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VOLUME 40 ISSUE 6 2022

# Alleviating feed production challenges

# Livestock:

Tackling the spread of deadly livestock diseases

# **Poultry:**

Preventing Avian Influenza and tracing animal welfare

# Equipment: Latest baler series upgrades



Agrilivestock Myanmar 2022 preview - p7

Pigs Buyers' Guide 2022





**Bi-monthly** issue contains a mix of editorials devoted to sustainable development, market intelligence, products, techniques and innovations across agricultural sectors, as well as coverage of all the major exhibitions and trade events

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## **EVENTS 2022-23**

## **November**

### 09-11

ILDEX Indonesia Jakarta, Indonesia https://www.ildex-indonesia.com/

### 10-12

Asia Agri-Tech Expo & Forum Taipei, Taiwan https://www.agritechtaiwan.com/

### 15-18

### **EuroTier**

Hanover, Germany https://www.eurotier.com/en/

## December

### 02-04

Agrilivestock Myanmar Yangon, Myanmar http://agrilivestock.net/

### 07-10

Growtech Vietnam Ho Chi Minh City, Vietnam https://www.growtech.vn/

## March 2023

### 01-03

HortEx Vietnam

Ho Chi Minh City, Vietnam https://www.hortex-vietnam.com/

### 08-10

### **VIV** Asia

Bangkok, Thailand https://vivasia.nl/

# July 2023

### 05-07

Livestock Philippines Pasay City, Philippines https://www.livestockphilippines.com/

# Vietnam and Mongolia look forward to trade collaboration



Vietnam is one of the major exporters of rice and has a strong background in agriculture.

DURING THE WORKING visit of the Vietnam Inter-Ministerial Mission to the Mongolian Ministry of Food, Agriculture and Light Industry, Minister Le Minh Hoan and Minister of Agriculture and Food Sovereignty Khayangaa Bolorchuluun signed the first MoU on agricultural cooperation between the two countries. The first MoU is expected to sublimate agricultural cooperation between the two for the future.

Vietnam has strengths in rice, industrial crops, aquatic products, timber and wood products, and tropical fruits. In contrast, Mongolia has strengths in livestock and livestock products. This allows both to complement each other's strengths and see mutual benefit through cooperation.

Minister Le Minh Hoan, shared, "In

today's world full of changes due to the Covid-19 pandemic, conflicts between countries, and other potential uncertainties, relations between countries need a new approach in which all countries need to diversify products and diversify markets. With the traditionally friendly relationship between Vietnam and Mongolia for 68 years, the two countries need to do more to develop commensurate economic cooperation."

To promote trade in general and agriculture in particular, the two need to overcome the barrier of transport and logistics. In this regard, both discussed within the framework of the Intergovernmental Committee and other bilateral mechanisms to seek solutions to open up the agricultural road.

# Tech platforms introduced to Philippine farmers

THE DEPARTMENT OF Science and Technology (DOST) introduced numerous technology-based platforms using marketing and data analysis to help expand livelihood options and boost earnings of regional smallholder farmers and micro, small, and medium companies (MSMEs). Farm Konek is a farm management tool that was created to focus on community impact through the production of high-value and lowland vegetables. DOST also launched another e-commerce platform called OneStore.ph that assisted MSMEs in marketing their products online and enabled MSMEs to reach a larger audience, thereby indirectly increasing employment and addressing the issue of food insecurity in the nation. The department also introduced OneStore City, an android delivery software that was designed to give customers a better and easier shopping experience. Moreover, the Philippine Rice Research Institute (PhilRice) went on to create a four-in-one rice combine harvester that would reduce the post-harvest losses of Filipino farmers from 4.5% to 2.2%.

# Winrock to expand climate-smart agriculture in Malawi and Thailand



THE US DEPARTMENT of Agriculture (USDA) has announced a US\$178mn investment in the 'Food for Progress' projects in support of the Biden-Harris administration priorities of climate-smart agriculture, and have selected Winrock to implement two of the seven initiatives.

Winrock's senior director of agriculture, resilience and water, Aaron Sundsmo, said, "Our team at Winrock is thrilled ot have the chance to contribute to the Biden-Harris administration's climate action plan and partner with farmers, agri-business and communities across Malawi and Thailand.

"These two new projects will dramatically increase the number of farmers using evidence-based, climate smart approaches to increase agriculture productivity, farmer profits, while also having environmentally positive impacts."

In Malawi, Winrock's USDA-funded 'Market Transitions to Enable New Growth Opportunities' (MTENGO) project will address food insecurity by boosting production and profitability for 35,000 farms through the implementation of sustainable and scalable practices.

In Thailand, the USDA-funded 'Regional Agricultural Innovation Network' (RAIN) project will ensure the adoption of climate-smart production practices by 30,000 farmers through the creation of a regional knowledge hub. RAIN will identify, validate, and share climate-smart technologies and practices that increase productivity, profitability and trade opportunities while reducing greenhouse gas emissions.

# FAO highlights the urgency of agrifood system transformation

COUNTRIES IN ASIA and the Pacific have highlighted the urgency in moving forward with the transformation of their agrifood systems, following a symposium by the Food and Agriculture Organisation of the United Nations (FAO).

It became apparent after the Covid-19 pandemic that there is a need to transform the region's agrifood sector. The urgency was first recorded during the UN Food Systems Summit held in 2021, and the FAO Symposium is the first attempt since to put the words into action.

"In order to achieve SDGs, we need a major transformation – one that begins with our agrifood systems, pursuing actions, solutions, innovations, technologies, and financing, towards the global commitment made at the UNFSS. We need bold action," said FAO director general, QU Dongyu.

The 'Four Betters' approach is the main contender in transforming the system, and is a corner stone of FAO's Strategic Framework (2022-31). The aim is to focus on the outcomes of better production, better nutrition, better environment and better lives.

Delegates highlight the importance of financing and investment in facing the scale of transformation required, however they agreed that by working together, the region can leverage opportunities for transformational changes.

# Ministry of Industry showcases Indonesian drone technology



The Ministry wanted to showcase the Indonesian drone industry at ITAP.

THE MINISTRY OF Industry facilitated several drone industries in Indonesia in order to showcase their products at the 2022 Industrial Transformation Asia-Pacific (ITAP) in Singapore.

Alongside the Association of Unmanned Systems and Technology (ASTTA), the Ministry showcased the technological capabilities of the Indonesian drone industry, and embraced the opportunity to build international cooperative relations.

"In line with digital transformation in various aspects of the economy, the Ministry of Industry continues to support development of the domestic drone industry top be more innovative and competitive," said the ministry director general of Metal, Machinery, Transportation and Electronic Equipment (ILMATE), Taufiek Bawazier.

"We must master this technology to maintain state sovereignty and support the government's vision in implementing Making Indonesia 4.0."

He continued, stating the transformation has become an obligation for industry players everywhere, including utilising drone technology to support the production process. 

# FAO Food Price Index drops for the sixth consecutive month

1) The **FAO Food Price Index (FFPI)** averaged 136.3 points in September 2022, down 1.5 points

(1.1%) from August, marking the sixth monthly decline in a row. The FFPI's decline in September was driven by a sharp fall in the international prices of vegetable oils and moderate decreases in those of sugar, meat and dairy products. 2) The FAO Cereal Price Index averaged 147.8 points in September, up 2.2 points (1.5%) from August and 14.9 points (11.2%) above its September 2021 value. In September, international wheat prices rebounded by 2.2%, underpinned by heightened uncertainty about the Black Sea Grain Initiative's continuation beyond November and the potential impact on Ukraine's exports. 3) The FAO Vegetable Oil Price Index averaged 152.6 points in September, down 10.8 points (6.6%) month-on-month, marking the lowest level since February 2021. In September, international palm oil

prices declined for the sixth consecutive month, largely driven by lingering heavy inventories that coincided with seasonally rising production in southeast Asia. 4) The FAO Dairy Price Index averaged 142.5 points in September, down 0.8 points (0.6%) from August, marking the third consecutive monthly decline, but remained 24.4 points (20.7%) above its value a year ago. In September, international prices of all dairy products declined moderately, to a great extent reflecting the impact of the weaker Euro against the United States dollar in world dairy prices. 5) The FAO Meat Price Index averaged 121.4 points in September, down 0.6 points (0.5 percent) from August, also registering the third consecutive monthly decline, but still 8.7 points (7.7 percent) above its value in the corresponding month last year. In September, international price quotations for ovine meat declined the



FAO Food Commodity Price Indices.

most, underpinned by the impacts of currency movements.

