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Far Eastern Agriculture

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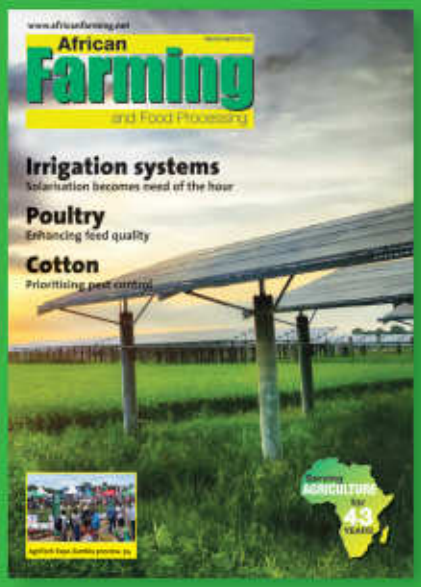
THE MAGAZINE SERVING AFRICA'S AGRICULTURAL COMMUNITY



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Asia's largest livestock show, CAHE is all set to kick off on 18 May in Chengdu, China

Image Credit: CAHE

CAHE can be the most perfect platform to know about the Chinese livestock industry.

CHINA ANIMAL HUSBANDRY Expo, also known as 'CAHE' around the world will be held from 18-20 May 2023, at the International Exhibition Centre of Western China International Expo City in Chengdu, China.

The exhibition scope covers the entire livestock chain from farm to table, including animal breeding (pig, poultry, cattle, sheep and goat, rabbit, deer, camel, etc.), animal health, animal housing, feed and feed additives, feed processing, grain and raw material, processing equipment, meat processing, packaging, refrigeration, meat products, egg products, grass and seed, media, knowledge transfer, consultancy, bio-energy, etc.

Nowadays, modern information technologies and digital networks have been widely used in many agricultural fields. Keeping the trend in mind, the CAHE organising committee has launched a new exhibition system which provides various online services such as selecting booths, generating your own H5 page, collecting the tickets, displaying the exhibits in advance, getting the relative exhibition information and so on.

The exhibition concept, service and exhibition content is constantly pioneering and innovating, enriching the connotation, making the exhibition always at the forefront of the industry, and playing a huge role in promoting the development of the industry and foreign exchanges.

Covering a total area of 230,000 sq m, the exhibition comprises of 16 indoor exhibition halls, seven outdoor greenhouses, and 5,000 sq m of raw space booths displaying various transport vehicles, fermentation tanks, feed towers and other equipment.

During the event, numerous livestock related international conferences such as the China Conference on Intelligent Animal Husbandry Development, China Animal Husbandry Technology Forum and New Productions and New Technology Conference, among many others, will be held. Meanwhile, the CAHE organising committee will be cooperating with more than 70 professional media, magazines and large enterprises to help promote CAHE and organise a wide range of seminars, workshops, field visits, and press conferences.

Since 2014, CAHE has been officially approved by the Ministry of Commerce to be China International Animal Husbandry Expo. Therefore, with the scale and influence of CAHE improving every year, it has now become the largest and most influential livestock event in Asia.

For more information about the event, visit: http://www.caaa.com.cn/

VIV Asia 2023: Success underpinning the leading market position

The event delivered a dynamic, and expansive marketplace to 47,527 attendees which featured Feed to Food products and services from more than 1,186 global manufacturers and suppliers representing over 57 countries.

VIV ASIA 2023 concluded successfully, as a robust platform for B2B international business. Over three days, the show facilitated face-to-face interactions, networking, knowledge-sharing, and a lively marketplace in Bangkok, Thailand. With 47,527 visitors from 112 countries, the event maintained its stable attendance and even slightly exceeded the previous edition. Despite the global circumstances and the past three long years of Covid-19 restrictions, the show's international appeal for the Feed to Food industry remained evident, confirming its significance as a World Expo.

The event featured more than 1,186 exhibitors from 57 countries, representing five continents, showcasing the latest developments in their respective sectors in the three Challenger halls at Thailand's mega-venue IMPACT, in a collective of more than 31,544sq m exhibiting space. In addition, the co-location with Meat Pro Asia, the premier trade platform for processing and packaging solution in the meat industry consolidating the Feed to Food industry under one roof. The animal protein sector responded positively to this powerful co-location, resulting in high attendance. This achievement represents another significant milestone in the VIV global series of events. "VIV Asia is the first VIV show in 2023 and it represents – and rightfully so – our goal to connect the markets, and enhance industry trade both locally and globally," stated Birgit Horn, managing director of VIV Worldwide, during the event.

"It's always pleasing when a new trade fair is warmly received, and this was certainly the case with this first edition of Meat Pro Asia," adds Mr Richard Li, executive director, Messe Frankfurt (HK) Ltd. "More importantly, however, it was encouraging to see a high number of energetic business discussions taking place throughout the fairground. From the feedback we've received, it's clear that holding these two fairs concurrently is popular among buyers and exhibitors alike – it consolidates so many resources together in one place. I think everybody will conclude that Meat Pro Asia is a valuable new addition to the trade fair calendar in South East Asia."

A global feed and food system reimagined

VIV Asia serves as the primary platform for sector leaders in Asia to showcase their latest developments. This year's innovations spanned a wide range of topics, including safe and effective farming automation tools, ingenious medical and medicinal products, and efficient broiler house control systems. Other exciting innovation-related events included a regional seminar on Innovations in Good Farming led by the Federation of Asian Veterinary Association, as well as a seminar presented by Tony Hunter of Future Cubed on new technologies for a future sustainable and equitable global food system. "We need to reimagine the food system using the new technology. The industry needs to think about this issue as they are in the business of supplying food. VIV Asia and Meat Pro Asia is a really great place to gather new information on this new and important topic. I am very impressed with the show," commented Hunter.

> **"Knowledge-stacked programmes were a major highlight at the event."**

Image Credit: VIV Asia

VIV Asia serves as the primary platform for sector leaders in Asia to showcase their latest developments.

Knowledge-stacked programmes were a major highlight at the event. With more than 120 sessions spread over four days, attendees could gain an all-round understanding on industry insights, technologies and best practices. The day before the show, the Aquatic Asia Conference organised by International Aquafeed of Perendale Publications and VIV, featured a variety of industry experts with captivating presentations on the latest in fish and shrimp nutrition. On the first day of the show, the Asian Inspiration brought together key speakers that discussed the latest on local and sustainable farming based on the Netherlands model. Most of the sessions were fully booked with very few possibilities of walk-ins finding availability – a fact that showed the importance of the sessions presented during VIV Asia to an audience that is keen on learning and following the industry trends.

Looking ahead, VIV Asia will return from 12-14 March, 2025, carrying on the tradition of providing a premier platform for the animal protein industry to connect, learn, and innovate. VIV Asia will undoubtedly be another landmark event in the VIV series of events around the world, with a strong commitment to delivering a top-quality trade show and knowledge programmes.

The show organising team, its partners, which included over 60 industry media titles, 45 global industry associations, and the exhibitors, are grateful to everyone who came out to support this event in Bangkok. ■

Food Price Index results so far for 2023

THE FAO FOOD Price Index (FFPI) averaged 126.9 points in March 2023, down 2.8 points (2.1%) from February, marking the twelfth consecutive monthly decline since reaching its peak one year ago. During the past 12 months since March 2022, the index has fallen by as much as 32.8 points (20.5%). The decline in the index in March was led by drops in the cereal, vegetable oil and dairy price indices, while those of sugar and meat increased.

The FAO Cereal Price Index averaged 138.6 points in March, down 8.2 points (5.6%) from February and 31.6 points (18.6%) below the previous March benchmark. April's decrease reflects a fall in international prices of all major cereals. International wheat prices fell the most, by 7.1%, driven by ample global supplies and strong competition among exporters.

The FAO Vegetable Oil Price Index averaged 131.8 points in March, down 4.1 points (3.0%) from February and standing as much as 47.7% below its level a year ago. The decrease in the index was the net result of lower soy, rapeseed and sunflower oil quotations as opposed to offsetting higher world palm oil prices.

