthy farmed fish.

Commercial aquaculture considers feed to be an integral part of the process because it completes the dietary nutrient requirement for healthy farmed fish. Feed in Asia is mostly comprised of cereals such as wheat, soybean, peanut and cottonseed with fishmeal, fish oil and trash fish also accounting for a considerable share.

Companies such as Avanti Feeds in India have been one of the key influencers, especially in the Indian aquaculture market. The health of the developing fish is crucial for companies to formulate dietary prescriptions required for modern fish farms.

The company's catalogue consists a variety of fish feed with the 'Avant Miner Mate', formulated to enhance shrimp health and growth. The product is made up of essential chelated mineral supplements and Avanti claims that it enhances the concentration of vital minerals used for body functions and growth in shrimp. The product is also said to help increase shell formation that helps shrimp avoid scars with better shelling.

According to the Food and Agriculture Organization (FAO), the growth, health and reproduction of fish and other aquatic animals are primarily dependent upon an adequate supply of nutrients, both in terms of quantity and quality, irrespective of the culture system in which they are grown.

The organisation also opines that nutrition and farm management strategies play critical roles in fish health and disease outbreaks within intensive farming systems and, to a lesser extent, in semi-intensive farming systems. However, it must be emphasised that nutrition and farm management should not only satisfy the dietary nutrient requirements of the farmed species for maximum growth but also for increased immunocompetence and disease resistance. ■

AGRITECHNICA ASIA all set to welcome the agri-community of Asia

The trade event, in its third iteration aims to be a premier agri-business platform for the Asia-Pacific.

AS INTERNATIONAL TRAVEL restrictions to Thailand and the region ease further, next month from 25-27 May 2022, the agricultural and horticultural machinery community for Asia is welcomed at the AGRITECHNICA ASIA & HORTI ASIA trade fair in Bangkok, Thailand.

Guided by sustainability-led smart farming, the trade fair will welcome 300 brands from 26 countries, who offer hand-picked solutions for this region. The event also delivers professional knowledge and networking through its conference programme and practical features like vertical farming, cannabis cultivation and smart farming.

"Smart Farming is one of the integrated solutions for the sustainable Agri-Food System. Integrated solutions need integrated actions from policies, businesses and the farmers. Precision Agriculture needs to monitor the changes and apply appropriate technologies at the right place, at the right time and at the right rate. Agritechnica Asia is the place to explore the 'right' technology and services that are needed," said Dr Vanida Khumnirdpetch, director of the bureau of foreign agricultural affairs of the Ministry of Agriculture and Cooperatives, Thailand.

Partnership with Vietnam

For the first time, the organisers of the trade fair, DLG (German Agricultural Society), and VNU Asia Pacific, have launched a partner country scheme, which aims to offer insights into the attractive market opportunities of Vietnam, the country selected this year. Vietnam's Ministry of Agriculture and Rural Development (MARD) will be sending experts and will also host 'AGRITECHNICA ASIA Live', an outdoor event for live machinery demonstrations on the fields, to be held in Can Tho Province, Vietnam, from 24-26 August 2022.

Image Credit: AGRITECHNICA ASIA

Guided by sustainability-led smart farming, the trade fair will welcome 300 brands from 26 countries, who offer hand-picked solutions for this region.

> **"Integrated solutions need integrated actions from policies, businesses and the farmers."**

"Asia is a strategic region for the company where Maschio Gaspardo invested with two production plants in China and India. We continue to be present at AGRITECHNICA ASIA, both as partner and exhibitor, because of the wide audience of the trade fair, which goes well beyond Thailand. We look forward to presenting to the customers of this region innovations such as precision planters, soil tillage and much more", explained Diego Ranzato, sales area manager APAC, Maschio Gaspardo.

The Conference Program part of the event highlights mechanisation, postharvest and smart farming for sustainable rice production.