## 6) The **FAO Sugar Price Index**

averaged 109.7 points in September, down 0.8 points (0.7 percent) from August, marking the fifth consecutive monthly decline and reaching its lowest level since July 2021. The September decline was mostly related to the good production prospects in Brazil, the world's largest sugar exporter.

# CPF: Thailand's first carbon neutral feedmill

CPF' FEEDMILL IN Nakhon Ratchasima has become the first carbon neutral feedmill in the country. It received the certification from Thailand Greenhouse Gas Management Organization.

Rewat Hathaisattayapong, executive vice-president, said the company followed a continuous assessment to reduce its environmental footprint and greenhouse gas (GHG) emissions. It uses biomass energy, solar power, and automation in its operations.

While it reduces CO<sub>2</sub> emissions, the feedmill also carbon compensates to balance its GHG emissions. The feedmill is a model for sustainable feed production and CPF will continue to reduce GHG emissions to achieve the net-zero GHG emissions target.

# Cargill launches new layer feed concentrate



Top New, a new layer concentrate from Cargill Indonesia.

CARGILL INDONESIA HAS unveiled Top New, a new layer concentrate to boost productivity in these challenging times. Top New contains a minimum of 34% crude protein combined with balanced micro and macronutrients to optimise laying hen productivity in terms of egg numbers, egg size and egg mass, while also improving cost efficiency. Layer feeds are specially formulated for chicken that lay table eggs. Hence, they tend to differ from other types of feeds such as grower feeds since they contain extra amounts of energy, protein and calcium that enable chicken to lay eggs with strong shells.

Moreover, layer birds in general also differ from broilers in terms of their feed intake, which is much lower, as is their body size and growth rate which is comparitively lower than that of broilers. Layer feeds need to be fed from about 20 weeks of age or when the first egg is laid, depending on which occurs first.

# VICTAM Corporation and VIV Worldwide organise Asia's largest B2B event in Bangkok

VICTAM CORPORATION AND VIV Worldwide welcomed exhibitors and visitors from 7-9 September, 2022 at the IMPACT Bangkok, Thailand for the three co-located trade fairs: VICTAM Asia, Health & Nutrition Asia and GRAPAS Asia, focused on animal feed, animal health and nutrition, and the grain and rice processing industries.

"It was exciting to be back in Asia again after the Covid-19 pandemic. The atmosphere at the event was excellent as exhibitors and visitors were glad to be participating at a live event again," said general manager of the VICTAM Corporation, Sebas van den Ende.

There were a total of 231 exhibitors from 33 countries present. The companies stated that it was great to meet their clients and prospects face-to-face again. The exhibitors also commented on the very high quality of the visitors and the wide range of countries from which they came.

"This was a great opportunity for the feed and animal health industry to meet in 2022. The exhibition halls were busy over the three event days, with the top 10 visiting countries being Thailand, India, the Philippines, Vietnam, Bangladesh, Malaysia, Indonesia, Korea, Myanmar, and Singapore," said Birgit Horn, managing director of VIV Worldwide. Several conferences and meetings were hosted by the organisers with the cooperation of key industry partners, among which were: AFFIA, Aquafeed.com, GMP+,



The event was a great opportunity for the feed and animal health industry to meet in 2022.

GRAPAS Innovation Seminars, the Thai Feed Mill Association, WPSA, and many others. The various conference organisers stated that the delegate attendance was good and that they had appreciated the quality of both the speakers and their papers. Additionally, several exhibitors like Amandus Kahl, Bioproton, Bühler Group, Clextral, DSM, Evonik, Grain Technik, J E S Innovative, Kanters, Premiertech, and Proteon presented technical seminars during the three show days.

# Agrilivestock Myanmar, the country's top international B2B trade show, is back for its 2022 edition held in Yangon from 2-4 December this year

AGRILIVESTOCK MYANMAR, THE country's No. 1 international livestock, feed and agriculture industry exhibition, is back for its 2022 edition.

Held at the MEP Mindama in Yangon from 2-4 December 2022, the international exhibition is organised by Tarsus Southeast Asia and brings together all the relevant stakeholders of the livestock, feed and agriculture industry under one roof.

Over 250 companies and brands from 12 countries are expected to join the show, showcasing a wide range of the latest products, solutions and technologies aimed at improving the efficiency and productivity of Myanmar's livestock industry. The expo is expected to attract thousands of industry professionals from across the country representing the entire value chain, including integrators, livestock and aquaculture farmers, feed millers, wholesalers, retailers, importers, distributors and more.

Agrilivestock Myanmar is the perfect marketing platform that will give visitors an opportunity to meet over 6,000 professionals in Myanmar's livestock, feed and agriculture industry. It is also a source for new distributors, agents, and strategic partners in Myanmar to boost their company branding and market positioning and gain in-depth knowledge on the latest industry updates in the local and global scenes. The exhibition is also a platform to showcase the latest innovations through product launches and promotional campaigns, allowing companies to build lucrative partnerships. Moreover, this prestigious exhibition also offers numerous cost-effective sponsorship opportunities that could support a variety of needs.

Co-located with the expo is the Agrilivestock Myanmar Conference 2022, a forum for encouraging the exchange of knowledge, experience and ideas regarding the challenges the country is facing in the livestock industry, and highlighting steps that can be taken to overcome these issues. The platform will be filled with informative discussions presented by international speakers from the world's leading companies in the livestock industry. Many figures from the major public and private sectors of Myanmar are expected to attend the conference. Growth has been rapidly picking up in Myanmar given its strategic location within ASEAN and between China and India. According to the World Bank, Myanmar's economy is projected to grow by 6.8% in 2022. However, climate change has been posing a challenge to the development of the livestock industry. Hence, there is an urgent need to promote sustainable advancements in the livestock industry and build resilient farming systems. Modern farming techniques are also increasingly being adopted by poultry breeding businesses.

Agrilivestock Myanmar is an invaluable event that offers the chance to unlock opportunities in Myanmar's livestock industry, and is certainly something that is not to be missed.

## 

# Preventing avian influenza



With avian influenza having the capacity to severely affect flock health, it is vital to stay up-to-date on current information, advice and technology to ensure this disease is kept in check.

**VIAN INFLUENZA** (commonly referred to as 'bird flu') is a highly contagious viral infection most commonly affecting domestic poultry and other birds.

It is classified into two categories: low pathogenic avian influenza (LPAI) and high pathogenic avian influenza (HPAI). While the former tends to be very mild and usually results in no symptoms (perhaps some ruffled feathers, minor respiratory issues or drop in egg production), the latter can be very damaging and can cause internal organ damage to birds, often accompanied with a high mortality rate. Transmission between birds is via ingestion or inhalation and the incubation period can range from a few days for individual birds to a few weeks for the flock.

With the capacity to transfer to humans, the study of avian influenza and its

prevention is well advanced and remains a point of concern around the world, in the developed and developing alike.