The FAO Dairy Price Index averaged

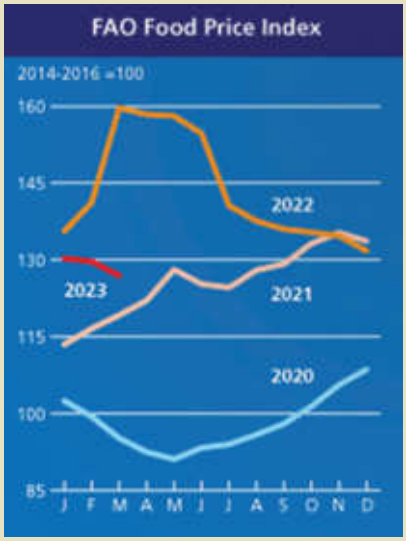


Image Credit: FAO

130.3 points in March, down 1.1 points (0.8%) from February and standing 15.6 points (10.7%) below its level in the corresponding month a year ago. The decline in March was driven by lower price quotations for cheese and milk powders, while butter prices increased.

The FAO Meat Price Index averaged 113.0 points in March, slightly up (0.9 points and 0.8%) from February, but down 6.3 points (5.3%) from one year ago. In March, price quotations for bovine meat increased, influenced by rising internal prices in the US, where cattle supply is expected to be lower in the months ahead. Pig meat prices increased slightly, mainly due to higher prices in Europe in conjunction with the continued supply limitations and increased pre-Easter demand. By contrast, poultry meat prices fell for the ninth successive month on subdued global import demand, despite supply challenges amid widespread avian influenza outbreaks in several large exporting countries.

The FAO Sugar Price Index averaged 127.0 points in March, up 1.8 points (1.5%) from February, marking the second consecutive monthly increase and reaching its highest level since October 2016. The increase in prices mostly resulted from concerns over lower global availabilities of sugar in the 2022/23 season, following declining production prospects in India, Thailand and China.

However, the positive outlook for the sugarcane crops in Brazil, which are about to be harvested, limited the upward pressure on world sugar prices.

ILDEX Philippines 2023: Showcasing the latest in livestock technology

ILDEX PHILIPPINES 2023, the showcase for the latest technology & seminars for the poultry industry, livestock and dairy products, is set to showcase 100+ exhibitors from more than 20 countries worldwide from 7-9 June 2023. These exhibitors include leading animal health, breeding and hatching, farm production, and feed ingredient and additive companies in the Philippines.

Some of the feed ingredients and additives/feed production/feed tech breeding businesses that will be exhibiting at ILDEX Philippines 2023 include Arca Galleon Agriventures Inc.; Easy Bio Philippines Inc.; G-VET Marketing Inc.; Inphilco Inc.; Kemin Industries; Nezus Philippines Corporation; Promax International Corporation; Pure Bioscience Phils. Inc.; Superiorvet Inc.; UNAHCO Inc.; PRYMARK; Vethealth Corp.; Animal Care Eco System; Amazon Marketing Corp.; Interfarma Nutraceuticals Inc.; Golden Petals Agricultural Farm Equipment Trading; Brookdale Farms; Cargill Phils.; CBPM Engineering/VSM; CJ Bio; Cobb; Diconex Phils. Inc.; and Philmico Animal Health.

The event is also set to draw interest from stakeholders across Asia, with strong support from both local industry and international federations. The organisers have invited potential stakeholders to attend the show and connect with the global livestock community

Image Credit: ILDEX Philippines

The event will take place from 7-9 June 2023.

through the VIV CONNECT Application by VIV worldwide.

Furthermore, ILDEX Shows announced the opening of its Hosted Buyer Programme. This special campaign invites potential buyers from the poultry and livestock industry to visit the exhibition and explore investment opportunities in livestock equipment, new services, and technologies for their farms or companies.

AGRICONNECT 2023 to trigger visionary ideas on agriculture 4.0

TODAY, MANY GOVERNMENTAL institutions are promoting the faster implementation of the concept of agriculture 4.0. Regional integration in economic cooperation, food trade development, and agri-innovations for sustainable food production are boosted by the Association of Southeast Asian Nations in all Southeast-Asian countries.

The AGRICONNECT Conference & Exhibition will address these topics with influential stakeholders to be better prepared for tomorrow's challenges in the agri-business and tackle the impacts on the environment. Participants can share their smart solutions that would positively impact the challenges faced by the region in one of the seminars and leverage the exhibition and side events to extend network.

Coming from 24-25 May in Bangkok, AGRICONNECT aims to explore eco-efficiency solutions for environmental farming businesses. There will be insightful sessions on environmental protection, which will delve into cost-effective agri-environmental policies, Water management issues in agriculture, ways to deal with climate change challenges, preserving biodiversity and managing ecosystem services related to agriculture, and sustainability and productivity growth goals.

On the economy and social equity front, experts will look into the concept of economic and social equity; agriculture production, deforestation, and land conflicts, and the effects of agricultural social services on sustainable agricultural practice adoption among smallholder farmers.

Image Credit: Adobe Stock

Innovation in smart agriculture will be one of the most anticipated topics of discussion at the event.

Other areas of discussion include enhancing biodiversity, essential innovation in smart agriculture, and agri-finance for agri-future, among others.

MAPEX 2023 to highlight latest developments in the Malaysian palm oil industry

MALAYSIA PALM OIL Expo 2023 (MAPEX) brings together an international congregation of both upstream and downstream palm oil companies and also its supporting industries gathered in the heart of the Malaysian palm oil industry in Sabah to showcase the latest development in the palm oil industry. Currently ranked as the world's 2nd largest palm oil producer, this event will be supported by the local Malaysian Palm Oil Community ensuring major players in the industry would be represented at this event. The event will be held from 20 to 21 June at the Sandakan Community Hall, which provides a wide range of activities such as exhibitions, conventions, seminars, meetings, gatherings and other functions.

With the state government's efforts to accelerate industrial development and the strategic location of Sabah in the Brunei, Indonesia, Malaysia and Philippines -East ASEAN Growth Area (BIMP-EAGA) configuration, the SCH is poised to play a vital role in these developments.

Producing about 5 mn tonnes of palm oil in 2020 and accounting for 6% of total grand production, Sabah's palm oil industry relies on smallholders for 20-30% of output that contributes US$238.7mn to state coffers each year. This, according to officials, also includes plantation spreads across 1.7 mn hectares (4.2 mn acres).

Sabah also launched the Jurisdictional Certication of Sustainable Palm Oil (JCSPO) initiative in 2015 with a target of producing oil that is certified as ethical and green by 2025. That way, Sabah can become the world's first state to produce green palm oil.

Sabah makes up 26% of Malaysia's total planted oil palm areas and till now have produced about 24% of Malaysia's total output. The state thus has a total planted area exceeding 1.54 mn hectares.

Sabah was, not surprisingly, the worst-affected state in terms of a decline in palm oil and average Fresh Fruit Bunch (FFB) output during the Covid-19 pandemic. With roughly 53,000 small business holders in Sabah, palm oil in the region provides between one third to half of their household income.

The show will allow participants to build new clients while networking with existing ones. It will be the launchpad for multiple new products and services. Participants can also bag new deals and obtain excellent leads, among other things.

The organiser of the show is NRG Exhibitions. It was founded by a myriad of professionals with more than 10 years of experience in the exhibitions industry combined with expertise from the Palm Oil, Oil & Gas, Marine and Offshore industries. Its wide network of affiliates span the world of Asia ensuring exhibitors gain positive results from the events and maximising exhibitors' reach to their clients.

Visitors who can benefit from the show include estate owners, producers, policy and decision-makers, scientists, engineers and technologists, importers, exporter and traders, planters, renters and other stakeholders from the palm oil industry.

Furthermore, Hakka Hall or Dewan Hakka Sandakan provides a spacious venue equipped with comfortable amenities and located strategically in between Sandakan town, thus playing an important role in contributing to Sandakan's event space.