A highlight of the conference programme is the conference held in English "Towards carbon reduced rice production and processing". Organised by the International Rice Research Institute (IRRI), the professional event addresses the mechanisation and postharvest management for zero footprint and sustainable rice production as well as the challenges and opportunities for modernised and low carbon rice cultivation in Vietnam.

The Asia-Pacific Trading Summit

As part of its export promotion programme, the German Federal Ministry of Food and Agriculture (BMEL) is supporting the Asia-

Pacific Trading Summit, which is aimed at farm equipment manufacturers and offers an update on current regional requirements in the areas of technology, quality and after-sales services. The event offers the opportunity to network with experts, manufacturers and trading partners in the region.

Conferences in Thai

The conference "Thailand Cane and Sugar Industries after Covid-19" will identify the opportunities for Thai farmers presented by precision farming and explore the likely developments of the Thai sugar industries following the impact of the pandemic.

> **"Smart sustainable agricultural production is the future."**

The Horticulture Research Institute (HRI) has also invited interested participants to their "Conservation and Development of Coconut Oil Forum of Thailand (CDCOT)".

International country pavilions

Country pavilions for Finland, Germany, India, Japan, and the Netherlands, will showcase equipment, technical solutions and inputs to Asia's farmers in the regions.

"Taking part with a Dutch pavilion offers our companies the opportunity to participate under the national banner of 'The Netherlands', 'Farming the Future' and 'Solving global challenges together'. Dutch companies have a lot of knowledge and experience in efficient and safe agricultural production. Smart sustainable agricultural production is the future. Dutch companies and knowledge institutes can cooperate with you to reach this," outlined Dr Gijs Theunissen, agricultural counsellor at the Embassy of the Kingdom of the Netherlands in Thailand.

Image Credit: Adobe Stock

The conferences will provide opportunities for knowledge sharing and interactions with industry experts.

Online platform with streaming and business matching

Following the successful hybrid premiere of the AGRITECHNICA ASIA & HORTI ASIA Regional Summit, an online/in-person conference with 90 presentations and 1000 attendees – the trade fair will be offering online streaming of selected events and repeat the attractive online networking environment.

The exhibition is also supported by a range of domestic and international specialist organisations such as the International Rice Research Institute, Thailand Society of Sugarcane Technologists, Horticultural Science Society Thailand, Thai Society of Agricultural Engineering and the National Science and Technology Development Agency. ■

Image Credit: Adobe Stock

The event offers the opportunity to network with experts, manufacturers and trading partners in the region.

Fliegl to showcase innovations at AGRITECHNICA

FLIEGL AGRARTECHNIK, THE German agriculture logistics manufacturer, is all set to showcase its line of products at this year's Agritechnica in Bangkok, Thailand.

The product line-up is expected to include manure spreaders and slurry tankers covering the whole range of trailers needed for organic fertilisation. In the transport sector, the Fliegl "Gigant" Push-Off trailer is said to be a class of its own. Push-Off trailers offer a safe and fast way of transporting practically all agricultural goods. On top of that, they can easily be converted into large volume manure spreaders or chaser bins.

Fliegl Agrartechnik stands for innovative agricultural logistics from state-of-the-art production for maximum efficiency and economy in the agriculture sector. The company maintains a significant presence in the Asia-Pacific region, especially in the agriculture and forestry industries.

First established in 1975, German manufacturer Fliegl has since become a well-established global player in the production of quality agricultural trailers and attachments. The Fliegl family have continually invested in innovative technologies that over the years have been proven to increase farm efficiency and profitability.

Image Credit: Fliegl Agrartechnik

Push-Off trailers offer a safe and fast way of transporting practically all agricultural goods.

Initially specialising in dump trailers and slurry tankers, the Fliegl brand now produces trailers and machinery across commercial transport, construction and biogas industries, as well as the agricultural sector. ■

Smart farming and cannabis in focus at this year's HORTI ASIA

Image Credit: Adobe Stock

The pavilion dedicated to cannabis aims to further knowledge in its production, an area increasingly attractive to Thai farmers since its legalisation in 2021.

