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Achieving efficiency in fungicide application

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Gut health vital to sustainable livestock production

Fighting salmonella in pigs

Biological crop protection against pests

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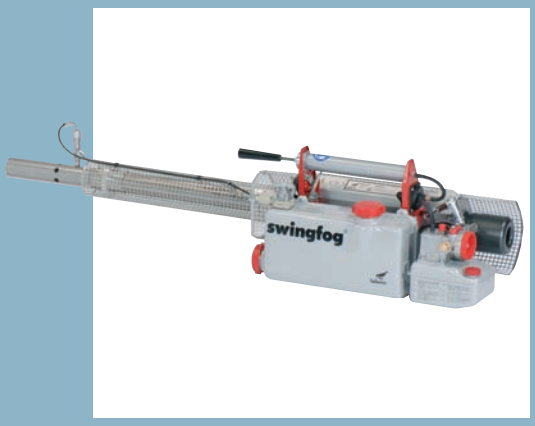

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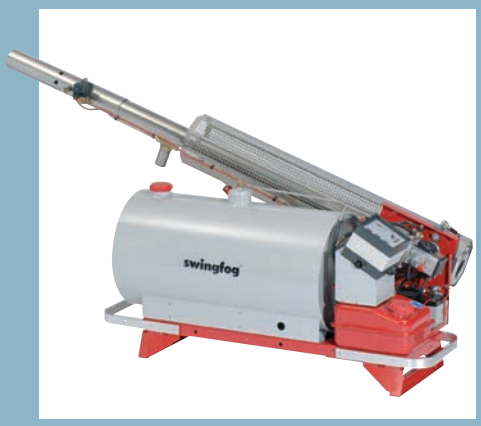

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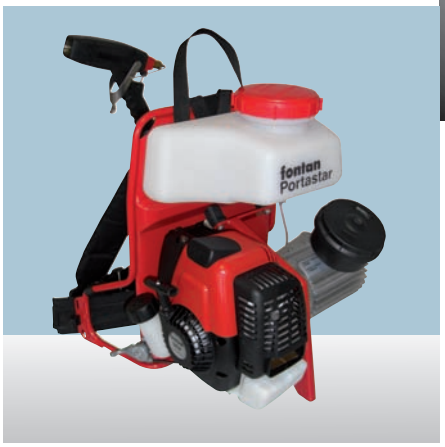

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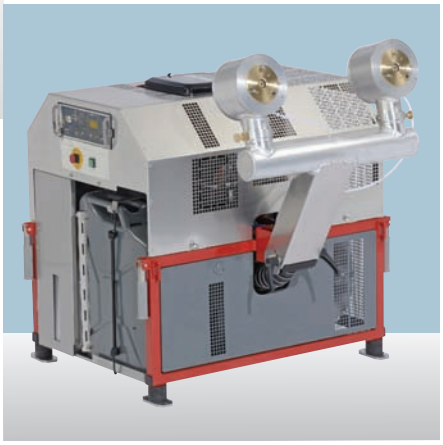

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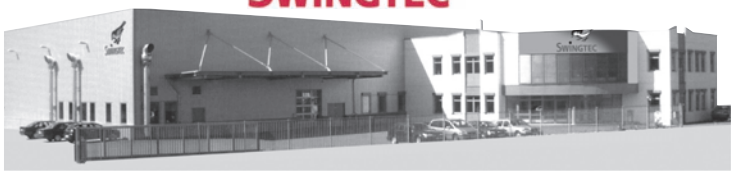

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(Photo: Keantian/Shutterstock)

VIV Asia 2017 Review

Fighting salmonella in pigs

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CP plans US$500mn expansion in Philippines

THAI CONGLOMERATE CHAROEN Pokphand Group (CP) has committed to an additional investment of US$500mn in the Philippines, according to reports.

"CP commits US$500mn in the Philippines, part of their US$2bn expansion plans in the next five years," Thailand's trade secretary Ramon Lopez said.

The commitment was made during the Philippines' President Duterte's meeting with Thai business groups when he visited Bangkok in March 2017. "The company is already in Bataan, Pampanga and Tarlac. They want to expand new facilities in Visayas and Mindanao," Lopez said.

The Charoen Pokphand Group is a Thai conglomerate company located in Bangkok. (Photo: Wikimedia Commons)

The company is an integrated food conglomerate with businesses in feeds milling to poultry and livestock production using new technology, to ready-to-cook and marinated frozen chicken and pork products, he added.