For more information, visit: https://palmoilfair.com/

Exclusive interview with Perstorp's APAC region vice president, Dr. Jim Ren at VIV Asia 2023

Far Eastern Agriculture speaks with Dr. Jim Ren, Perstorp Animal Nutrition's vice president for the APAC region, at VIV Asia 2023 to discuss animal gut health, nutrition and feed preservation, as well as the company's latest product

Far Eastern Agriculture (FEAG): Can you tell me a bit about your company?
Jim Ren (JR): Perstorp is basically a specialty chemical group, with our headquarters based in Sweden. We have a long history with more than 140 years of experience. When it comes to animal nutrition, we are particularly focused on gut health and feed preservation. Also, most of our solutions are based on organic acid.

FEAG: What is your purpose of being at VIV Asia today? Also, how many times have you attended the show and how has your experience been like?
JR: Every time we are here. Since this is the biggest exhibition in Asia, we have a lot of customers coming in from the entire Asia-Pacific region. This time, it has been amazing. Probably, one of the best.

FEAG: How has your post-COVID market growth been like? Is it picking up?
JR: Yes, over the last four or five years, we have done quite a good job at connecting more customers and partners for APAC. We organised some customer events on the first day of the exhibition, along with a cruise dinner which was attended by more than 130 people. On the other hand, in 2019, when we organised a similar custom event, only 50 people were present. So, you can see the big change.
FEAG: What are the holistic solutions that Perstorp has to offer when it comes to gut health and preservation?
JR: If we want to help a customer in the animal nutrition industry, we cannot just provide the product, we need to have a solution. So, we mainly focus on three areas. First comes gut health, then comes feed hygiene and preservation. Lastly, we have water quality. During the making of feed, it is important to ensure that the quality of the feed remains high. Similarly, quality of water also matters, which is why we also have solutions to help improve water quality. Since these three areas connected, solving these issues will guarantee good animal performance.


Image Credit: FEAG

Perstorp's APAC region vice president, Jim Ren, discusses animal gut health, nutrition and feed preservation.

FEAG: Can you provide some insight about your latest product 'Gastrivix Avi'? For which animals do you use this solution and how is it unique from others?
JR: Gastrivix Avi is our new product, launched in April last year, first in Europe, followed by Asia. This is a very unique product because it contains the missing ingredient: Valerin. In the past, people in our industry only used formic acid, propionic acid and butyric acid. However, we now have Valerin, an ester of valeric acid, which is finally available in the market. We first launched our product for poultry, particularly broilers, mainly because we are a very science-driven company. We have conducted many trials before launching the product, and trials carried out on broilers are often simpler and faster compared to other animals.

> "Gastrivix Avi can significantly improve FCR, which means that you use less feed to produce meat."

FEAG: Can you brief me on your mission to become finite material neutral, according to your corporate sustainability targets for 2030?
JR: The whole company is very focused on sustainability. For animal nutrition, we provide good solutions to help our customers. Also, in terms of sustainability, our very recent product 'Gastrivix Avi' can significantly improve FCR, which means that you use less feed to produce meat. As a result, you improve the feed utilisation efficiency. Moreover, I recently attended the Poultry Conference held in Australia. Experts at the conference mentioned that, 'if you cannot improve FCR, it would be difficult to achieve sustainability.' Since people still need to eat meat, you need to produce meat more efficiently.

FEAG: What is your opinion on Antimicrobial resistance (AMR), and how do you think it can be prevented?
JR: We are constantly developing new solutions that can help to reduce the need for AGPs. In fact, Gastrivix Avi is a very promising tool and can very well be one of the solutions the poultry industry will use for a competitive advantage in this area in the years to come. Also, like I mentioned before, it is equally important to improve other areas like farm management and water quality. ■

Poultry's antibiotic alternative

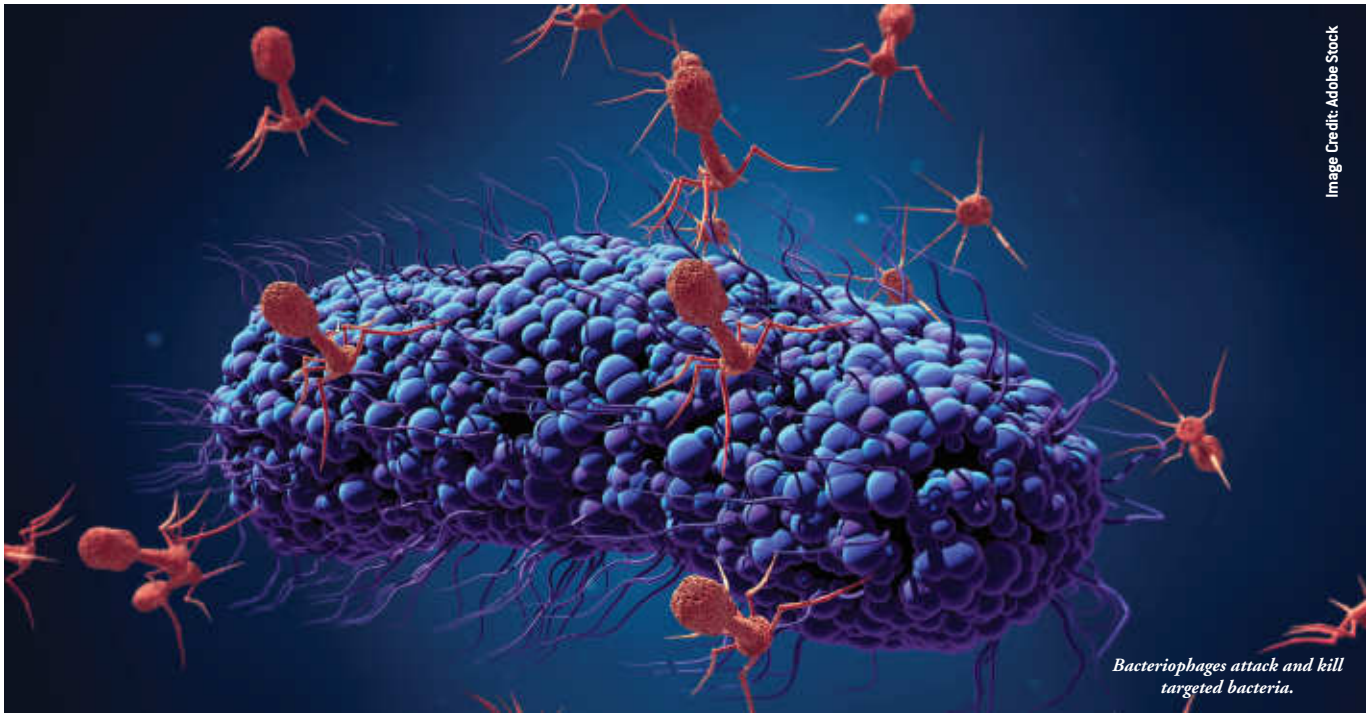


Image Credit: Adobe Stock

Bacteriophages attack and kill targeted bacteria.

The use of bacteriophages may be the answer to reducing antibiotic resistance in poultry, and could be the deterrent to a major public health crisis.

GIVEN THE HIGH risk posed by poultry contaminants, both in terms of economic loses and the threat to public health, scientists have begun to rekindle their interest in finessing bacteriophages as antimicrobial agents to offset the associated risks. The primary contaminants in poultry consist of Salmonella enterica, Campylobacter jejuni, Escherichia coli and Staphylococcus aureus. With the widespread nature of the bacteria as well as the increasing prevalence of the pathogens becoming resistant to the majority of conventional antibiotics, something had to be done to counteract the damages caused.

Bacteriophage treatments have the potential to be used as an alternative method to antibiotics as they only target the specific bacterial pathogen within the infected animal. However, a tailor-made cocktail of multiple bacteriophages could go a long way in broadening the antibacterial activity. Under industrial conditions, bacteriophages can also be used as food-safe disinfectants to reduce contaminations.

Despite their advantages, these types of practices are yet to be developed for widespread use as there have been reports of problems with resistance, safety, specificity, and long-term stability which all must be addressed before the practice becomes mainstream.