As if to demonstrate this point, CSL Seqirus, a top flu vaccine company, has been awarded a US\$30.1mn deal from the Biomedical Advanced Research and Development Authority to deliver an avian flu vaccine candidate for use in a phase 2 clinical study. Tests by the USGS National Wildlife Health Centre have shown LPAI

CSL Seqirus has been awarded a US\$30.1mn deal to deliver an avian flu vaccine candidate for phase 2 study."

fairly prevalent across the US and, in 2021, HPAI was detected in North America for the first time since 2015.

The significant deal won by CSL Seqirus is an indicator of the concern around the disease, highlighting the importance of control and prevention.

In developed countries, HPAI epidemics are often quickly stopped with stampingout programmes while the use of vaccines can also be incorporated (although this practice is banned in some countries such as the United Kingdom). Above all, prevention is most commonly and effectively achieved by biosecurity measures. Best practices include:

- Locating the facility away from urban centres and other agricultural systems
- Providing protective clothing and footwear which should be removed and cleansed or disposed after use from staff and visitors (who should also be checked in and recorded)
- Regular cleaning of the facility such as at the end of a production cycle
- Limiting access to poultry flocks

Ensuring wild birds and other animals are secured out of the

- facility as they could be infected (keeping areas of the facility clean and tidy is importance here as they could be attracted)Keeping areas well maintained to prevent water entering as this
- could be contaminated
- · Provide only fresh water to birds if possible
- Removing damaged eggs, dead birds or manure quickly and disposing of it safely
- · Avoiding crossing groups of birds of different ages and origins
- Cleanse all vehicles and crates or containers that have been transporting poultry or poultry products before entry to the facility

The last point was paid particular attention in a recent thought piece be Deuka, which explored the contamination through the feed. It noted that, especially during epidemics, it is essential for providers of feed to adhere to safety regulations when entering the facility which includes using protective equipment by truck drivers when delivering feed, cleaning and disinfecting the vehicles before and after entry and unloading the goods (especially the tyres) and only supplying infected farms when given permission from a competent authority.

In the case of closed housing, the piece continued, the movement of people, vehicles and goods are the most vulnerably points and the above should be adhered to for prevention. For freerange husbandry, it continued, farmers should be extra cautious when feeding and only do so inside so as to avoid attracting wild birds.

### Technology at the fore

These tried and tested methods are vital ballast against the spread of aviation flu and should always be incorporated to the highest standard when possible. However, according Jean-Pierre Vaillancourt, DVM, professor at the Faculty of Veterinary Medicine, Université de Montréal, speaking ahead of the Poultry Tech Summit, a paradigm shift is needed in biosecurity that incorporates modern technology to monitor farm activities and prevent future outbreaks.

As reported in WATT, Vaillancourt noted that newly developed temperature monitoring sensors can ensure all potential sources of contamination are identified and disinfected when temperature and duration are reached. In addition, microchips can be inserted into personal protection equipment (PPE) or hand sanitiser systems which can detect if it is worn outside the building or if procedures are not followed.

# A paradigm shift is needed in biosecurity that incorporates modern technology to monitor farm activities and prevent future outbreaks."

### 

Perhaps one of the most innovative pieces of equipment is that from Bird Control Group which offers an automated bird repellent option to prevent wild birds approaching poultry farms and spreading the disease to domesticated animals. The AVIX Autonomic keeps birds away around the clock as birds perceive the moving green laser it emits as a physical threat and flee when the beam passes near them. The company notes that the solution is proven to reduce bird nuisance by more than 70%.

It was just last year that the World Organisation for Animal



Feeding should be conducted inside to prevent attracting wild animals.

Health calling for increased surveillance of avian influenza after a rise in cases. With this contagious, and potentially devastating disease, perceived as a threat to the economic stability, food security and livelihoods of countries in Asia, Africa and Europe most notably, it is essential that farms keep up-to-date with all means at their disposal to keep it under control.



# Chickens can now tell their own story: says biologist Walter Pfefferle

Consumers have started focusing not only on the quality of food they consume, but also on how efficiently and ethically their food is sourced.

**TUDIES HAVE SHOWN** that consumers are more likely to purchase a product if it is both ethical and viewed as being of better quality. Participants of one study felt that free-range chickens that were raised in a cage-free environment would be 'happier' and produce better quality eggs than those that were raised in a conventional caged setting. This is why animal welfare and product quality go hand in hand.

Through a technology called 'epigenetics', it is now possible to get a glimpse into how an animal is raised. This technology is increasingly being used in the poultry industry to determine the biological age of chicken and derive their health status. It can also verify whether or not chicken products are free-range. In a report published by Wattagnet, biologist and manager at Creavis, Walter Pfefferle mentioned that the test was an excellent tool for internal quality control and optimisation, as well for intra- and intercompany certification, all the way to endconsumers.

One of the world leaders in specialty chemicals, Evonik, has now developed a test for chicken products that shows how the animals were kept and fed. This reliable new method, which was developed with the aid of epigenetics, enhances transparency and therefore raises consumer confidence.

Epigenetics is a branch of biology that determines how the environment an animal has been exposed to influences patterns on its genetic material. This makes it possible to check whether the products declared as free-range are not actually mass-produced with the use of growth-promoting antibiotics. Evonik sees potential users along the entire chicken production chain, especially agricultural enterprises and retailers. The company's new epigenetic test will extend its range of system solutions for sustainable meat production. At present, experts are working to tailor the test method to the requirements of different customers. For this purpose, Evonik is building up an epigenetics and bioinformatics platform in Singapore, which will have around ten employees in the future. Development work is well advanced, so the specific tests can be made available to customers in the short- to midterm. Consumers should also benefit through greater transparency about the food on their plates.

Epigenetics makes it possible to check whether or not chicken products are free-range."

"Our technology opens up a completely new insight into poultry production. Chickens can now tell their own story," said Pfefferle. This comparatively new branch of science explains, for example, why cells in the liver or muscle develop differently despite identical genomes and why appearance changes with age. Using the



knowledge provided by epigenetics and artificial intelligence, scientists derived the first epigenetic clock for humans about ten years ago. This provides information on their biological age.

Researchers at Evonik have now developed a similar epigenetic clock for chicken in collaboration with the team working with Frank Lyko, head of the Epigenetics department at the German Cancer Research Center (DKFZ) in Heidelberg. To this end, they analysed the methylation sites in the

# POULTRY

chicken genome. These occur when methyl groups are transmitted to selected sites in the genome by enzymes. "Genes are activated and deactivated at these methylation sites," explained Pfefferle. "Environmental signals influence the enzymes that trigger methylation. In this way, environmental influences leave their mark."

More than 20 million methylation sites have been identified in the chicken genome. Depending on the methylation pattern, they show what the chicken has experienced. Artificial intelligence (AI) and algorithms help to analyse and interpret the data.

In cooperation with Illumina, a leading provider of systems for large-scale analysis of genetic variation and function, Evonik has now developed an epigenetic chip that allows rapid analysis of, for example, samples of meat, despite the enormous amount of data. A pre-treated sample is applied to a test area on the chip, which measures changes in the genome of the sample. The data can be read with a special appliance and then be evaluated using AI-based algorithms. In its laboratories in Singapore, Evonik is now validating the method, feeding data to the algorithms, and exploring new areas of application.

In the coming months, experts at Creavis aim to find out which factors are



Evonik has developed an epigenetic chip that allows rapid analysis of samples despite large amounts of data."



important for potential customers in the retail, meat processing, and agricultural sectors. Simple evidence of the health and welfare of livestock, farming methods, performance-enhancing antibiotics, medication, origin, and the method of slaughter are now available.

"Sustainable poultry production that explicitly takes animal welfare into account is becoming realistic," concluded Pfefferle.