There are only a few days to go until Horti-Asia welcomes the world and bridges the gap between solution providers and horticulture practitioners.

HORTI ASIA, THE premier event for horticultural advances in the Asia-Pacific region and the region's largest trade exhibition for smart horticulture will be held alongside the third edition of AGRITECHNICA ASIA from 25-27 May 2022 at BITEC, Bangkok, Thailand.

"More and more countries in Southeast Asia are opening their borders to quarantine-free travel. Seeing these developments, we are looking forward to a high international turnout of exhibitors with so much to offer Southeast Asian farmers," said Katharina Staske, managing director of DLG's office in Thailand.

"Smart farming as sustainability solutions, vertical farming and even cannabis production are just some of the many highlights that farmers can discover in Bangkok in 2022. The Industry Ministry is planning to make Thailand a hub of cannabis businesses to produce new products in the medical sector and support tourism. So I think it is the perfect time to bring this topic to our exhibitions," said Panadda Kongma, director of agribusiness and operations at VNU Asia Pacific.

Smart farming and seven international pavilions

An important part of Thailand's sustainable production, precision and smart farming technologies and applications including many start-ups will be featured at the new Thailand Smart Farming Pavilion jointly organised with the Ministry of Agriculture and Cooperatives.

Smart farming in Thailand and solutions such as drone and satellite technology, automation, robotics and working weed robots have already attracted attention at the Regional Summit held in Thailand late last year. The topic of smart farming will be explored further at the Smart Farming Pavilion which will present solutions aimed at all farm sizes.

> **"High international turnout of exhibitors with so much to offer Southeast Asian farmers."**

Seven country pavilions for China, Finland, Germany, India, Japan, the Netherlands and South Korea, each located within the trade fair, will showcase equipment and technical solutions from global companies to farmers from diverse regions.

Vertical farming and cannabis production

The new pavilion for 'Vertical Farming' co-organised by the Association for Vertical Farming (AVF) focuses on the production of plant-based food in urban spaces. Meanwhile, the Cannabis Pavilion set up by Thailand Cannabis Industry Association (TCIA) aims to further knowledge in cannabis production, an area increasingly attractive to Thai farmers since its legalisation in 2021. ■

Closing the annual financing gap for agri-SMEs

A new report has been published by the Commercial Agriculture for Smallholders and Agribusiness (CASA) programme, titled 'The state of the agri-SME sector – bridging the finance gap'.

SMALLHOLDER FARMING IN Asia has always lacked funding and opportunities to surge forward. Programmes to close the gap in access to financing can facilitate smallholder market participation, improve household welfare and promote rural development.

Alvaro Valverde, private sector engagement officer (CABI) and engagement, learning and communication lead (CASA), said, "The CASA State of the Sector report brings a new level of granularity to the market for agri-SME finance in sub-Saharan Africa and southeast Asia, highlighting the US$106bn annual financing gap. With almost all of these companies needing sub-commercial finance, coordinated action across the agri-SME finance ecosystem."

Priorities to address the issue

CASA identifies turning agri-SMEs into commercially investable prospects to anchor local bank markets for finance. Appropriate capital and government policy support continue to be needed across the financing continuum to fill the pipeline of investible agri-SMEs, provide the right growth capital to close the long-term financing gap and promote the emergence of large agri-enterprises that can anchor regional markets.

The programme also outlined developing capacity, incentives, and infrastructure for local banks and funds to profitably serve smaller, less commercial agri-SMEs over time. According to CASA, local financial institutions have the right locally denominated capital, proximity to clients and cost structure to profitably serve agri-SMEs. Capacity building and long-term subsidised capital can bring this existing banking infrastructure sustainably into the agri-SME market.

With scarce public and philanthropic funds to support the critical sub-commercial agri-SME finance market, blended finance needs to be more efficient and effective. A more sophisticated view of the market and a more transparent, collaborative, commitment by donors, DFIs, development banks, and IFIs to smarter subsidies are required, assisted by more consistent taxonomies, data, and reporting requirements, and a commitment to share learning.