Antibiotic aversion

Antibiotic treatment is beneficial and works thoroughly when applied in small doses and only when it is deemed absolutely necessary. Once repeated doses are brought into the equation, that is when resistance begins to build and the treatment becomes defunct.

> **"Bacteriophage treatments have the potential to be used as an alternative method to antibiotics."**

The situation is growing into a severe public health case as the proportion of resistant bacteria in poultry is increasing due to the excessive amounts of antibiotics being administered.

Bacteriophage usage

Biotechnology company, Intralytix, has created the SalmoFresh antimicrobial treatment, where bacteriophages are the active ingredient, for treating foods that are at high risk from salmonella contamination. The pharmaceutical biotechnology company, Micreos, has also created the PhaseGuard treatment, a product that can be sprayed directly onto food in order to kill listeria, salmonella and E. coli.

However, even as the biotech industry starts to mainstream bacteriophage usage as an antibiotic replacement, there are still limitations holding the industry back from fully integrating the practices into widespread use. Bacteriophage resistance is critical to overcome before the treatment can be used as an antibiotic replacement. More so, one of the most significant limitations is the regulatory status of bacteriophage products. ■

Exclusive interview with ADM's APAC region vice president – BK Chew, at VIV Asia 2023

Far Eastern Agriculture speaks with BK Chew, ADM Animal Nutrition's vice president for feed additives, ingredients, amino acids in the APAC region, regarding the company's latest developments, product range and market growth, at VIV Asia 2023

Image Credit: FEAG

BK Chew provides insight into ADM's latest developments at VIV Asia 2023.

Far Eastern Agriculture (FEAG): Can you tell me a bit about your company?
BK Chew (BKC): We are a fortune 50 company, headquartered in Chicago. We have three main divisions – agriculture services and oilseeds, carbohydrate solutions, and nutrition. Also, within nutrition, we have human nutrition and animal nutrition. What you see here at VIV is animal nutrition. In terms of our global R&D, we have more than 140 scientists, technicians and employees dedicated to animal nutrition R&D alone. We also have over 40 partnerships with universities in 17 countries, along with 13 R&D and applied research centres. For example, we have a very well-equipped, well-organised R&D centre in Vietnam and an Upscience lab located both in Vietnam and China.

FEAG: How has your experience at VIV Asia been like? Have you attended the show before?
BKC: Yes, I have been coming to VIV Asia for 20 years, and I would say, it is one of the most important and prominent events in Asia. The good thing is that after the COVID restrictions, we can now assemble again in the industry to meet with our customers.

FEAG: Could you shed some light on the general move towards digitalisation and optimisation of processes, which appears to be a trend at the moment?
BKC : The focus for us is to make our facilities more efficient, and that goes with automation. With this, comes the need to train workers to be more sophisticated in their ways of working, as well as being able to understand the machines. Hence, rather than being a trend, it is more of something we focus on.

FEAG: What is your view on the Antimicrobial Resistance (AMR) that is going on?
BKC: This is one area that is very important to us. As you know, the restriction in the use of AGPs in Europe happened about 16 years ago. In Asia, on the other hand, quite a number of the governments have already imposed policies to restrict the use of AGPs in the last six to seven years. At ADM, we have functional nutrition solutions to look at, as a replacement or an alternative to the use of antibiotics. Moreover, I believe this topic needs to be approached in a holistic manner.

When you see a customer with the desire to replace their AGPs, one of the first things we need to do is to look at the current antibiotic resistance. It is not uncommon, in Thailand for example, to have up to 80-90% resistance to a certain antibiotic family. At ADM, we are definitely very customer focused. Our aim is to fully understand the current challenges that our customers face, to ensure that we can offer them the kind of holistic solutions we feel will greatly benefit them.

We have our assets here in China and Vietnam. So we will, of course, want to use our assets locally in Asia. Also, to produce premixes and blends for customers in Asia is a lot more efficient and environmentally friendly.

FEAG: What is your plan to achieve economic and environmental sustainability?
BKC: Sustainability is a pillar of ADM's growth strategy, and a foundation of our purpose as a company. We understand that customers and consumers increasingly expect sustainable production and responsible sourcing across food and agriculture value chains. We are mapping our pathway to net zero and making investments to ensure we can stay the course and achieve our long-term goals and commitments.

Our ambitious Strive 35 plan targets energy use; greenhouse gas (GHG) emissions; water use and waste management including reducing Scope 1, 2 and 3 GHG emissions by 25% from 2019 baseline; reducing energy intensity 15% over a 2019 baseline; reducing our water intensity by 10% over our 2019 baseline; and beneficially reusing or otherwise diverting 90% of waste from landfill, all by 2035. We also have set a goal to be deforestation-free by 2025.

Additionally, ADM Animal Nutrition continually strives to help

famers and producers maximise animal performance and minimise their environmental impact. Our animal nutrition solutions support performance targets while reducing the environmental impact of production by maintaining efficiency and lowering total costs. We also support animal welfare practices that improve the health of animals and the planet, as well as the well-being of the people and communities that supply our raw materials and ingredients.

FEAG: How has the pre and post COVID market growth been like for ADM?

BKC: The last two years have been difficult for everyone, especially with the supply chain disruptions and price fluctuations. We have to be innovative in our approach to customers. Ultimately, it is efficiency. So, the approach should not always focus on prices and products. We have to really think outside the box to support our customers' needs.

FEAG: What makes ADM stand out from other competitors?

BKC: As I mentioned earlier, we are not just operating in the animal nutrition space, but also in other areas of raw material trading. So as a company, we are different in the way that we are able to offer customers a lot more in terms of linkages, connections and expertise within our group.

FEAG: Would you like to talk about any of your products?

> **"ADM Animal Nutrition continually strives to help farmers and producers maximise animal performance and minimise their environmental impact."**

BKC: Regarding our products, we have our ISO fusion technology, where the encapsulation is very important. With high pelleting temperatures, products can become unstable. So our technology and encapsulation has really given customers a lot of confidence to use our consistent, stable nutrition products.

For example, a product that has gotten a lot of attention lately is NEXTEND. The advantage of this product is that, once the layers and breeders reach peak production, this product is able to maintain the rate of lay and also increase by one to two saleable chicks per hen housed in broiler breeder. Moreover, since the cost of day-old chicks is high, many breeder companies are looking for solutions for their breeders to produce more chicks by 65 weeks of age. We are really happy to see that our customers are able to get what they really need now, especially with current costs and tight supply of chicks. ■

Flushing out ammonia from livestock housing systems

As farmers and researchers continue to recognise the benefits of improving air quality and animal health, there is growing interest in ammonia-free housing systems for livestock across Asia.

GROWING CONCERNS REGARDING the potential direct impact of atmospheric ammonia released from agriculture on human health, have raised questions about the safety and efficiency of current livestock rearing practices.

Ammonia emissions can result from undigested protein from livestock diets excreted from the animal in faeces and urine. When these two mix, either on the floor of the livestock shed or during slurry storage, ammonia is produced and released into the atmosphere.

Impact of livestock housing systems on ammonia and methane emissions

Results from a 2019 research study found that ammonia emissions from loose housing systems with cubicles were significantly higher than those from tied housing systems. Within the 'loose housing systems with cubicles' category however, no significant differences could be detected between the 'perforated' and 'solid' floor types for either ammonia or methane emissions.

Besides this, air temperature was also found to be a major influencing factor. This meant that as the air temperature in the housing increased, so did the emissions. This temperature effect is also a reason for the close correlation between ammonia and methane emissions from loose housing systems with cubicles. Soiled area and temperature in the housing system should therefore be considered when seeking to mitigate ammonia emissions.