With the aid of modern science, Evonik now has a technology that can make an appreciable contribution to the European Union's farm-to-fork strategy: for fair, healthy, and environmentally friendly nutrition.

Epigenetics is indeed an active and exciting area of research, driven by the massive amounts of new information being generated by next generation sequencing methods. Currently, it offers great potential for development, poultry health and welfare as well as production. Knowledge about host-pathogen interactions is said to provide a greater understanding of epigenetic biomarkers at a 'systems level'.

Moreover, researchers believe that an improved strategy for epigenetically preventive measures against disease will subsequently pave the way for more focused and efficient application of marker-assisted selection (MAS) or genomic selection in poultry breeding programmes.

# Malaysian Vaccines & Pharmaceuticals on latest developments

Muhaimin speaks about MVP's latest vaccine development, bouncing back post-Covid-19 and current market trends.

LONG WITH FEED quality, poultry health is also one among the many important factors that determine efficient poultry production. Using poultry vaccines can thus help protect flocks from deadly, contagious poultry diseases such as fowl pox, newcastle disease and infectious bronchitis. Abdul Muhaimin, head of corporate marketing division, Malaysian Vaccines and Pharmaceuticals (MVP) provides an insight into the latest vaccine developed by the company, their recovery from the scars that the Covid-19 pandemic had left on their business as well as the current post-pandemic market trends.

### Far Eastern Agriculture (FEAG): Can you tell us a bit about your company? Dr Abdul Muhaimin (AM): Malaysian Vaccines and Pharmaceuticals (MVP) is a veterinary vaccine manufacturer based in Malaysia and the only one in Malaysia. We have been operating for more than 30 years. Currently, we have 13 products of live attenuated and inactivated vaccines, mostly for poultry. We have been exporting to many countries in ASEAN, Middle East and some countries in Asia.

# FEAG: How did Covid-19 impact your business and what are the current market trends since the pandemic?

**AM:** MVP was affected by the Covid-19 pandemic, especially during the lockdown where we could not obtain the source of the raw materials due to unavailability of cargo flights. We were also unable to ship to certain countries due to the same reason. However, MVP was listed under essential services and could operate with condition during the lockdown. Now, MVP is slowly recovering the business similar to our customers and the order pattern for our vaccine products is almost



back to the way it was before the pandemic.

# FEAG: What are the latest products you have developed?

**AM:** Our latest product is MyHATCH UPM93, a live attenuated vaccine for Gumboro disease in poultry. It is an intermediate-plus vaccine from the local strain of a very virulent virus of the Malaysian farms.

# FEAG: How is your product unique and sustainable?

**AM**: This novel vaccine can be given to day-old chicks (DOC) and has the ability to penetrate maternally derived antibodies in chicks. Moreover, the vaccine does not have an antibody complex mechanism.

# We have 13 products of live attenuated and inactivated vaccines, mostly for poultry."

Hence, the nature of the virus strain would not be affected much by the maternally derived antibodies. One dose would be sufficient to provide protection in short rearing chickens such as broilers.

FEAG: What is the level of competition that you receive and from which region does your product receive maximum sales? AM: Our biggest customers for this product are Vietnam and Pakistan besides our local farm in Malaysia. Due to an overwhelming response and data from the countries using the product, we have now expanded the product to other countries and are currently in the process of registration.

# FEAG: Do you have any plans of expanding your business?

**AM:** MVP plans to upgrade its facilities to cater to the huge demands/orders from all its export countries. Furthermore, we will be having new facilities for inactivated vaccine plants and our marketing team is doing its best to acquire new export markets.

# Risk of spread of Asian longhorned tick increases

Asian longhorned ticks have been spreading across several US states and are causing concern among farmers and livestock producers.



**RIGINALLY FOUND IN** Asian countries such as Korea, Japan the Russian Far East and China, the Asian longhorned tick has now been identified in at least 17 US states. First reported in 2010 in the US, these ticks have been found on both humans and animals ranging from pets to livestock, becoming an issue in 2017 after being found on a sheep farm in New Jersey.

According to the Tick Research Lab of Pennsylvania, "the Asian longhorned tick looks very similar to the Brown dog tick and is often misidentified. The key distinguishing characteristic can be seen when looking at the palps. The palps will come to a sharp, outward point at the bottom where they meet the basic capituli."

It is still currently unknown to researchers what their natural habitat is, whether they prefer wooded or more open areas. It does appear, however, that the ticks are not particularly attracted to human skin, though the risk of transmission of disease through bite remains a possibility. Researchers are still uncertain whether these ticks can pass germs harmful to people.

A recent study determined that the tick is unlikely to be a contributor to the spread of Lyme disease in the US, although a different study did find the ability for the tick to carry bacteria commonly associated with Rocky Mountain spotted fever.

One of the key reasons for the rapid spread of the Asian longhorned tick in the US is attributed to their reproduction. The female can reproduce without a mate and lay thousands of eggs, eventually killing an

# One of the key reasons to the rapid spread of the Asian longhorned tick in the US is attributed to their reproduction."

animal from blood loss. This can wreak havoc amongst US cattle as they not only feed in extremely large numbers, but also have the potential of carrying an aggressive and otherwise 'foreign' pathogen known as Theileria Orientalis Ikeda, something US cattle have no natural defences for.

"It causes severe anaemia, much like [bovine] anaplasmosis. This presents very, very similarly. So, it can be hard to distinguish initially, but it does cause cattle losses as well," said Risa Pesapane, disease ecologist with The Ohio State University College of Veterinary, as reported in a WVXU news report by Mathew Rand.

"You're talking about them sucking the animal dry," added Tricyn Huntsman-Parker, a cattle farmer and veterinarian. "So if you have a young calf, and it gets a swarm of these, they'll kill it." Raising a calf can take up to two years until it generates income, so replacing one due to death caused by ticks can set farmers back several years if their cattle are affected. The risk is not just limited to livestock, as Pesapane stated. The ticks have been reported to have infested more than 26 animal species in the US. As the invasive species, it is likely the ticks will branch out to a wide variety of potential hosts, somewhat akin to a tasting menu to explore its new space. This increases the possibility of the transmission of human pathogens in addition to other diseases.

"We need to understand that where we are at now is different than where we used to be," said Ohio State University Extension educator, Timothy McDermott in the WVXU article. "We didn't really have worries that we were going to have disease vector to us for a tick bite a while back, and now those worries are real."

To help prevent the spread of ticks, McDermott said livestock producers should employ good grazing principles such as avoiding hyper-mature grass in pastures.

Farmers should ensure that the area surrounding pastures is clear of brush and

# Farmers should ensure that the area surrounding pastures is clear of brush and weeds kept short."

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weeds are kept short. Tick-dragging is also a method which smaller areas can utilise. It is a simple method in which a large white cloth is dragged across a suspected terrain infested by ticks and can usually remove thousands of ticks.

It is also important to "scout your animals and know them," McDermott added. Ticks often congregate on the front and backside of animals, so the perineum region, utters, face and ears should be frequently observed.

Beef Magazine reported Tony Hawkins, DVM, Technical Services Veterinarian at Valley Vet Supply instructed, "For the best tick control for your livestock, you should look at products containing organophosphates, such as coumaphos (found in Co-Ral) or phosmet (found in Prolate/Lintox-HD). Always remember to apply according to label instruction for maximal effect and safety. The best tick control for dogs will be from the isoxazolines such as Nexgard, Simparica, Bravecto, or Credelio. Be sure to speak with your veterinarian about obtaining a prescription for these medications."

To decrease the chance of infestation among humans, the Mayo Clinic advised using insect repellents which contain DEET, wearing clothing treated with 0.5% permethrin, staying on trails when hiking, and checking your clothing and body for ticks after being outdoors. It is also recommended to shower after spending time outdoors, especially after walking in wooded areas with vegetation and to remove ticks from oneself as soon as possible, if found.