Lopez said CP's production models include company-operated farms to contract-growing arrangements that tie up with local growers or partner with entrepreneurs who will build facilities, while the CP leases them for their growing and processing operations.

Cambodia's firm to build US$60mn pig feed plant

CHIP MONG GROUP has invested about US$60mn in a plant to produce pig feed, with facilities to raise pigs for the Cambodian market. Group CEO Leang Khun said the company will produce high quality pig feed at a rate of 200,000 metric tonnes a year.

Khun added that 70 per cent of production will be used for the Chip Mong farm and the rest sold on the local market. He added that the Chip Mong farm will yield nearly 300,000 pigs a year.

"The establishment of Chip Mong Feed will provide many benefits to the Cambodian economy by providing jobs directly and indirectly for thousands of people and also help reduce imports and increase products produced by Cambodia," Khun stated.

He said this was a new investment for the Chip Mong Group in a large-scale plant. Betagro, which makes feed for pigs, ducks, chickens and other animals, set up the factory to meet the growing demand for animal feed in Cambodia.

Vietnam's food producer attracts US$250mn investment

GLOBAL INVESTOR KKR & Co is investing US$250mn in Vietnam's food and beverage company Masan Group Corp and its unit to help boost their competitiveness in the country's US$18bn meat industry. KKR will pay US$150mn for a 7.5 per cent stake in Masan Nutri-Science, Masan Group's meat-producing business, the companies said in a statement. The New York private-equity firm will provide the support of its global network and team to Masan Nutri-Science as it accelerates its strategy to build the meat business in Vietnam, it said. KKR will also buy US$100mn of Masan Group's shares from PENM Partners. The investment values Masan Nutri-Science at US$2bn, further cementing KKR's relationship with the Masan Group after investing US$359mn in Vietnam's biggest maker of fish sauce and its consumer unit over the past six years.

Japan's Nissui buys UK firm Sealord Group

JAPAN'S NIPPON SUISAN Kaisha (Nissui) confirmed a deal for Sealord Group's UK company, which is the main supplier to high-end retailer Waitrose. Nissui subsidiary Nippon Suisan (Europe) has entered into an agreement to acquire all the shares of Sealord Caistor from Sealord (Europe), a subsidiary of Sealord Group. Sealord Caistor will be renamed Caistor Seafoods after the acquisition, Nissui said in a release, according to reports. Nissui already has a management team in Europe and a sizeable business, including French processing plant Cite Marine; Nordic Seafood, a Denmark-based Danish frozen supply business that includes JP Klausen and also a stake in Europacifico in Spain.

Case IH expands digital information offering with new app

CASE IH HAS launched the new Case IH Africa/Middle East App to help customers make better-informed product decisions and to enable distributors to access machine specifications more easily and quickly.

The new app provides comprehensive product information in a convenient, user-friendly way for users of iPads, tablets and smartphones and is compatible with Apple, Android and Windows devices. It can be downloaded free-of-charge in English and French under the search term 'Case IH Africa/Middle East.'

With the app, the company aims to give users easy access to technical specifications, product features and benefits for the entire range of Case IH equipment, including tractor and harvesting models, hay and forage tools, advanced farming systems, seeding, tillage and sprayers. The app also allows users to view product brochures, images and videos.

New clinical pig health research centre in Thailand

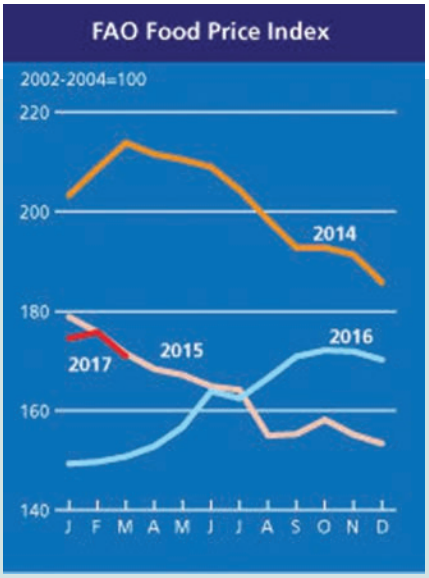
THE ERBER GROUP has announced plans to open a new clinical research centre for pig health at the Khamphaeng Saen Campus of Kasetsart University in the Nakhon Pathom province of Thailand. The stated purpose of the research agreement is "to promote the application of technology and innovation in animal nutrition and animal health". Upon signing the research agreement, founder of BIOMIN and the ERBER Group Erich Erber said, "I am glad that the ERBER Group family of companies can look forward to close collaboration with eminent Thai specialists and professors on animal health to address key issues for safe and sustainable food." In 2014, Erber was awarded a Doctor of Philosophy (PhD) *honoris causa* by Kasetsart University for his lifetime achievements and contributions to the livestock industry.