Minimising ammonia emissions

In order to efficiently mitigate ammonia emissions, livestock housing systems can be modified in the following ways:

- **Flooring:** Using low emission floor types help in the separation of dung and urine. Slatted flooring designs with slat flaps are also available, which help minimise ammonia emissions from underground slurry tanks by reducing gaseous exchange between the tank and shed floor. In addition to this, using grooved flooring systems with toothed scrapers can achieve 40–50% reduction in ammonia losses.
- **Scraping management:** Soiled floors release ammonia within one or six hours of slurry and urine deposition. Therefore, a reduction of up to 20% can be achieved by maintaining a regular scraping interval of one or two hours.
- **Slurry covers:** Using covers on outdoor slurry stores can effectively reduce ammonia emissions by decreasing the surface area exposed to air movement. While there are a variety of covers available, one of the most effective systems include the impermeable tensioned fixed cover, which offers a whopping 80% of emissions reduction.

Image Credit: Adobe Stock

Ammonia-free housing is beneficial for both cattle and workers.

- **Ventilation:** Using an efficient ventilation system reduces the risk of heat stress by limiting a rise in temperature. Cross-ventilation sheds for example, increase air exchange to remove heat, thereby increasing ammonia volatilisation.

Benefits of ammonia-free housing systems

Ammonia-free housing is beneficial for both cattle and workers, and can help improve animal health and productivity by:

- **Improving air quality:** Good air quality is key to avoiding respiratory issues and decreased feed intake in cattle, thereby giving rise to healthier and more productive cattle.
- **Reducing hoof and skin problems:** Decreasing ammonia levels can help avoid skin irritation, infections, and softening of hooves in cattle.
- **Boosting growth and milk production:** Studies have shown that cattle housed in a clean, odor-free environment are more likely to show better growth rates and milk production.
- **Improving worker safety:** By reducing the levels of ammonia in the barn, workers are less likely to be exposed to harmful gases and fumes, thus improving overall worker safety.

Emergence of ammonia-free housing in Asia

As farmers and researchers continue to recognise the benefits of improving air quality and animal health, there is growing interest in ammonia-free housing systems for livestock across Asia:

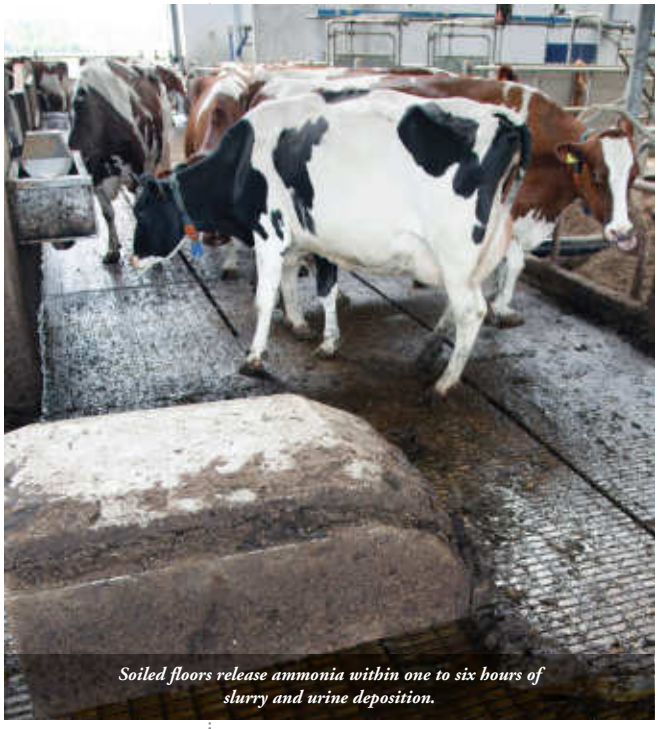
- **Japan:** Ammonia-free housing for cattle has been used in Japan for several years, particularly in the Hokkaido region, and involves using sawdust as bedding material, which helps to absorb moisture and reduce the levels of ammonia in the barn.

"When undigested protein excreted through faeces and urine mix together, ammonia is produced and released into the atmosphere."

- **South Korea:** An increasing interest in ammonia-free housing systems for poultry had resulted in the use of various types of litter materials, such as rice hulls, to absorb moisture and reduce ammonia levels.
- **Taiwan:** Some dairy farmers in Taiwan have adopted ammonia-free housing systems for their cows by using rubber mats or sand as bedding material, in turn reducing ammonia levels and improving cow comfort.
- **India:** Ammonia-free housing systems have been introduced in some parts of India, particularly in the dairy sector. These systems use different types of bedding materials, such as straw, to absorb moisture and reduce ammonia levels in the barn.

Besides adopting efficient ammonia-free housing systems, it is also important to ensure that the animals are receiving a balanced protein intake according to their individual requirement.

It has been found that a 1% reduction of crude protein content in ruminant diets is capable of bringing down ammonia emissions by 5-15%. ■



Soiled floors release ammonia within one to six hours of slurry and urine deposition.

Image Credit: Adobe Stock

A phosphite pathway to the suppression of panel disease

Dr. Terry Mabbett in conversation with Peter Prentis, managing director of Omex Agrifluids, explores the availability and use of phosphite as an alternative to classic chemical fungicides.


Rubber trees in tapping.
Image Credit: Omex

HEVEA BRASILIENSIS (RUBBER) is grown for its latex bled from the tree by peeling narrow strips of bark from the trunk. Trees are wounded but in an organised and meticulous way with respect to age and size of the tree, when tapping is initiated and the position and depth of the cut. The productive place is confined to a restricted area on the tree trunk called the tapping panel, although tapping is a dynamic process, progressing up and down the tree as appropriate over the years. Rubber trees have a strong capacity to repair damaged bark and be re-tapped.

However, damaged trees are susceptible to invasion by wound-infecting pathogens including pathogenic fungi, plant pathogenic bacteria and fungus-like Phytophthora pathogens. Tapped rubber trees though purposely and purposively wounded are still susceptible to infection. Most important pathogens of the panel are Phytophthora species, notably Phytophthora palmivora, with Ceratocystis fimbriata (mouldy rot) also significant in some areas. That said, P. palmivora is the most universally important (present in virtually all the major rubber-growing areas of the tropical world) and by far the most important in terms of damage to trees and potential loss in yield of rubber latex.

Phytophthora palmivora causes a disease universally known as black stripe or black thread because initial symptoms are thin black lines on the tapping panels. But real damage is a progressive necrosis impeding the formation of regenerating bark. Severe damage prevents re-tapping, thus reducing the potential for latex exploitation over the life-time of trees.

Black thread has traditionally been managed using panel protectant fungicides including contact preventative fungicides and systemic fungicides with additional curative action. Many have been trialled and used, but suffer potential problems. One relates to sustainable efficacy and another to human safety and integrity of the wider environment. Those who work inside rubber plantations, especially the rubber tapper who traditionally applies fungicide as part and parcel of his or her tapping task, may be at risk. Workers who handle the latex along the collection, transport and processing line will clearly be exposed to any fungicide residue in the harvested latex.

> **“Most important pathogens of the panel are Phytophthora species, notably Phytophthora palmivora, with Ceratocystis fimbriata (mouldy rot)also significant in some areas.”**

Some 50 years ago, a contact protectant fungicide called captafol was widely and intensively used as a panel protectant and was in use on the rubber plantation where I worked in the 1970s. With some 25,000 ha of worked rubber the volume of panel protectant needed was clearly large, and it was formulated in a central mixing facility. Captafol was mixed with a sticker to improve fungicide tenacity and a colourant which allowed management to monitor its application. Captafol was first registered and applied commercially in 1961 for a wide range of applications, but its use was gradually reduced over the years with many countries banning the fungicide altogether after research indicated that it posed a threat to human health.

Metalaxyl, an acylalanine fungicide with systemic and curative properties shows highly specific efficacy towards the


Image Credit: Omex

Rubber tapping may appear to be an easy task but in actual fact requires a great deal of skill and experience.

Oomycetes, a group of fungus-like microbes including many important plant pathogens of which the Phytophthoras are the most important. Metalaxyl is widely used against Phytophthora palmivora on rubber and other tropical tree crops, including cocoa, avocado and durian, on which this pathogen can cause serious disease. However, the efficacy and therefore commercial value of many fungicides has been hit over the years by a phenomenon called 'fungicide resistance' whereby pathogen populations, which have become insensitive to the action of a specific fungicide chemical grouping, predominate. The acylalanine group of fungicides which includes metalaxyl has not escaped this problem.