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# FMD: A deadly disease that could devastate the agricultural economy



# Worried Australian livestock transporters request a temporary closure of Australia's border with Indonesia following FMD outbreak in Indonesia

**OLLOWING THE DEADLY** outbreak of the foot-and-mouth disease (FMD) in Indonesia, Australian livestock transporters have requested a temporary closure of the Australia-Indonesia border to prevent its spread in Australia. It is estimated that an outbreak in Australia would cost the livestock industry around US\$80bn. During the senate hearing, Mathew Munro, the Australian Livestock and Rural Transporters Association mentioned that such an outbreak would be 'devastating' for the whole agricultural economy.

FMD is a highly contagious viral cattle disease and one of the most feared in the world. Environmental resistance of the virus is what makes FMD so remarkable. Its ability to persist on objects such as clothing, shoes, livestock equipment and transport makes it highly transmittable, which means that everything that comes in contact with infected livestock can become contaminated.

FMD is also very painful since cattle that manage to catch the infection tend to develop blisters, which further progress to rupture and produce ulcers. This causes animals to drool and eventually stop walking and eating. Severity of the disease varies depending on the strain of the virus. A report published by The University of Sydney calls FMD a high morbidity, low mortality disease which can have a massive impact on economy.

# The NSW government has signed a deal with Tiba Biotech to source the world's first mRNA vaccine"

With the aim of protecting Australia's US\$28.7bn livestock industry, the NSW government recently announced signing a deal with US biotechnology company, Tiba Biotech to source the world's first mRNA vaccine for FMD and lumpy skin disease. "Our next generation RNA technology is able to safely and efficiently deliver vaccines for both human and animal health needs and has demonstrated more practical storage requirements than existing RNA technologies," stated Tiba co-founder Peter McGrath in a report published by *Region Riverina.* 

Meanwhile, it is important to strictly follow biosecurity practices to prevent FMD from entering your farm. Two important measures include restricting access by stopping entry of all animals into the farm, and observing, detecting and reporting any unusual signs immediately to the veterinarian. Maintaining hygiene through regular cleaning and disinfection of vehicles and equipments is also an essential step to prevent an outbreak.

# Nitrogen fertilisers: complex crop approaches to boost yield



Nitrogen fertilisers pose a number of questions to farmers – boosting yields comes with a price of stringency, monitoring, and consideration.

**ITROGEN HAS REVEALED** itself as the cream of the crop – a complex yet impressively effective tool at the disposal of farmers worldwide.

This rings true on the continent, where nitrogen fertiliser are even more effective than elsewhere. Warm soil temperatures consistently delivering at least 10°C can convert ammonium nitrogen to nitrate within as little as a month of application.

The effectiveness of utilising nitrogen fertilisers does, however, come with a price. Farmers must consider a number of factors when reapplying, including season, frequency of fertilisation, and type of fertiliser.

Nitrogen-based fertilisers commonly come in three forms.

In its purest nitrate (NO3) form, the

fertiliser dissolves in water, distributing in the soil with rainfall or watering. This fertiliser contains around 82% nitrogen.

Overwatering or rainfall washes nitrates downwards through soil profiles, meaning they may be drained into channels and lost

# The effectiveness of utilising nitrogen fertilisers does, however, come with a price. Farmers must consider a number of factors when reapplying."

for production. This process, known as 'leaching', with water flushing the nitrates so deep that it's no longer effective for plant roots.

Ammonia (NH3) and ammonium (NH4) forms utilise a compressed liquid form of ammonia gas, which, at the end of the process, offers around 34% nitrogen. When ammonia fertilisers are used for crops, the ammonia reacts with water in the soil, converting the fertiliser to ammonium. This fertiliser also requires caution.

Ammonia in water dissolves, and is free to escape into the air, and so must be injected under soil surfaces. Leaching is less of an issue with the utilisation of ammoniabased fertilisers, as ammonium (despite its solubility) attaches to organic matter and will not fall into drainage channels. In growing season, organisms in the soil convert the ammonium to nitrate, allowing it to be taken up by plants. This must be closely monitored, as pH neutral soil with moisture at 50% of holding capacity is the most effective to convert the ammonium to nitrates (nitrification). Optimal soil temperature sits around 26.7°C, potentially making it a more attractive option based on the continent's conditions.

The third most common form of nitrate fertiliser is urea (COCNH), offering approximately 46% nitrogen. Usually, this fertiliser sees nitrogen undergo a three-step process before being taken up by crops. Enzymes in the soil convert the urea to ammonia, before the ammonia reacts to the water in the soil to form ammonium. The final step sees the soil microorganisms convert the ammonium into nitrate.

In a similar manner to that of nitrate fertiliser, urea dissolves and moves with soil water, and therefore leaching remains a risk to implementing a urea fertilisation process on crops.

The conversion to ammonia usually takes between two and four days when soil moisture and temperature is optimal, meaning leaching losses are minimised by a rigorous soil monitoring approach.

When ammonia is formed from urea on the surface of soil, some fertiliser will escape into the air depending on conditions. Higher levels of alkaline in the soil can exacerbate these effects, along with higher soil temperature and low moisture levels. Farms with higher alkaline soil or dryer conditions may find more success with pure nitrate or ammonia fertilisers.

Difficulty arises during the long-term implementation of nitratebased fertilisers. Over time, ammonium nitrogen lower the soil's pH levels, making it more acidic. While farmers will enjoy more fruitful yields, conditions must continue to be monitored and neutralisers may be required long-term. Other ammonia solutions, notably urea, will form acidic residue, making topsoil layers more acidic than deeper layers. Soil should be tested bi-annually to ensure optimal conditions are retained.

The benefits of choosing the appropriate fertiliser programmes will be clear to see after implementation. Nitrogen supports rapid growth of all plants, especially crop yields in agriculture. Young plants will develop much quicker under nitrogen fertilisers, meaning yields can be developed in a much smaller time frame. The widespread implementation of these fertilisers could be one solution to the low yield and food crisis facing the continent.

Historically, nitrate-based fertiliser have come in granular form, distributed sporadically across soil. This method, while serving its purpose, is likely to be replaced by distribution of pure liquid nitrogen.

Liquid distribution does not require the optimal conditions of granular fertilisers. Sprayers can distribute liquid nitrogen regardless of weather, and, providing soil quality is maintained, can be more effective and equal than granular distribution.

Distributing liquid nitrogen across a yield guarantees a higher level of accuracy across the field. Delivering liquid nitrogen directly to crops offers farmers more control, as nozzles can be adjusted to

# Distributing liquid nitrogen across a yield guarantees a higher level of accuracy across the field."



Liquid fertilising guarantees a higher level of control for farmers.

increase droplet size. A more consistent load is delivered by largersize nozzles, rather than the sporadic distribution of granular fertilisers. This reduces the wastage and resulting drop in yields or lodged crops of granular fertilisers.

While integrating nitrate fertilisers requires a stringent and multifaceted approach on behalf of farmers, it is a path to reaping the rewards of a far bigger yield.



# Think, farm and grow vertically: The future of sustainable agriculture



As agricultural sustainability reaches rock bottom, farming upwards offers hope.

WWITH THE EMERGENCE of technology, farming is fast becoming smart and less labour intensive. Crop forecasting and management through the use of traditional farming techniques is becoming increasingly challenging by the day, especially when faced with unexpected calamities like floods and draughts. This is where vertical farming comes into picture.