The purpose is to promote the application of technology and innovation in animal nutrition and health. (Photo: patarapong saraboon/Shutterstock)

Events 2017

MAY			
11-13	**Hortiflorexpo IPM**	Beijing, China	www.en.hortiflorexpo.com
17-19	**Indo Livestock 2017**	Surabaya, Indonesia	www.indolivestock.merebo.com
18-20	**China Animal Husbandry Exhibition**	Qingdao, China	www.caaa.com.cn
24-26	**Livestock Philippines 2017**	Manila, Philippines	www.livestockphilippines.com
JULY			
14-17	**Agri Intex Coimbatore**	Coimbatore, India	www.agriintex.codissia.com
AUGUST			
28-30	**International Exhibition on Poultry, Livestock & Technologies**	Bangalore India	www.iplexpo.com
SEPTEMBER			
01 - 03	**Agri Asia**	Ahmedabad, India	www.agriasia.in
05-09	**The XXV World's Poultry Congress**	Beijing, China	www.wpc2016.cn
07-09	**SIMA ASEAN**	Bangkok, Thailand	www.sima-asean.com
19 - 21	**Livestock Asia**	Kuala Lumpur, Malaysia	www.livestockasia.com
27-29	**Livestock Myanmar**	Yangon, Myanmar	www.veas.com.vn
NOVEMBER			
12-18	**AGRITECHNICA**	Hanover, Germany	www.agritechnica.com
22-24	**Poultry India**	Hyderabad, India	www.poultryindia.co.in
30-02	**AgriPro Asia Expo Hong Kong**	Hong Kong	www.agriproasia.com

Food Outlook



THE FAO FOOD Price Index (FFPI) averaged nearly 171 points in March 2017, down almost five points (2.8 per cent) from February, but still 20 points (13.4 per cent) above its level a year earlier. With the exception of meat, the indices of all other commodities used in the calculation of the FFPI dropped in March, especially those of sugar and vegetable oils.

The FAO Cereal Price Index averaged 147.8 points in March, down 2.7 points (1.8 per cent) from the previous month and essentially at a par with its value in March 2016. Ample available supplies, combined with good production prospects in the new season, weighed on export quotations. The FAO Vegetable Oil Price Index averaged 167.6 points in March, down for the second consecutive month. While the index dropped by 11 points (or 6.2 per cent) month-on-month, it continued to fare above its corresponding level in the last two years. The slide in the index primarily reflects developments in the palm and soy oil sector. Palm oil values dropped by 5.6 per cent (reaching five-month lows) as prospective production increases in Southeast Asia, Indonesia in particular, coincided with weak global import demand.

The FAO Dairy Price Index averaged 189.8 in March, down 4.4 points (2.3 per cent) from the previous month, but still 60 points (46 per cent) higher year-on-year. The decrease from February marked the first decline since April 2016, reflecting ample milk supplies in the northern hemisphere and prospects for higher-than-earlier anticipated milk production in Oceania.

The Meat Price Index averaged 163.2 points in March, up 1.2 points (0.7 per cent) from February and 17 points (12 per cent) higher than in March 2016. Quotations for the individual categories of meat were little changed. Slight increases for bovine meat and pigmeat were, respectively, influenced by continued constrained availability in Oceania and firm import demand from Asia, particularly China.

The FAO Sugar Price Index averaged 256.6 points in March, down as much as 31.3 points (10.9 per cent) from February and reaching its lowest level since May 2016.

China to replace chemical fertilisers with organic alternatives

CHINA AIMS TO replace 20 per cent of its chemical fertilisers with organic fertilisers by 2020. It is part of the government's greener agricultural policy to lower dependence on chemical pesticides and fertilisers used for growing tea, fruit and vegetables and increased efforts to protect consumer health.

Chinese farmers are applying about 70 per cent more chemicals on their crops than the rest of the world, according to Global Times.

The Ministry of Agriculture of the People's Republic of China (MOA) said that excessive chemical usage has severely damaged around 40 per cent of its agricultural land.