Scientists right across agriculture, and irrespective of climate, region and crop, continue to look for alternatives to classic chemical fungicides. Much attention continues to be focussed on so-called elicitor chemicals which can elicit an anti-microbial response in the host plant, rather than acting directly on the pathogen, in this case Phytophthora palmivora.

A number of potential candidates are under scrutiny with most attention on the phosphite ion which results from the dissociation of phosphorous acid. While investigations into the potential use of phosphite as an elicitor chemical against Phytophthora palmivora on rubber have been limited, exactly the same Phytophthora on cocoa (causing pod rot and stem canker) can be suppressed under field conditions by using phosphite as an elicitor. Other tree crops like avocado, durian and macadamia which also suffer from Phytophthora infection and disease are now being treated with phosphite instead of a chemical fungicide. Phosphite has been applied in a number of different ways including foliar sprays, tree trunk injection, soil drenches and by paintbrush over stem canker infections.

To find out more about the availability and use of phosphite, I spoke with Peter Prentis managing director of Omex Agrifluids and with overall responsibility for R&D and product marketing in Asia. Omex Agrifluids (Kings Lynn, Norfolk in eastern England) is a world leader in research, development and marketing of high quality soluble nutrient products. A number of Omex products feature phosphite as part of the nutrient complement and profile and for its role as a biostimulant.

Prentis told Far Eastern Agriculture how Omex has three key, phosphite-based products, Omex DP98, Omex Quad 14 and Omex Phortify, used for their all-round nutrient capacity and the phosphite ion's role in mobilising the inherently sluggish calcium nutrient. Calcium is the classic plant strengthening nutrient and as such assists in the prevention of pathogen infection and suppression of disease.

"Panel disease presents a unique situation for the potential use of phosphite with an established biostimulant dimension to its nutrient action and activity."

Panel disease presents a unique situation for the potential use of phosphite with an established biostimulant dimension to its nutrient action and activity. And not only for enhanced host resilience against the disease but with additional possible potential for stimulation of rubber latex production and flow, along with accelerated wound healing and bark regeneration. On these counts alone, phosphite is worthy of more wide-ranging investigation. ■

Image Credit: Adobe Stock

China is currently the largest producer and consumer of compound feed in the Asia-Pacific region.

The Asia-Pacific animal feed market: growth, trends and solutions

With the animal feed market growing, turnkey projects could help optimise the production process for those involved.

THE ASIA-PACIFIC ANIMAL feed market has been experiencing growth in recent years due to the increasing demand for livestock, particularly poultry. This demand is driven by several factors, including population growth, urbanisation, rising disposable incomes, and a shift towards a protein-rich diet. The growing demand for processed and packaged food products has also contributed to the demand for animal feed in the region.

The compound feed market in the region is primarily driven by the increasing demand for meat and dairy products, coupled with the growth in animal husbandry and aquaculture industries. Other factors impacting the industry involve the availability of raw materials, government regulations, and the increasing adoption of innovative feed technologies.

The market for compound feed in Asia-Pacific is segmented based on type, livestock, and geography. Based on type, the market is classified into swine feed, poultry feed, ruminant feed, aquatic feed, and others. The livestock segment includes poultry, swine, ruminants, and others.

China is the largest producer and consumer of compound feed in the Asia-Pacific region, according to Mordor Intelligence. The growth of China's compound feed industry is attributed to the rising demand for animal-based products, the expansion of industrial animal farming, and the adoption of advanced feed formulations and technologies. The demand for compound feed in China is expected to continue growing, driven by population growth, urbanisation, and higher disposable incomes.

> **"The demand for compound feed in China is expected to continue growing."**

Archer Daniels Midland Company (ADM) is one of the leading players in the Asia-Pacific compound feed market, offering a wide range of animal nutrition products and services, including premixes, concentrates, and complete feeds, to meet the diverse needs of its customers in the region. ADM has a strong presence in the Asia-Pacific compound feed market and continues to invest in research and development to improve its product portfolio and meet the evolving needs of the market.

The company has recently expanded its animal nutrition footprint in Asia through a feed mill deal, according to a report by FeedNavigator. The deal involves the acquisition of a controlling stake in a feed mill in Vietnam, which will help ADM build a stronger presence in the Asia-Pacific region. The move is seen as a strategic step towards tapping into the growing demand for animal-based products in the region.

The report notes that the feed mill deal will enable ADM to leverage its expertise in animal nutrition and expand its product offerings to customers in Asia. The acquisition is part of ADM's ongoing efforts to grow its animal nutrition business globally and underscores the company's commitment to meeting the evolving needs of its customers.

Turnkey Projects

A turnkey project is a type of project in which a contractor is responsible for the entire process of designing, constructing, and delivering a finished product that is ready to use. This means that the contractor takes care of everything from the initial planning and design to the final installation and commissioning of the project. Turnkey projects have become increasingly popular in recent years, as they are seen as an attractive option for clients who want to outsource the entire project to a single contractor.

One of the main advantages of turnkey projects is that they offer a convenient and hassle-free solution for clients. Since the contractor is responsible for the entire project, clients do not need to worry about coordinating with multiple contractors or managing the project themselves. This can save clients a lot of time and effort, and also reduce the risk of delays and cost overruns.

Another advantage is that they often involve a fixed price and timeline. This means that clients can have a clear idea of the total cost and duration of the project upfront, which can help them plan and budget more effectively. Additionally, turnkey projects may offer better quality control, as the contractor is responsible for ensuring that the finished product meets the required specifications.

However, there are also some potential disadvantages of turnkey projects to consider. One of the main drawbacks is that clients may have less control over the project, as they are relying on the contractor to make all the decisions. This can be a concern if the client has specific requirements or preferences that are not fully understood by the contractor. Additionally, turnkey projects may be more expensive than other project delivery methods, as the contractor is assuming a greater level of risk and responsibility. Finally, the quality of the finished product may depend heavily on the capabilities and experience of the contractor, so it is important to choose a reputable and qualified contractor for turnkey projects.

According to GEMCO Energy, the purpose of turnkey poultry feed mills is to provide a comprehensive solution for producing high-quality poultry feed. A turnkey poultry feed mill typically includes all the necessary equipment and machinery for processing raw materials into finished feed products, including grinding machines, mixing machines, pellet mills, and packing machines. By offering a complete solution, turnkey poultry feed mills can help farmers and feed producers streamline their production processes and improve their efficiency.

Regarding the different types of poultry feed, GEMCO Energy notes that there are several categories, including broiler feed, layer feed, and breeder feed. Broiler feed is specifically formulated to promote rapid growth and weight gain in broiler chickens, while layer feed is designed to provide the necessary nutrients for egg production in laying hens. Breeder feed is formulated to meet the nutritional needs of breeding birds, including roosters and hens, and is typically higher in protein and other essential nutrients.

For an all-in-one solution, complete formula feed is a type of poultry feed that contains all the necessary nutrients in a single pellet. With the help of a poultry feed mill, complete feed can be produced efficiently, ensuring consistency in quality and reducing wastage. ■

> **“By offering a complete solution, turnkey poultry feed mills can help farmers and feed mill producers streamline their production process.”**

Image Credit: Adobe Stock

Turnkey poultry feed mills can streamline the production process.

Sprinkler irrigation: AI solutions key to unprecedented market growth

Sprinkler irrigation systems enable uniform application of water.

Image Credit: Adobe Stock

ACCORDING TO A new market report by Meticulous Research, the micro-irrigation systems market is projected to reach US$20.2bn by 2030, at a CAGR of 8.6% during the 2023–2030 forecast period.

Increasing government initiatives for water conservation, the growing need to maximise crop yield, and the increasing adoption of modern farming techniques are some of the factors that have contributed to the growth of this market. In addition to this, an increased reliance on automation along with growing support from the government for irrigation projects are other notable factors that are expected to create market growth opportunities.

Based on the type of micro-irrigation system used, the market is segmented into sprinkler irrigation, drip irrigation, spray irrigation, subsurface irrigation, and bubbler irrigation. This year, the sprinkler irrigation segment is expected to account for the largest share of the global micro-irrigation systems market.