As the name suggests, vertical farming involves growing crops in vertically in an optimised, controlled environment indoors as opposed to traditional farming where crops are grown horizontally. This farming technique evolved from the concept of hanging gardens that adorned the city of Babylon around 2,500 years ago. In comparison to traditional farming, vertical farming offers multiple benefits. When we look at crop production for example, vertical farming enables yield to remain stable throughout the year. In addition to this, the technique consumes 99% less water and takes up lesser space when compared to traditional farming. Furthermore, the enclosed and optimised environment in which the crops are grown proofs them from the influences of natural disasters and climate change.

However, this technique also comes with its fair share of disadvantages; with one of the major drawbacks being its huge reliance on technology. In fact, vertical farming

# Taiwan has recently started converting vacant metro spaces into vertical farms."

relies on not just one, but a variety of technologies for lighting, temperature retention and humidity. As a result, the technique requires significant investment and may often become difficult to afford. Risks such as power failure are common and can stop the growing process. Hence, solutions are now being developed to recycle the solar energy of the indoor farm during night time.

Despite these challenges, vertical farming has grown to popularity in the recent years. Countries like Taiwan have recently started converting vacant metro spaces into vertical farms to grow sustainable, clean and organic food that is high in demand. In a report published by euronews.green, Julia Yang, an executive of Unimicron Technology, the company behind the 40 sq m 'Metro Fresh' hydroponic farm at Nanjing-Fushing Station in Taipei, stated that the inevitable need to use pesticides and herbicides was one of the biggest concerns when it came to traditional land-based farming. On the other hand, vertical farms such as Metro Fresh used LED lighting to grow lettuce in a sterile environment without the use of pesticides and herbicides.

Moreover, densely populated countries like Taiwan, which has a population of 23.57 million people and a surface area of only 36,197 sq km, will greatly benefit from techniques such as vertical farming since efficient use of space is crucial for the nation's growth and self-sufficiency.

Recently, several countries, such as the Philippines have also adopted vertical farming into their agricultural systems. On 23 June, 2022, the Department of Agriculture (DA)'s Bureau of Agricultural Research provided an initial funding of US\$51,013, and launched an indoor vertical farming garden in Makati City, Philippines. The project would be implemented both as a production site and learning centre, with food security not only being a concern for farmers and fisherfolk, but everyone's responsibility.

Apart from growing food for human consumption, vertical farming can also be used to grow fodder for feed production. Therefore, this technique could help alleviate feed production challenges and address key issues including sustainability

## Vertical farming can be used to grow fodder, thus alleviating feed production challenges."

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and supply chain disruptions. In a report published by Feed Strategy, Walid Saad, CEO and co-founder of Dubai-based vertical farming company, World of Farming (WoF) stated that regions like the UAE and the wider GCC region that have an arid climate largely depend on international imports to feed their animals. Therefore, vertical farming techniques could efficiently reduce farmers' reliance on imported fodder, while simultaneously ensuring a significant enhancement in meat quality.

Now, considering the role of vertical farming to boost food sustainability, it is evident that this technique enables healthier food to become less expensive and more accessible, which is a huge plus point, given the delicate nature of food supply chains. In case of traditional farming techniques, supply chains tend to become stretched since high demand foods can only be grown in certain climates. This leads to higher



Vertical farms use LED lighting to grow crops in a sterile environment without the use of pesticides and herbicides.

carbon emissions, in turn increasing the overall carbon footprint. & ever, a vertical farming company based in Hamburg, Germany uses sensors to gather a variety of data such as temperature, humidity, soil quality, air flow and air quality from every aspect of the vertical farm, to optimise nutritional value, yield and availability of its produce.

Another Singapore-based agtech company, Singrow, on 12 October, announced the launch of its new consumer brand 'Blooom', as well as its plans to expand across and beyond Asia. Singrow's primary focus is to revolutionise urban vertical farms of the world through the use of plant technology and science, thus reducing the global ecological footprint. Over the next 15 months, the company plans to increase its farm footprint to the Philippines, Hong Kong, Thailand and the Middle East, boosting production along the way. Through its patented agricultural technology five-fold, Singrow expects to enhance the production capabilities of climate-agonistic produce. The launch of its new consumer concept brand 'Blooom' also ensures the supply of superior quality produce having premium flavour which is grown through sustainable, energy-efficient farming methods.

Singrow is also establishing a Memorandum of Understanding (MoU) with RSP Architects who designed awardwinning structures in Singapore. Through this partnership, the two companies plan to introduce new opportunities for urban farming within commercial spaces in Singapore and China. "Through this partnership with Singrow, RSP is able to further our capabilities in sustainability and contribute towards Singapore's food security efforts of '30 by 30'," said managing director of RSP Singapore, Beh Swee Chiew, in a report published by Vertical Farm Daily.

He also emphasised that their partnership was a natural decision, given that sustainability was a key factor in their design approach. Shi Lu, managing director of RSP China also stated that that the introduction of Singrow's vertical farms within buildings would provide occupants and visitors a first-hand experience with nature within an urban setting. Moreover, she also pointed out that their plans were in-line with China's urban renewal, rural revitalisation projects and carbon reduction objectives.

# **AOUACULTURE**

# Healthy for both diet and environment



mage Credit: Adobe Stocl

A Singapore-based start-up has found a sustainable way to cultivate shrimp, while keeping its natural flavour, texture and nutrients intact.

HRIMP AQUACULTURE **PREVAILS** in many countries of the Far East, besides India, Bangladesh, Brazil and Equador. With farmed shrimp dominating 55% of the shrimp produced globally, the industry brings home a considerable amount of income for these countries.

Shrimp farming can lead to the accumulation of organic waste, chemicals and antibiotics, which will inevitably result in groundwater pollution. This can shake the very foundation of wasteland ecosystems, completely altering the hydrology which defines them.

Farmed shrimp are mostly generated from two species - Penaeus vannamei (Pacific white shrimp) and Penaeus monodon (giant tiger prawn), both of which are disease-prone. When shrimps become infected, they would swim on the surface, rather than at the bottom of a pond. Those disease-bearing shrimps would

then attract seagulls, which continue to spread the pathogens after consumption and defecation.

Fish stocks used in the formulated feed for shrimp diets have very high environmental value, mainly because they are near the base of the marine food chain. Additional damage can occur by shrimp farmers who capture young wild shrimp to stock their shrimp ponds, thus further depleting local populations of fish.

On top of that, shrimp farming also adds its share to the woes of global warming. Research has shown that 30% of

# **Given the huge** commercial value of shrimp, WWF stepped in to ensure that it is produced responsibly."

the destruction of mangroves - a powerful carbon sink - and coastal land-use change in southeast Asia have been attributed to shrimp farming, and as this much-loved sea food travels across the world to reach consumers' doorsteps, they leave a trail of carbon footprint, long enough to make some irretrievable damage.

Given the huge commercial value of shrimp, WWF stepped in to ensure that it is produced responsibly. It came into the picture from 2007 onwards, and brought together stakeholders to seek answers to the challenges involved in shrimp farming. It organised roundtables, held workshops to support the farming communities, addressed the pressing issues of biodiversity, wetland conversion, deforestation and the use of antibiotics over the next six years. One of the important steps taken, involved limiting the use of forage fish in dietary fishmeal.

The organisation is also trying to bring small farms, approximately 50-60, under one unit so as to reduce certification cost. Recognition under the Aquaculture Stewardship Council (ASC) based on field

testing is important in distinguishing the scale of the farms, be it small or multinational. It also engages with grocery chains, brands and restaurants to buy farmed shrimp that meets the standards of production.

A Singapore-based start-up named Vertical Oceans has come up with an environment-friendly option for cultivating shrimp. It has developed algorithms which can enable shrimp production in autonomous tanks installed near onshore demand centres like Las Vegas or Tokyo, eliminating ocean discharge. The locally grown food is first harvested and then delivered on the same day to the customer.