More than 50 per cent of chemical fertilisers will be replaced in the most critical planting areas by 2020 compared to 20 per cent in the least important areas, said CCM, the market intelligence firm. China used 60.32 mn tonnes of fertilisers in 2015 of which 40 per cent was used for growing vegetables, fruits and crops.

The biggest challenge faced by the initiative is that chemical fertilisers are cheaper than organic ones. (Photo: Maren Winter/Shutterstock)

After the trial period in 2020, China wants to expand the replacement of chemical fertilisers across the rest of the country.

However, the MOA said it faced challenges because only five per cent of the annual production of organic fertiliser (16 mn tonnes) is usable. The majority of organic fertilisers are made of livestock manure, containing dangerous antibiotics that can get into the food chain and put the public's health at risk. The other factor is cost; chemical fertilisers are much cheaper than its organic alternative.

According to CCM, only by enhancing the production of commercial organic fertiliser will improve China's organic fertiliser output in the long-term.

Experts estimate that the worldwide bio-fertiliser market will reach US$1.66bn by 2022. The huge growth is the result of an increasing awareness towards healthy and sustainable agriculture, as well as rising chemical prices.

In addition, the global organic food market is booming, elevating the demand for organic fertiliser and is expected to be valued at US$305mn in 2022.

France's CIRAD to boost Indonesia's sustainable agriculture

PT SMART TBK, a subsidiary of Golden Agri-Resources (GAR), and the French Agricultural Research Centre for International Development (CIRAD), have signed a MOU to boost sustainability in the agri-business sector through a new regional platform that will deliver training and enhance sustainability standards in major commodity chains including palm oil.

The Sustainable Agricultural Landscapes in Southeast Asia platform (SALSA) is a public-private partnership integrating multi-stakeholder teams into research, training and development projects to support the growth of sustainable supply chains and protect the biodiversity of Southeast Asia. The platform aims to strengthen sustainability standards, share knowledge and innovation, and increase the availability of plantation managers trained in sustainable practices and certification standards. Other signatories to the MOU are PT Riset Perkebunan Nusantara, the Asian and Pacific Coconut Community and PT SOCFINDO.

The agreement builds on the significant progress GAR has made in developing a sustainable, traceable supply chain. Currently, 60 per cent of its palm oil supply is RSPO-certified, and the company is on track to deliver 100 per cent traceable and RSPO-certified palm oil by 2020. The company effectively delinked palm oil production from deforestation with the launch of its Forest Conservation Policy in 2011.

CIRAD's managing director-general, Michel Eddi said, "Agri-business is a critical and growing part of the region's economy, and CIRAD is fully committed to working with our partners in the SALSA initiative to improve the sustainability of their supply chains. We believe the answers to ending deforestation and achieving certified, sustainable production lie in capacity-building, and will continue to channel our resources and research and development efforts to these industries to attain this."

The initiative aims to improve the sustainability of palm oil supply chains. (Photo: KYTan/Shutterstock)

President director of PT SMART, Daud Dharsono, said, "As the world's second largest vertically-integrated palm oil producer, we hope new learnings through the SALSA platform positively impact the industry as a whole in its journey towards sustainably produced palm oil."

INDO LIVESTOCK returns for its 12th edition

INDO LIVESTOCK will bring together key stakeholders from the Asian livestock industry at its 12th edition to be held from 17 - 19 May 2017 in Surabaya.

MORE THAN 12,000 trade buyers representing integrators, farmers, veterinarians, importers, distributors and other industry professionals will gather at Grand City Convex Surabaya starting from 17 May 2017 for a three-day event in Indonesia – INDO LIVESTOCK 2017 Expo & Forum.

For those interested in livestock and animal health industry, this exhibition will be in conjunction with the animal feed industry expo (Indo Feed Expo & Forum), dairy milk industry expo (Indo Dairy Expo & Forum) and fisheries industry expo (Indo Fisheries Expo & Forum).

Hosted by the Directorate General of Livestock and Animal Health, Ministry of Agriculture of Indonesia, INDO LIVESTOCK Expo & Forum is today a "must attend" event for decision makers and buyers across Asia.

More than 300 exhibitors from 30 countries, including seven pavilions from Indonesia, China, Europe, South Korea, Turkey, Taiwan and the USA, are expected to showcase the latest innovations and development in feed, livestock production, animal health, layer production, egg handling, feed milling, breeding, broiler production, meat processing and meat products.