According to the report, building the investment infrastructure around climate finance should be a priority to facilitate the absorption of climate funds at scale. This will include new models and taxonomies to support large donor investments in creating a substantial pipeline of viable investments with climate expertise integrated into all channels of agri-SME finance. ■

> **"A new level of granularity to the market for agri-SME finance in sub-Saharan Africa and southeast Asia."**

Image Credit: Adobe Stock

The report aims to identify change priorities to address financing issues in the agri-SME sector.

Supply for the regional demand has already been met by exports from Southeast Asian countries with major buyers in the form of Japan, Korea, Taiwan and Singapore.

Image Credit: Adobe Stock

Vast potential for flowers in Asia

As horticulture in Asia looks to surpass other markets as a global leader, technology and consumerism help pave the way.

COMMERCIAL FLOWER PRODUCTION has the potential to become the commercial superpower and lead the global floriculture market, the FAO predicts.

Demand for consumer-grade or cut flowers as we know it has risen significantly over the past few years, as economic development in Asian countries has resulted in increased vanity purchasing such as flower gifting. Supply for this demand has already been met by exports from southeast Asian countries with major buyers in the form of Japan, Korea, Taiwan and Singapore.

Industry expert Heidi C. Wernett, said in her paper about the Asian flower industry for the FAO, "It is necessary to emphasise that cooperation and commitment, in terms of education, research, funding, and communication from countries in Asia, is requisite in order for the Asian flower industry to succeed in replacing the European flower industry as the leader of commercial floriculture worldwide."

Technological advances and commercial breakthroughs are vital, as Danzinger, a commercial-grade flower producer headquartered in Isreal looks to do so.

Part of the company group is Danzinger Innovations, a biotech company specialising in the development of innovative and advanced plant breeding methods. The company has also joined hands with Equi-Nom, a breeding company that develops crop varieties through the application of advanced breeding methodologies using unique data analysis software that combines actual phenotypic measurements with genomic data.

> **"Commitment, in terms of education, research, funding, and communication from countries in Asia, is a requisite."**

Improvements in retailing also amount to the significant surge that the Asian industry needs. E-commerce has paved the way for modern consumerism and is no different for Asian people looking to buy flowers.

Market research company, imarc, states that the Indian floriculture market is expected to reach a value of US$8.63bn by 2026, exhibiting a CAGR of 19.2% during 2021-2026.

Online flower aggregators such as Ferns n petals in India, Aibida in China and Flower Chimp in Malaysia deliver flowers to doorsteps, allowing consumers to order flowers at their whim. Access to flowers at the fingertips has made purchase numbers increase, with increased demands for a variety of flowers which were relatively unknown to the region a few years ago.

Technology combined with retail consumerism can pave the way for Asia in horticulture with endless opportunities around the corner for the continent to be the global floral superpower. ■

Smart sorting systems improve farm efficiency

The system's precision information for feed development enables hassle-free switching between the types of feed for the animal.

Image Credit: Adobe Stock

The intelligent sorting system from Nedap not only solves space issues but also increases the well-being of pigs with tailored feed arrangements.

SMARTLY STRUCTURED FEED and stall systems can result in increased efficiency in terms of space, labour and costs. Housing structure solutions aim to solve the issue of space which comes at a premium for livestock farmers.

Nedap, a multinational livestock management technology company, allows livestock farms to re-imagine layouts and deliver as many as 11% more pigs from the existing real estate.

The company says it understands space is precious and land does come at a premium in the age of soaring real estate prices for commercial operations. Nedap aims to bring about efficiency by getting rid of concrete and plastic partitions and feeding the animals based on body weight. This makes for efficient use of square footage while feed patterns are tailored to exact requirements.

Nedap's 'PorkTuner' is a system where pigs can be sorted based on bodyweight and led to assorted feeding stations.