When to use sprinkler irrigation

The sprinkler irrigation system is designed in such a way that it enables uniform application of water. After being pumped through a system of pipes, the water is sprayed into the air through sprinklers. This method of irrigation water application therefore, closely resembles natural rainfall.

Sprinklers are mostly adaptable to any farmable slope, whether uniform or undulating, and are well suited for most row, field and tree crops. While choosing a sprinkler irrigation system however, it is very important to keep in mind, the water requirements of the crop being cultivated.

> **"Choosing the right sprinkler depends on several factors such as climate, terrain, soil and crop type and water availability, among others."**

This is because sprinklers come in many sizes, and large sprinklers are generally not recommended for the irrigation of delicate crops such as lettuce. Moreover, since sprinkler irrigation systems usually produce large water drops, they are mostly ideal for sandy soils having high infiltration rates.

The sprinkler irrigation segment's large market share in 2023 is attributed mainly to the increasing need for small sprinklers or sprayers to distribute water in a controlled manner, improve water-use efficiency, and achieve higher crop yields by delivering water and nutrients directly to the plant roots.

Besides its benefits, however, the sprinkler irrigation system comes with its fair share of drawbacks, some of which may make its adoption by small-scale farmers in developing countries especially challenging. For example, the investment cost required for purchasing sprinkler irrigation equipment is quite high. Moreover, a continuous supply of water and electricity is required for its operation. Sprinkler nozzles are also highly susceptible to clogging, due

to the deposit of debris and sediments from the water used. Efficiency of the system also depends largely on the temperature and humidity of the surrounding environment.

Choosing the right sprinkler system

Several factors including crop type, soil type, terrain, water availability, climate, affordability and local regulations, have shaped the design and development of various types of sprinkler irrigation systems:

• **Portable (or Hand-Move) sprinkler irrigation systems:** This is a periodic move type of sprinkler system which uses lateral pipelines with sprinklers positioned at regular intervals. A majority of crops can be cultivated using this type of system, apart from a few like corn that take time to mature.

• **Solid set and permanent sprinkler irrigation systems:** Being one of the most commonly used sprinkler systems, the solid set sprinkler irrigates from a fixed position and is well known for being inexpensive, easy to install and requiring minimal maintenance. It is thus considered most suitable for small-scale agriculture.

• **Side roll/ Wheel Line sprinkler irrigation systems:** Just like the hand-move sprinkler, this too is a periodic move type of sprinkler irrigation system consisting of a pipe mounted on wheels. This type of system can be easily moved over different locations and typically works best for rectangular fields.

> **"With the emergence of AI and IoT technologies, sprinkler irrigation systems have undergone a thorough makeover."**

• **Travelling Gun/ Hose Reel sprinkler irrigation system:** As the name suggests, this type of sprinkler irrigation system consists of high volume, high pressure sprinklers known as 'guns', which can move around different locations or be operated from a fixed position. It works best for coarse soils with high intake rates and crops that provide good ground cover.

• **Centre Pivot and Linear Move sprinkler irrigation systems:** These are a subset of continuous move lateral sprinkler irrigation systems. For this type of irrigation method, a variety of sprinkler products have been developed to better match soil characteristics, water requirements, and water application rates. While being suitable for irrigating most field crops, it can also be used to irrigate trees and vines.

• **Low Energy Precision Application (LEPA) sprinkler irrigation systems:** These irrigation systems are best suited for soil types having high intake rates. Microbasin land preparation is often used along with this irrigation method for improved runoff control.

Recent advancements in sprinkler irrigation

With the emergence of Artificial Intelligence (AI) and Internet of Things (IoT) technologies, sprinkler irrigation systems have undergone a thorough makeover, as highly-efficient smart sprinklers have recently began entering the market.

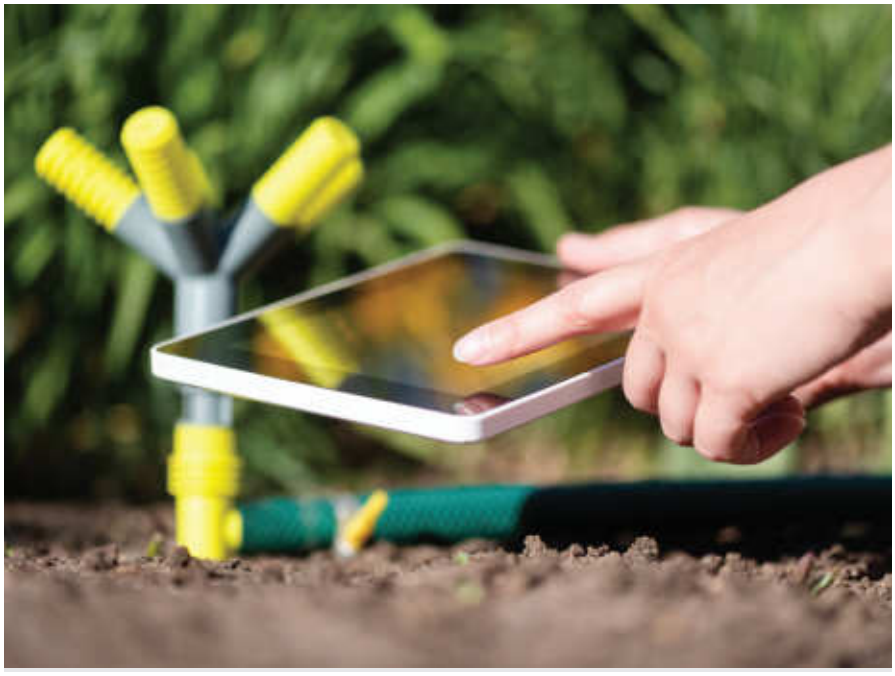
On 20 September 2022, Irrigreen, a leader in robotic irrigation systems, announced Irrigreen XP, a revolutionary sprinkler system built using the most advanced robotics, AI and IoT technologies, offering unprecedented precision watering and including new functionality that predicts and adapts to changes in water pressure and flow. Shane Dyer, CEO of Irrigreen, states that in order to prevent water wastage, the company is focused on delivering the best in robotic and smart technology to help eliminate water waste and inefficiencies.

On 29 March 2023, Irrigreen revealed that it had managed to secure US$15mn seed financing to power robotic sprinkler systems using AI and inkjet printing technology for homeowners in the US. With Irrigreen, homeowners use approximately 50% less water compared to conventional technology and can save about 50% on outdoor water bills annually.

In January 2023, Moen introduced the new Smart Water Network, an integrated system of products working to monitor and enhance users' experiences with water in the house while facilitating water conservation. This simple, intelligent and affordable way to control a home's irrigation system is accessible from a smartphone app.

Syngenta Foundation India (SFI) in collaboration with Agrirain has also introduced the hose reel irrigation project for farmers to reduce labour interventions and achieve optimum efficiency in the use of water. This system works on low energy and provides higher flow rates for better use on any type of soil, thus providing additional savings compared to other conventional systems.

The future certainly looks bright as AI, IoT and machine learning continue to revolutionise the sprinkler irrigation segment by providing farmers and homeowners with real-time data and insights to help make better decisions about water usage, crop health and yield optimisation. ■



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Moen introduced the Smart Water Network, an integrated system of products, accessible from a smartphone app.

Enhancing crop yields through smart spraying

The incorporation of smart solutions can unlock commercial benefits for farmers.

THE USE OF agricultural chemicals has become a fundamental pillar of farming across the globe. Through the use of herbicides and pesticides, farmers have the enhanced ability to control undesired plants on farms such as weeds, protect crops against pests such as insects and larger wildlife, and, ultimately, increase crop yields.

However, while agricultural chemicals use continues to grow, increasing research is being dedicated to the dangers of over-use and the problems they can cause for both the farmer and the environment.

In regards to the latter, according to research published by the University of Sheffield, over-use of chemicals such as herbicides can lead to loss of wild plant diversity, damage to insects and wildlife, and can lead to poor water quality. In addition, heightened deployment of herbicides can create resistant weeds, which can lead to enormous costs being incurred by farmers.