The 2016 edition attracted Asia Pacific's livestock industry to Indonesia. (Photo: INDO LIVESTOCK)

The tradeshow is expected to be a wholly-integrated business to business (B2B) event that will be composed of networking opportunities, technology forums and an international expo.

According to organiser PT Napindo Media Ashatama, INDO LIVESTOCK is considered as a complete annual industry event that covers livestock, feed, dairy and fisheries industries. The tradeshow is expected to be a wholly-integrated business to business (B2B) event that will be composed of networking opportunities, technology forums and an international expo.

Presently, the show is already a source of information for thousands of professionals hailing from various locations around the world who need to keep up-to-date with the latest technical and research information.

A number of activities have been planned and prepared with the popular seminars and technical product presentation making a comeback. Highly recommended as one of the most informative programmes in the tradeshow, it features 11 topics seminars and 46 topics presented by the attending exhibitors. Trade visitors who want deeper knowledge and understanding of the innovative product offerings may catch the presentations for free.

Without a doubt, in time to come, according to the organiser, the INDO LIVESTOCK 2017 expo & forum will grow into its dual roles as solutions provider for Indonesia's livestock issues through product showcases, technological exchanges and seminars, as well as one of Asia Pacific's foremost expositions that promote the advancements and developments in the livestock, feed, dairy and fisheries industry. ■

Catering to a booming Asian market

The first edition of AGRITECHNICA Asia 2017, held in Bangkok from 15-17 March 2017, made its mark with an excellent showcase of leading international agri-machinery companies, impressive number of exhibition visitors and a strong programme of seminars and conferences.

THE SHOW HOSTED more than 89 companies from 20 countries worldwide, covering the paradigm of technologies for agricultural machineries and tractors, storage and transportation, as well as bio-energy production, by mainly focusing upon cultivation of industrial crops such as rice, sugar cane, tapioca/cassava, oil palm and field corn.

The show was organised through a collaboration between VNU exhibitors and DLG (Deutsche Landwirtschafts-Gesellschaft – German Agricultural Society), who are the organisers of renowned AGRITECHNICA, Hannover. Speaking in an exclusive interview with *Far Eastern Agriculture*, Jens Kremer, deputy managing director at DLG Service GmbH said that the decision to host an Asia edition was prompted by a growing demand from Southeast Asia for an open agri-machinery show for their markets.

"Our official numbers and research show us that there is an increasing market for mechanisation in Asia. DLG constantly strives to transfer knowledge about the latest developments in agriculture across the world. We wished to bring the latest innovation in the industry to the Asian market," Kremer added.

Knowledge programme

A key highlight of AGRITECHNICA Asia 2017 was conferences and seminars on high-level agricultural machineries – presented by teams of experts from leading European companies. This attracted a lot of visitors who were given first hand information on the technology.

Jens Kremer, deputy managing director at DLG Service GmbH.

The show hosted more than 89 companies from 20 countries. (Image source: VNU exhibitions)

Hosted buyers' programme

Another major campaign that has been warmly embraced by participants is the "Hosted Buyer Program," a special project sponsored 200 selected agriculture and horticulture buyers from across the world to participate in the event. The programme was created as a way to engage leading suppliers, farm owners, agriculturalists, investors, distributors, dealers, decision makers and top executives from high profile companies in the trade fair.

The number of applicants amounted to more than 500 persons and/or companies and was narrowed down to 200 participants, which included leading companies such as An Giang Fruit-Vegetables & Foodstuff JSC (Antesco), Cargill Indonesia, Caudatfarm, Charoen Pokphand Produce Co Ltd, Dalat Hasfarm Ltd, Dole Philippines Incorporated, Indofood Sukses Makmur Tbk Bogasari Flour Mills and Japan Agricultural Cooperative Association.

According to the organisers, this project has helped generate more than 830 business negotiation in process, which contributed noticeably to the commercial transactions of technology between countries during the event.

The way forward

Nino Gruettke, managing director of VNU Exhibitions Asia Pacific Co Ltd said, "This year signifies another one in which we have succeeded in terms of organising of events, visitors, buyers and exhibitors, as well as in our effort to promote Thailand's image as a centre of technology and innovation of the agricultural industry in Asia."