This process has the capacity to completely wipe out the vast quantity of chemicals, faeces and antibiotics that are generated from shrimp farming on the coastlines, which ultimately goes into the sea and creates pollution.

"We're demonstrating what the future of efficient protein production could look like," said the co-founder and CEO of the organisation, John Diener.

The aim of Vertical Oceans is to produce high-quality seafood while ensuring that the water bodies don't become contaminated and the vast ecosystem that comes with it is spared of toxins. The organisation's approach involves a system that uses no chemicals, antibiotics, or hormones, neither do they use preservatives

# Vertical Oceans has produced about one metric ton of shrimp through a proof-ofconcept project."

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or add water. Rather, it sets up a balanced aquatic ecosystem to nurture their prime item 'King Prawns', presenting them in a much healthier and tastier manner than is possible in traditional farming, it is allnatural, head-on, shell-on prawns with their natural flavour, texture and nutrients intact. The organisation has won the confidence of many customers in terms of hygiene, cleanliness and sustainability.

The team has taken it upon themselves to keep the oceans pure for generations to come, instead of polluting it with plastic and sewage. "Our mission starts with doing our part to protect our marine resources. Our aquatic ecosystem produces no effluent to pollute local water, and our feed contains only sustainable ingredients; no wild-caught fishmeal or other unsustainable materials. We strive to set a new standard in aquaculture that's viable enough to replace prawns caught in the wild and revolutionise an industry known to neglect our environment. Our same-day fresh, greattasting sustainable King Prawns farmed in



Vertical Ocean uses a balanced acquatic ecosystem to nurture their 'King Prawns'.

our Vertical Oceans is the first step in that mission," reads their website.

Resembling the size of a school bus, Vertical Oceans' tanks aerate and recirculate the water, feed the shrimp and use macroalgae like umibudo to consume nitrogen, phosphorus and feces, eliminating the need to discharge waste water, explains Diener. The company claims that they use no chemicals or antibiotics in the production process, thus assuring a healthy aquatic ecosystem. "The reason we're able to avoid bacterial pathogenic problems is largely because we've got this healthy and more balanced ecosystem," said Diener.

So far, the company has produced about one metric ton of shrimp through a proofof-concept project from a small recreational island off the coast of Singapore. Its customer base is majorly in southeast Asia, besides delivering to a restaurant in Singapore.

Vertical Oceans has made a smart move in cashing in on the huge demand for shrimp, while coming up with a sustainable solution. Speaking at a recent interview, Diener said, "Some of our technologies could be adapted to traditional pond aquaculture, but our focus is to use our technology to grow shrimp in our vertical oceans. Shrimp producers are increasingly adopting technology to improve their profits. A lot of this is market-making apps, which better align margins across the value chain. That's a good first step in technology adoption in farms, which historically were slow technology adopters.

"Overall, we do see a shift towards higher stocking densities, and that does require better management, where technology can assist. I will give away one bit of free technology to these farms: one of the simplest and most-effective technologies pond aquaculture could adopt to have a settlement pond for bioremediation of their effluent before releasing it into the ocean. That one step could have a bigger impact than any digital or IoT technology. Grow tilapia and milkfish in those ponds to consume the organics, and it becomes economically productive. It baffles me that many farmers still don't do this."

Speaking of the growing industry demand, Diener said, "It's now plausible that large markets like the U.S. could see a majority of its shrimp locally produced in sustainable recirculating systems like Vertical Oceans'. You couldn't say that five years ago."

# **BUYERS' GUIDE**

Section 01

Section 02

# PIG **BUYERS' GUIDE**

2022

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# Roxell introduces Fortena chain feeding system for broilers



The Fortena chain is a unique and innovative design from Roxell.

ROXELL, THE LEADING manufacturer of automatic feeding, drinking, nesting, heating and ventilation systems launches the Fortena chain feeding system for broiler breeders in the production period.

The Fortena chain feeding system is an innovative chain feeding system that improves and speeds up the feed intake of the hens and reduces residual feed.

"We have been working hard on broadening the range for 10 years. The excellent performance of pan feeding systems is an indisputable advantage," said Frank Hartmann, marketing manager at Roxell. "However, those who opt for ease of use and visibility will find an excellent alternative in our chain feeding system. A chain feeding system therefore also belongs in a 360° product range," he added. He further mentioned that Roxell today had a solution for every need.

Inge Van Daele, product manager at Roxell mentioned that their feeding experts had worked on the design of the chain, feed trough and corner wheels which is why the feed intake had significantly improved with Fortena. This was due to the greater ease with which hens ate. The feed remained intact better and the hens could get to the feed more easily. "Moreover, the new corner wheels require hardly any maintenance. Finally, we use high-quality materials and techniques to guarantee the longevity for which Roxell is known," she added. It is also extra durable and easy to use with limited wear on the chain.

# Vietnam, Filand agricultural cooperation strengthens

ON 10 OCTOBER, Minister of Agriculture and Rural Development Le Minh Hoan organised a discussion with Finnish Minister of Agriculture and Forestry Antti Kurvinen to talk about issues of mutual concern, including sustainable forest development.

The two sides signed a memorandum of understanding between Vietnam and Finland. Minister Le Minh Hoan thanked the Finnish Ministry of Agriculture and Forestry for supporting Vietnam in human resource training and implementation of projects related to national forest information data, thus creating a basis for the Vietnamese forestry sector to effectively manage forest information systems. The signed memorandum states that the two countries will carry on with cooperation programs and continue contributing to promoting trade cooperation in agriculture between Vietnam and Finland.

Speaking at the signing ceremony, Minister of Antti Kurvinen mentioned that the commercial scale in agriculture was still modest despite Vietnam and Finland both having strengths in agriculture, forestry and fishery. He hoped that the memorandum would help them strengthen cooperation in the forestry sector between the two countries. Finland will support Vietnam to implement its commitments at COP 26.

# ADB to support sustainable agriculture in Yellow River Basin, PRC



Costing a total of US\$355.8mn, the project is expected to be completed in 2028.

THE ASIAN DEVELOPMENT Bank (ADB) has approved a US\$157mn loan to improve sustainable agricultural production systems in the Yellow River basin in the People's Republic of China (PRC). The Yellow River Basin Green Farmland and High-Quality Agriculture Development Project will support sustainable agriculture development by enabling environmentally sustainable and climate-resilient agricultural production practices that balance food production with environmental protection and rehabilitation. It will also strengthen agricultural value chains for vital rural agribusiness. The Yellow River Basin faces increasing challenges to balance the needs of the economy, ecology, and community, while striving to meet its sustainable development potential. "An integrated approach is needed to improve ecosystem services and socioeconomic conditions in the Yellow River Basin, including strengthening institutions, enacting policy reforms, and leveraging private sector solutions," said ADB Senior Natural Resources Economist for East Asia Jan Hinrichs. The project will invest in developing medium- to high-quality farmland, providing equipment and facilities.

# Upgrades to baling equipment means a sustainable solution for waste rice straw

Due to the environmental challenges burning waste rice straw presents, he baling industry is looking ahead in how to make the process more sustainable

> Baling in the only successful method in the handling of rice straw.

**S IT IS** the only successful method used in the handling of rice straw, baling has continued to attract attention away from the concerns associated with the environmental impacts of open burning for disposal. Baling offers an efficient way in removing the waste straw from the earth as quickly as possible to allow for the treatment of the soil for the establishment of the following year's crops.

The process of baling encompasses the packaging of the straw in order to facilitate efficient handling, the transport and the storage of the crop. To carry out this practice, a baler is used to compress the straw.