The company's model system consists of two feed stations, a resting area and a passage to the station with three exits. For 300-600 pigs, the system weighs individual pigs and leads them to either feed stations, designated with the feed suitable for the pig. The system's precision information for feed development enables hassle-free switching between the types of feed for the animal. With this tailored system, the company reports faster growth and improved feed conversion.

> **"Re-imagine layouts and deliver as many as 11% more pigs."**

The PorkTuner's third exit leads the pigs to the delivery space once they are grown to delivery weight. The farm operator is able to use all the space available until the pigs reach delivery weight allowing for partition of selection space only when sorting.

According to Nedap, with its system, the average yield price per kilo is increased with no weight discount to worry about. The operator can also experience improved delivery planning with the system providing a detailed diagnosis of main, intermediate and residual deliveries from each pen. The system comes with a dashboard which can be accessed with the use of a computer, letting the operator see the exact number of pigs to be loaded.

Farms can also benefit from lower feed costs and better security against bio-risks. Reducing animal-human contact is always beneficial with a low risk of disease spread. Automatic sorting allows the farm to be less labour intensive and with very little fencing and corners, stalls are cleaned and disinfected easily. ■

Housing systems define production levels in poultry

Regulatory requirements for poultry houses often revolve around facilitating suitable micro-climatic conditions for the birds.

Image Credit: Adobe Stock

As the world demands higher efficiency in food production, we take a look at variants of poultry housing systems viable for commercial production.

THE NEED FOR a viable poultry housing system has been at the heart of recent developments in the poultry industry. Protecting birds from adverse oconditions outside and maintaining a scientific feeding system have been becoming more mandatory as the years roll by. Strict regulatory codes developed to provide healthy and sustainable living conditions for birds to thrive, often provide companies with a blueprint to design the perfect environment.

Regulatory requirements for poultry houses often revolve around facilitating suitable micro-climatic conditions for the birds. This ensures effective disease control measures to be taken by the management as well as ensuring supervision of the growth and development of the birds.

> **"Ensuring effective disease control measures to be taken by the management as well as ensuring supervision of the growth and development of the birds."**

Basic principles of poultry construction follow a layout that negates the human contact as much as possible. Fresh air passing through the brooder shed, followed by grower and layer sheds prevents the spread of diseases from layers to brooders. Utilities such as feed store, office and even the egg store are advised to be kept near the entrance to minimise the contact between the humans and the birds. The disposal pit and sick room are to be constructed at the end of the poultry to minimise the foul smell, disease risk and many other issues that come along with dealing with excretion from the birds. Appropriate distance between the chick, grower and layer sheds are also stringently observed.

Optimal environment

Temperature and airflow are possible two of the most important factors in the construction of poultry housing. Maintaining temperature between 22-30 C is considered optimal with relative humidity to be maintained anywhere between 30-60%. Levels of ammonia are also important and are advised to be kept at less than 25 ppm, while litter moisture hovering between 15-25% is acceptable. The most important of all which is airflow, should always to b maintained between 10-30 meters per minute.

Open-sided poultry houses in tropical climates are advised to have a width, not more than 22-25ft, in order to allow for ventilation and airflow. For sheds wider than the said measurements, ridge ventilation at the middle line with proper overhang is mandatory. The ridge ventilation helps hot air and gases move upward and escape. In environmentally controlled poultry houses, the width of

the house may even be 40 ft or more since the ventilation is controlled with the help of exhaust fans.

In broader terms, poultry housing is mainly divided into three categories; Free-range or extensive, semi-intensive and intensive systems.

Free range housing

Free-range or extensive poultry systems are adopted where there is adequate land availability to ensure the desired stocking density to avoid overcrowding. Foraging is maintained as the main source of feeding for the birds with shelters provided by temporary roofing. The space is used on a rotational basis after crop harvesting and is used preferably for organic egg production.

Free-range systems usually require lesser capital investments and observe low feed requirements. The system is usually adopted by farmers looking to maintain the fertility of the soil through the usage of land on a rotational basis along with crops.