"In addition, we were fortunate to have support from all sectors, including the Department of Agricultural Extension, the Department of Agriculture, Ministry of Economic Affairs (of the Netherlands), the Horticultural Science Society of Thailand, the Embassy of the German Federal Republic, the Embassy of the Kingdom of the Netherlands, as well as Thailand Convention and Exhibition Bureau (TCEB)."

Following the success of the show, DLG International has revealed plans to continue the Asia edition of the show. Kremer said, "DLG International and the Ministry of Agriculture of Thailand have decided to work more closely together in the future. This is a very good sign for us and for this market". He also commented that the organisation was looking forward to gaining the support of the governments in Indonesia, Vietnam as well as India and China. ■

The 2nd edition of AGRITECHNICA Asia will return on 22nd - 24th August 2018 at BITEC, Bangkok.

VIV Asia hosts its largest ever edition

With 45,952 visitors from 130 countries, VIV Asia 2017, held in Bangkok from 15-17 March, was the largest edition of the agricultural technology and animal husbandry trade show.

ONE OF THE largest livestock shows in the region, VIV Asia 2017 saw participation from more than 45,952 visitors from 130 countries. Business negotiations turnover carried out during the event are expected to exceed US$435mn, thus in process reflecting the overall image of Asia's rising animal husbandry economy.

Over the course of three days, VIV Asia 2017 was focused upon providing solutions under the theme, "From Feed to Food", from the manufacturing of produce to processing of food products. More than 1,050 companies from 53 countries including China, the USA, the Netherlands, France, Germany and those in ASEAN community including Thailand exhibited in the show.

More than 1,050 companies from 53 countries exhibited at VIV Asia 2017. (Photo: VNU exhibitors)

Thailand on focus

The event was officially launched on 15 March 2017, with an opening ceremony presided over by the deputy permanent secretary of the Ministry of Agriculture and Cooperatives, Thanit Anekwit and attended by the president of Thailand Convention and Exhibition Bureau, Nopparat Maythaveekulchai, ambassadors and diplomats from several nations as well as event sponsors and supporters from government and private sectors.

Business negotiations turnover carried out during the event are expected to exceed US$435mn.

At the opening ceremony, Thanit Anekwit said, "The Ministry of Agriculture and Cooperatives has a vision to integrate the development of traditional methods of agriculture, which is focused on administration and management and the distribution of wealth and income to all regions in Thailand, with an aim to enable the country to step into 'Thailand 4.0' in accordance with the policy of the ministry. The year 2017 is designated to mark the occasion upon which Thailand's agricultural standards will be elevated and remain in continuous sustainable development." He added that a number of companies were selected to provide showcases of their technology and innovation at VIV Asia with the aim to help Thailand become a hub of animal industry product exportation to the global market."

Technology and innovations showcase

A vast array of technologies and innovations, including tools and equipment, for the animal husbandry industry were showcased at the venue. Teams of personnel with expertise were stationed nearby, ready to provide answers and pieces of advice up close. The exhibits showcased and the expertise provided at VIV Asia 2017 cover a variety of businesses relevant to dairy cattle, swine, poultry and egg, aquaculture, as well as pet animal. International seminars prior to and after the event both proved to be of great interest to businesspersons and animal farming entrepreneurs, as witnessed in the turnover of visitations of more than 18 per cent.

In addition, VIV Asia 2017 was equipped with a wide range of special features: the announcement of winner of "e-Novation Awards" for innovations in the livestock industry, the results of which were derived from the number of votes cast by participatory visitors. In addition to e-Novation Awards, the winners of "Asian Personality Awards" were also announced during the official opening event. Asian Personality Awards, which has found its inception in the wake of collaboration between VIV Asia and Positive Actions Publication, was presented to individuals who have devoted themselves to the animal husbandry industry.

Furthermore, this year's edition saw the launch of a brand-new online platform titled "VIV Online," in response to the global technology landscape. These campaigns were created to showcase and support the buildup of the platform and centre of experts in animal husbandry discipline as witnessed in VIV Asia.

Some of the major exhibitors at the event included Nutriad, Elanco, Biomin, Alltech, Impextraco, Wenger and Big Dutchman, which had showcases of their latest equipment and products.

Yousef Daoud, product manager of breeders at Roxell, who participated in the event, said, "We have always participated in VIV Asia. We believe VIV Asia is an excellent exhibition to meet customers. VIV Asia is the spot to meet many different equipment suppliers from across the world." ■

"Antibiotics not a substitute for hygiene measures"

Mohan Saxena, managing director at animal health and nutrition company, Ayurvet, speaks to *Far Eastern Agriculture* about the need for antibiotic replacement in the livestock industry.