The classification of balers can vary depending on the requirements. They are divided into stationary balers, which are grouted in one place with the material being brought to the machine; movable baler; and field balers, which rely on the hydraulic power in order to adjust the height of the finger reel and be positioned. Balers are further classified by the shape of bale they produce. Round balers can be classified into long-belt, short-belt, chain and roller types. Long-belt and chain types work via inside winding, while short-belt and roller are operated using outside winding. Bales are formed inside the machine, with the chamber remaining shut until the desired density is reached. Once the bale is tied off, the rear gate opens and the bale is pushed out by the next bale being formed.

In terms of small and large square balers, the straw enters through the pickup, and

# Baling offers an efficient way to remove waste rice straw from the earth as quickly as possible"

the teeth gently rake the straw from the ground to prevent leaves and debris going into the baler. The compressor bar follows the pickup, holding the straw in place so it can feed into the bale chamber which contains a plunger which compresses and packs the straw into the desired shape. Once the correct shape has been achieved, a mechanism wraps the bale in two lengths of twine to tie it securely. The bale is then pushed down the bale chute onto the ground. The small square balers operate to the right of the tractor, whereas the large balers operate directly behind it.

### Upgrades for square balers

Leading agricultural machinery brand, Massey Ferguson, has released new upgrades of its series of small and large square balers. Firstly, they have significantly enhanced their MF 2200 Series large square balers with the aim to improve the ease of use, durability and performance.

"Massey Ferguson's MF 2200 Series set

the large square baler standard. The balers have a great reputation among professional users for not only reliability and their ability to make consistent, high quality bales, but also for delivering low ownership costs," said Jerôme Aubrion, marketing director, Massey Ferguson, Europe and Middle East.

"These new balers benefit from a range of new components, well proven on the renowned Massey Ferguson MF Ultra HD models, which further improve durability. "Throughout the machine, numerous other updates boost capacity and performance. Also, the new axle makes the MF 2200 Series balers now less than 3 m wide on the largest tyres."

Key features of the newly enhanced MF 2200 Series include a new BaleCentre terminal display which allows operators to set-up and monitor functions via three work screens, an electronic bale length setting, the latest tandem axle and suspension design, a high capacity pick-up in a smaller size that will improve the crop flow and increase performance, and larger, more robust maintenance-free bearings and components from the high capacity MF Ultra HD baler range.

Also, the company has launched a premium MF 1842S high capacity, inline small square baler. The new model promises to deliver exceptional outputs for maximum performance.

"Developed by baler specialists at the renowned Hesston factory, the MF 1842S is a premium, super-heavy duty machine, capable of making the highest number of bales to secure crop quality in tight operating windows," said Aubrion.

"Engineered to the highest standards, the new MF 1842S employs well-proven high capacity components from the MF

# The project will generate biogas as clean energy from waste rice straw and provide an innovation package of technology services for rice farmers."

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185 large square baler and other models sold in North America. These combine to deliver considerably higher outputs for operators needing significant extra feeding capacity, much greater outputs and higher densities, if required."

Key features of the MF 1842S include a new intake which increases capacity up to 20%, new substantial heavy-duty driveline, high inertia flywheel, gearbox and plunger, 20% higher density, and high capacity dual feeding forks.

### Efficient use of waste rice straw

Due to the environmental challenges burning waste rice straw presents, it is vital to find an efficient way to remove the crop quickly. Laguna, a Philippine government-hosted organisation have embarked on a project to make clean energy

MASSEY FERGUSC

accessible to remote rural communities in the form of a 'Rice Straw Biogas Hub'. Dr. Glenn Gregorio, director of Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (Searca), said the project will generate biogas as clean energy from waste rice straw and provide an innovative package of technology services for rice farmers.

He explained the Rice Straw Biogas Hub will demonstrate efficient removal of waste rice straw from farmers' fields and the conversion into eco-friendly, commercially viable products, focused on biogas. He added that the hub will introduce the package of rice technologies from efficient grain and straw harvesting, to biogas-powered drying and storage, to efficient milling.

"With this, it is envisioned that farmers could triple incomes while protecting the environment. Through an affordable, valueadding commercial business model, farmers will avoid buying and maintaining expensive equipment," he said.

The project, fucnded by Innovate UK under the auspices of the United Kingdom Research and Innovation organisation, is gearing up for its first commercial scale in this province, which began in September, 2022.

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The MF 1842S Series of small square balers deliver high outputs at excellent quality.
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mage Credit: Massey Fergusor

# Roxell launches new Dos7 dispenser for sows

### ROXELL'S INNOVATION

DEPARTMENT is focused on ensuring high precision feeding which results in the absolute best sow condition and lower feed consumption. The company has launched the new Dos7 dispenser, which is easy to clean, thus increasing the hygiene levels in the house and reducing the need for antibiotics. Durability and performance are central to this new design, as in all of Roxell's systems.

"Our updated Dos7 dispenser is designed for modern pig farming," said Ludo Bosschaerts, product manager at Roxell. "Our R&D department built an entirely new dispenser aimed at perfecting feeding. If each dispenser avoids giving too much or too little feed, you can gain



Dos7 dispenser is designed for modern pig farming.

massive savings that way." Bosschaerts further stated that Dos7 was one of their top products in the pig segment. In fact, the model was being used by numerous farms for decades and could be found at pig farms on all continents. "This new Dos7 dispenser was built with the same philosophy because quality and durability are important values for us," he added.

In the insemination, gestation and farrowing houses, the dispenser can be set to follow a high precision (up to 0.1 litres) feeding regime of your choice, with one or more feeding times per day. Moreover, the device is capable of handling all types of feed, including treat foods and enrichment materials, such as wood pellets, to improve animal well-being. The feed volume can also be adjusted manually with the easy-toread level slide. In the insemination and farrowing house, feed volume can be controlled automatically. In this case, software is used to set a feed curve per sow.

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# Promoting food security through cellular agriculture

Food produced through cellular agriculture is safer.

## Cellular agriculture may have the potential to solve food security challenges.

ELLULAR AGRICULTURE

**REFERS** to the process of using cell culture to produce animal-sourced products. This technique is believed to be a potential solution for global food security challenges.

The primary requirement of global food security is for food to be accessible, available, utilised and stable for everyone. While on the path towards meeting these requirements, the past decade has seen an increased interest in cellular agriculture as a reliable alternative to animal-sourced food products such as meat, seafood, dairy and eggs.

Food production through cellular agriculture has numerous benefits. Firstly, food produced through this technique is safer since it manages to circumvent some of the most dangerous pathways for diseases in human history. Moreover, since isolated products are produced within a bioreactor, minimum biowaste is generated. Secondly, cellular agriculture is found to be more resilient to supply chain disruptions when compared to animal-sourced industries. Lastly, the nutritional value of cultured meat products is higher when compared to their animal-sourced counterparts.

When it comes to food security, there are three supply systems namely centralised, decentralised, and distributed supply systems that cellular agriculture companies may choose to adapt. Therefore, the degree to which cellular agriculture can promote food security will depend on which among the three supply systems cell agriculture companies may adapt. Also, there are a number of challenges that come into picture. For instance, there is still a question

# An MOU was signed to officially use the term 'cultivated' while referring to cell cultured animal products."

regarding whether or not significant supplies of food can be produced at an affordable price through this technique. In order to reduce carbon footprint, bioreactors also need to stick to using clean and resilient sources of energy. In addition, contaminants and product safety are also factors that need to be addressed prior to regulatory approval.

On the positive side, cellular agriculture has seen some recent developments. At a regional symposium in Singapore, leading stakeholders of APAC cellular agriculture reached an agreement and signed a memorandum of understanding (MOU) to officially use the term 'cultivated' while referring to food products grown directly from animal cells. The MOU aims to minimize miscommunication and allow products cultivated from animal cells to reach their full potential to improve food security, mitigate environmental degradation, and alleviate global poverty. It can also help people to clearly distinguish animal cellcultivated food products from those that already exist in the marketplace.



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