Shortcomings, however, prove to be costly in this method with a lesser scope of adopting scientific management practices. Accountability of eggs laid is less due to the absence of designated areas and the farm is prone to predatory animals and wild birds, causing fatality via diseases or bird kills.

Semi-intensive systems

This system of housing combines confinement and free-ranging. Birds are given access to roam freely as per batch schedules with contamination levels to be considered. Adult birds can be housed at a stocking density of 750 per ha and are most commonly used in duck rearing facilities.

The semi-intensive systems make more sensible and economical use of the land provided with better protection from outside elements when compared to free-range farms. The poultry can also engage in disease control and scientific operation to a better extent.

The biggest disadvantage of the semi-intensive systems, as reported by operators, is said to be the regular build-up of litter in the pens, with expensive watering systems the only solution to mitigate this problem.

> **Intensive method is most widely used system present in the wider-commercial poultry industry, known for its efficiency and high profitability.**

Intensive systems

Poultry systems where birds are completely confined to houses on the ground level or on wire-netted floors in cages or slats are termed to be intensive poultry farming. This is the most widely used system present in the wider-commercial poultry industry, known for its efficiency and high profitability.

This is further categorised into four variants in which the 'Deep-litter' system houses birds on a litter material made of paddy husk and other natural processed by-products of thickness between 3-5 in. The 'Slatted floor' system uses iron or wooden slats raised above the grounds.

The 'Slat cum litter' system uses 60% of the floor area covered with slats and the rest with litter. The system is commonly used for

Image Credit: Adobe Stock

The caged system is commonly used for birds in hatching egg production and meat-type breeders.

birds in hatching egg production and meat-type breeders.

The 'Cage' system involves housing birds on raised wire netting in small compartments and is regarded as the most efficient system present in terms of egg production. The system represents a majority of commercial layers in the world that are kept in cages.

Intensive poultry farming is widely regarded as the most profitable housing method for commercial purposes. The system is most efficient when it comes to land usage with easy access to scientific management practices such as breeding, feeding, disease prevention and culling. ■

Precision is key to saving water and better yield


Image Credit: Adobe Stock

The monitoring system helps prevent water erosion and maintains the soil quality throughout the field.

As the world races to find ways to save water, authorities and agri-startups attempt to solve the obstacle with technology.

IRRIGATION IS ONE of the most important practices that contribute to feeding the world. Controlling the amount of water required for the crop in the field is paramount and is essential in achieving greater yields that the world demands and requires.

Historically, farmers have been known to use damming to pump the required water. While canals and waterways did the job, there was little to no thought for precision and conservation. Trial and error and the advent of technology have brought about significant changes to how the modern farmer waters his crops.

According to a study by Germany's Federal Ministry of Food and Agriculture, India, one of the top influences in the agricultural value chain uses 80% of its freshwater resources for agriculture. Numbers aside, this is alarming for a country with a growing population with an ever-increasing crisis for freshwater. There is clearly a way to minimise usage and maximise efficiency, prompting decision-makers and stakeholders to depend on technologies to develop precision irrigation.

Saving water and boosting income

A sensor-based irrigation system using bank filtration technology and controlled via web and mobile app was recently installed at Sal River in the Indian state of Goa, under the Indian government's programme called 'Demand Driven Mission - Water Technology Initiative.'

The technology helps to provide clean water to farmers for irrigation through River Bank Filtration (RBF) technology coupled with a sensor-controlled irrigation system, which is the first of its kind in the region. Water, with improved quality parameters such as reduced turbidity and bacterial load supplied through systematic pipeline system, helped farmers to obtain better crop production.

The project presents a model of sustainability for educating farming communities with small landholdings. A similar effort was made in Vietnam with MimosaTek, an agri-tech solutions company bringing cloud based devices and sensors for crop monitoring.The tech startup aims to use the internet of things (IoT) for smart irrigation systems, allowing farmers to use smartphones to monitor the weather and optimise water usage. The Vietnamese government is said to have backed the system in the country's Can Tho province, with plans to scale the technology across the Mekong Delta.