"WHILE THERE IS a lot of interest in antibiotic free production and optimising the production costs, I find the key determinant is the science behind the products used and evidence of the efficacy value," said Mohan Saxena, speaking to F*ar Eastern Agriculture* at VIV Asia 2017.

Discussing the dangers of rampant usage of antibiotics in the industry, Saxena pointed out that while antibiotics has proven useful in fighting diseases in the history of medicine, the unfortunate truth is that these life-saving drugs are often misused as a license to avoid the health and hygiene in poultry farms. He pointed out that many poultry farms in the region operate in poor hygiene standards and resort to using high dosages of antibiotics to prevent bird mortality. "It is important to remember that antibiotics are for treatment, not health. Therefore the focus should be to find solutions that enhance immunity of the birds to avoid the diseases," he added.

"I see a lot of talk about antibiotic free chicken, milk and egg production. This is a good sign but a lot more needs to be done. If the shift away from antibiotics is done without any validation, people will burn their fingers and will be forced to resort to antibiotic again and face antibiotic resistance. The economic loses of this antibiotic resistance is quite huge and therefore these three indexes should be focused upon: health which has to come through nutrition, hygiene and awareness. The focus should be on how to build health and immunity of the animals as these will translate into productivity and profit."

Saxena explained how a mistake that farmers and veterinarians often make is that they use feed additives for disease control instead of building up health of the animals. "If the farm birds are faced with a respiratory problem, antibiotics will have to be used to reduce the mortality. However, it is crucial to find a solution to ensure that the problem does not recur. The solution is to aim for a high health index."

There is no one single step to reduce dependence on antibiotics, it is a combination of nutrition, good hygiene and good health to build up immunity.

Antibiotic resistance

Another consequence of over dosage of antibiotics is antibiotic resistance. Saxena said, "Bacteria have the capability to develop resistance and as a result, we find that the same antibiotics used on the birds are no longer effective on human beings. The WHO has recently released a list of 12 superbugs that are resistant to every antibiotic and these 12 bacteria are present in all parts of South-East Asia. The question here is: how do you protect human health from such super bug infections?"

"This issue of antibiotic resistance is, therefore, one of grave importance. A few countries in Europe and North America and Japan have restricted antibiotic usage. South East Asia is now waking up to the realisation that the use of antibiotic for growth promotion, as a substitute for hygiene is not a good idea."

Saxena also pointed out that there is no one single step to reduce dependence on antibiotics. "Ultimately, it is a combination of nutrition, good hygiene, good health to build up immunity. And feed additives can play a major role in achieving this," he added.

Ayurvet provides a wide portfolio of herbal health-care and nutrition/feed products for the livestock industry. The company promotes the use of herbals feed products that are supported by scientific research and clinical validation. ■

Mohan Saxena, managing director at Ayurvet. (Photo: Ayurvet)

Fighting salmonella in pigs

Butyrate, a salt of a short-chain fatty acid, can play a major role in fighting salmonella bacteria in pigs. Daniel Ramirez and Dr Tim Goossens, business development managers, digestive performance, at Nutriad International, Belgium, discuss the potential of butyrate feed additives supplementation in pig health.

IN THE SWINE industry, salmonella may be present during the entire production life cycle in pigs and disseminated in feces for several weeks or months without signs of clinical disease. When salmonella is present in the gastro intestinal tract (GIT), it might contaminate carcasses during the slaughter process, and become a source of food poisoning and bacterial gastroenteritis in humans (Mughini-Gras et al, 2014). However, salmonella infection may be transmitted during contact with animals, through contaminated water, or via the environment and may pass through the entire food chain from animal feed, primary production and all the way to households or food-service establishments and institutions (Rice et al, 2003). In pigs and livestock in general, salmonella will often not instigate disease, unless there are predisposing conditions such as the presence of pathogens or stress factors. Some associated serotypes are more likely to infect finishing pigs and are considered major causes of food poisoning in humans (Baggesen and Wegener, 1994).

According to the European Food Safety Authority (EFSA) in 2015, salmonellosis represented the second most reported zoonosis as a major cause of human bacterial gastroenteritis, after campylobacteriosis. Non-typhoidal salmonella spp are estimated to cause 93.8 million cases of gastroenteritis and 155,000 deaths worldwide each year, approximately 85 per cent of which are estimated to be food-borne, establishing salmonella as having a significant public health and economic impact on society. Pork products are among the top food-borne sources of salmonella globally, which also has a negative impact on the agri-food and trade sectors (Majowicz et al, 2010).