In response to this growing concern, a range of solutions have been put forward such as reduced or shallow tillage, crop rotation, flame guns, or natural alternatives such as acids, soaps, salts or oils.

> **"The unique ability for smart spraying to see, decide and spray based on agronomic intelligence is not just financially good for farmers, but it's good for the environment, sustainability and biodiversity."**

Image Credit: BASF

The Smart Spraying solution provides real time, automated post-emergence weed identification and management.

Smart spraying

Other companies have looked to address the issue not by looking for alternatives to agricultural chemicals but instead by focusing their application. In 2021, a joint venture between Bosch and BASF Digital Farming received approval by merger control authorities to globally market and sell smart farming technologies from a single source.

The Smart Spraying solution, which was being developed and tested at the time, offers real-time and pre-emergence and post-emergence weed identification and management day and night. Combining high-tech camera sensor technology and agronomic intelligent software enables Smart Spraying in milliseconds to precisely detect weeds in crop rows and to apply herbicide only where needed.

This enables the efficient use of herbicide; trials showed herbicide volume savings of 70% are achievable, unlocking higher savings.

"The unique ability for Smart Spraying to see, decide and spray based on agronomic intelligence is not just financially good for farmers, but it's good for the environment, sustainability and biodiversity," explained Silvia Cifre Wibrow, joint managing director of Bosch BASF Smart Farming.

The Smart Spraying solution enables data-driven decision making for the farmer (enhanced by xarvio's agronomic intelligence) and is also easy to use as it automatically decides what, where and when to spray to pinpoint accuracy. Bosch has already proven its benefits for farmers in diverse regions of the world under a wide range of climatic conditions.

Progress through collaboration

In recent months, the farming community was boosted by news that Bosch BASF Smart Farming will integrate and commercialise its Smart Spraying technology on Fendt Rogator sprayers and, jointly, develop new features.

Fendt Rogator sprayers represent some of the most advanced pieces of machinery on the market. The self-propelled Fendt Rogator 600, for instance, has been designed to meet all the requirements that customers expect of a plant protection

implement. Features of the 600 include a low centre of gravity; 3850/5000/6000 l tank capacity and 500 l clean water; induction hopper with OptiFlow control centre; an inner turn radius of just 3.14 m; up to 2.05 m tyres and 35° steering angle; a smooth undercarriage with up to 120 cm ground clearance; Fendt VisionCab with >4 cu/m volume, and more.

The machine, which embodies more than 50 years of experience in plant protection, combines high power and high torque with low fuel consumption and meets emissions stage V. The Rogator always has a weight distribution of 50:50 in its operating position; protecting soil and, therefore, plant yield. A rotary pump with optionally self-priming unit, driven by on-board load-sensing hydraulics, supplies all liquid-distributing parts of the system. The flow rate of the rotary pump prevents pulsation in the lines and ensures maximum application accuracy. Application quantities are controlled via the pump speed and the pump only carries the specified quantity for the agitator – helping the Rogator 600 to respond to changing application quantities and different speeds.

Image Credit: BASF

The Smart Spraying solution can precisely detect weeds in crop rows and help in the application of herbicide only where needed.

The combination of Fendt's steadfast machinery and Bosch's innovative Smart Spraying technologies is sure to be welcome news for the world's farming community. Sophisticated sensoring, automated sensitivity thresholds, access to Bosch BASF Smart Farming's pest identification technology and the use of Fendt Rogator's robust application platform is sure to deliver herbicide savings. ■

John Deere announces MY24 updates

Image Credit: John Deere

The MY24 updates will prepare the tractors for the future of precision agriculture.

JOHN DEERE HAS announced MY24 updates for its line-up of seven, eight and nine Series Tractors that will help prepare them for the future of precision agriculture.

Key updates include the new StarFire 7000 integrated GPS position receiver and an all-new G5Plus CommandCenter Display. Another feature that John Deere is making available is a factory-installed implement ethernet. The company is also offering an Autonomy Prep package for eight and nine Series Tractors that ensures these machines have the known components needed to operate autonomously in the future.

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LEMKEN introduces versatile Karat 10 three-beam cultivator

THE KARAT 10 three-beam cultivator is now entering the market in extensive mounted and semi-mounted versions.

The tines are arranged symmetrically around the tensile axis, making the machine extremely low-draught and avoiding side draft. This is particularly important when using the cultivator with track guidance systems. At the same time, it ensures intensive mixing. The tine arrangement is just one of the core areas that LEMKEN has improved even further in its Karat cultivator, which has been incredibly successful for many years.

- The wing shares for shallow cultivation have been widened. Alternatively, narrow shares can be used for deep cultivation. All shares are optionally available in carbide.
- DeltaCut shares can be used for ultra-shallow cultivation, the standard quick-change system allows the shares to be changed quickly and easily for working depths of up to 30 cm.
- Centrally adjustable levelling tines ensure even levelling. Specially shaped levelling discs, which provide good working results on heavy soils are optionally available.
- Also newly available are boundary discs and tines that can be folded up mechanically or hydraulically.
- Drawbars in a range of types and lengths open up even more versatile applications in professional crop production and allow it to be used with tractors with twin tyres.

Image Credit: LEMKEN

The Karat 10 three-beam cultivator is now entering the market in extensive mounted and semi-mounted versions.

The cultivator can be equipped optionally with a hydraulically adjustable leading disc section. This ensures that large volumes of organic matter can be incorporated even better into the soil. The discs, which are individually suspended on leaf springs, chop organic matter, and break up coarse soil clumps so that the machine can mix soil intensively and work without clogging. The new Karat 10 cultivator is available in mounted and semi-mounted versions, with working widths between three and seven metres. A traction booster and the ContourTrack system which ensures an even working depth in hilly terrain are available for the semi-mounted models.

New robot aims to transform Japanese farming

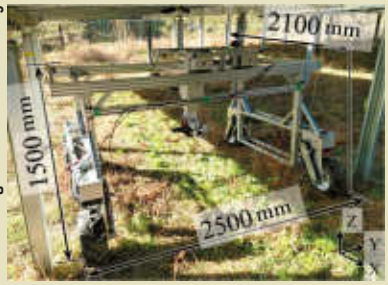

Image Credit: Waseda University

The robot can aid in sustainable farming and carbon neutrality.

JAPANESE RESEARCHERS HAVE developed a robot that can help farmers practising Synecoculture. Synecoculture is a new farming method, involving growing mixed plant species together in high density. However, it requires complex operations since varying species with different growing seasons and growing speeds are planted on the same land.

Current technology can only automate a few tasks, and cannot make complex decisions. To address this gap, researchers have developed a robot that can sow, prune, and harvest plants in dense vegetation growth. The robot was developed by Takuya Otani, assistant professor at Waseda University, in collaboration with Sustainergy Company and Sony CSL. The robot manages a variety of mixed plants grown in the shade of solar panels, an otherwise unutilised space. This will ultimately aid sustainable farming and carbon neutrality.

Additionally, the researchers developed methods for effective seeding. They formed equal-sized balls out of soil-coated seeds from various plants. They were uniform in size and shape as a result, making it simple for the robot to scatter seeds from various plants. Additionally, a user-friendly, human-controlled manoeuvring system was created to improve the operation of the robot. The system aids in tool operation, automatic sowing, and task switching. The new robot's compact and flexible body allowed it to successfully sow, prune, and harvest in areas of dense vegetation while minimising interaction with the surroundings. In addition, compared to a simple controller, the new manoeuvring method allowed the robot to avoid obstacles 50% better while cutting down on its working time by 49%.

"It has a four-wheel mechanism that enables movement on uneven land and a robotic arm that expands and contracts to help overcome obstacles. The robot can move on slopes and avoid small steps," Otani said. "The system also utilises a 360 degree camera to recognise and manoeuvre its surroundings. In addition, it is loaded with various farming tools — anchors (for punching holes), pruning scissors, and harvesting setups. The robot adjusts its position using the robotic arm and an orthogonal axes table that can move horizontally."

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