Local governments have been at the forefront lately, realising the need to save water and helping local smallholder farmers to integrate water-saving technologies into their practices. In partnership with emerging agri-tech startups, authorities now rely on technology to bring sustainability and help growers achieve profitability while being conservative with the precious resource that is water. ■

Right ventilation to keep the flock happy

In addition to formulated feed, optimal growth of poultry demands a healthy climate. Keeping the birds happy and comfortable, regardless of the climate outside is the need of the hour.

POULTRY HOUSING HAS evolved drastically over the years. Bird health and positive living conditions have taken over as major factors in designing and planning. Temperature, air quality, humidity and flow are the key topics to consider when commissioning a poultry facility.

In order to achieve desired results in the poultry business, experts say it is of utmost importance to keep the flock happy. Regulatory systems fanning out hot air and piping in cool air are nothing but basic measures in today's world, with modern engineering delivering streamlined solutions to meet specific needs for every barn in the world.

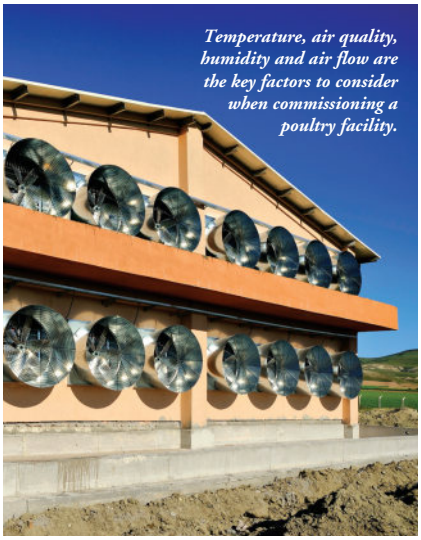
Roxell, a pig and poultry farm equipment provider thinks the growth stages of chickens and changing weather conditions require flexible ventilation that can handle variation. The company has recently unveiled a tunnel fan called the Oxsano for improved ventilation. The variable speed tunnel fan provides tailor-made ventilation. The motor technology is innovative, linking high energy efficiency to a stable, healthy and animal-friendly house climate.

Animal facility ventilation specialist Vosterman opines that air movement can prevent diseases detrimental to both bird and business such as footpad dermatitis in broilers. The disease causes pain in broilers, leading to an unhealthy, unhappy batch with questionable animal welfare conditions, not to mention hindrance to operational efficiency,

Global supplier of polyurethane ventilation components, TPI-Polytechnics says guiding air into the house from the top down is the most efficient way to ventilate every part of the facility.

Ventilation chimneys or ceiling inlets are therefore a perfect solution for layer houses with nesting systems. Tunnel ventilation is considered the best solution for the maximum ventilation range.

According to TPI, having a single ventilation system is not sufficient for year-round climate control in large poultry setups. Variants of ventilation techniques should be put together to help transition airflow. Complex concepts often make use of technology in advanced monitoring and control systems via computers. TPI opines optimal climate brings optimal production, and opting for the right ventilation concept while designing the structure is of utmost essence. ■



Temperature, air quality, humidity and air flow are the key factors to consider when commissioning a poultry facility.

Image Credit: Adobe Stock

Exploring underwater farming with the help of technology

NEMO'S GARDEN, A startup focused on sustainable underwater cultivation of crops, has come up with an underwater greenhouse. Resembling a bloom of giant jellyfish anchored to the ocean floor, these large clear domes, or biospheres, are a unique new type of underwater greenhouse. These biospheres harness the positive environmental factors of the ocean – temperature stability, evaporative fresh-water generation, CO_2 absorption, and natural protection from pests – to create an environment ideal for growing all manner of produce. The project was especially dedicated to those areas where environmental conditions, economical or morphologic reasons make plants growth extremely difficult.

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