A particularly worrisome trend concerns the worldwide rapid emergence of resistant harmful strains to antimicrobial drugs. The use of closely related antimicrobials in humans and the swine industry has led to an increase and persistence in multidrug-resistant particularly strains of salmonella, Campylobacter and E. coli (Engberg et al, 2001). It has been documented that salmonella strains can acquire antibiotic resistance in animals, before transmission to humans through the food chain (Threlfall, 2002). In pigs, salmonella strains have been isolated that show increased resistance to kanamycin, streptomycin, sulfamethoxazole, tetracycline and amoxicillin-clavulanic among other important antibiotics such as fluoroquinolones and cephalosporins (Wondwossen & Siddhartha, 2005).

The use of butyrate feed supplementation can contribute to food safety during animal production.
(Photo: Alexander Raths/Shutterstock)

Fighting salmonella without AGPs

Since the ban of antibiotics growth promoters (AGPs) in 2006, the countries within the European Union and many others outside the EU, have taken steps to drastically reduce the use of antibiotics in livestock production. Nutritionists have looked for alternatives to antibiotics in an attempt to reduce salmonella presence during the different stages of pig production life cycle, and therefore reducing the potential risk of prevalence, shedding and enteric diseases in humans.

Feed additives supplementation provides a promising approach to reduce salmonella colonisation by different modes of action that create a hostile environment for bacterial colonisation of certain (pathogenic) species and a favourable one for beneficial bacteria. In addition, they might strengthen the entire GIT, stimulate the immune system and modulate gene activity related to virulence or colonisation pathways in bacteria.

Benefits of butyrate

Butyrate, for instance, is a salt of a short-chain fatty acid that is described to downregulate Specific Pathogenicity Island 1 (SPI1) genes inside salmonella bacteria. This causes a dramatic attenuation of their capacity to invade intestinal epithelial cells (Gantois et al, 2006) and to colonise the intestinal tract in pigs (Boyen et al, 2008). In addition, butyrate has been described to trigger the expression of antimicrobial Host Defense Peptides (HDPs) in the intestinal tract of animals, thereby limiting the growth of several enteric bacterial genera, including salmonella (Sunkara et al, 2011).

Nutriad's ADIMIX line consists of butyrate products that support performance and health in swine, by stimulating digestive, immunological and developmental mechanisms in the digestive tract. One product in this line, ADIMIX Precision, has a unique coating that is capable of delivering butyrate throughout the entire GIT, including the hindgut, where salmonella resides. ADIMIX Precision has been shown to reduce salmonella colonisation in poultry and pigs (eg, Van Immerseel et al, 2005).

Recently, a study on the effect of feeding late finishing pigs (~four weeks before slaughter) with ADIMIX Precision, on salmonella-challenged commercial pig farms in Ireland (Walia et al, 2016) showed that at day 28 of the trial, the probability of detecting salmonella in feaces was strongly reduced in the ADIMIX Precision-supplemented group (30 per cent), compared to the animals from the control group (66 per cent). This resulted in a statistically significant reduction of salmonella seroprevalence at slaughter.

Of note, apart from the effect on salmonella, an improvement in average daily feed intake (ADFI), average daily gain (ADG) and feed conversion ratio (FCR) was observed in the ADIMIX Precision-treated pigs.

It should be stressed that reduction of salmonella load from production to slaughter can only be achieved with a comprehensive approach, combining the use of feed additives and the implementation of several hygienic measures and biosecurity protocols. In such a complete salmonella control program, use of butyrate products such as ADIMIX Precision will be of benefit to decrease the presence of salmonella inside the animal's intestinal tract. ■

Gut health vital to sustainable production

Sidki Dhaouadi, director, Power-Protexion, Impextraco speaks to *Far Eastern Agriculture* at VIV Asia 2017 about the importance of gut health in livestock production.

What are some of the latest trends relevant in the livestock industry?

The latest and most important trend we believe is related to gut health management. Mycotoxin elimination, feed digestibility with enzymes, coccidiosis management and antibiotic free production, all these have to do with gut management. We must have a holistic approach to optimise gut health management. There is no point increasing your digestibility if you cannot at the same time absorb the nutrients correctly. And to absorb them correctly, you need to have to alleviate mycotoxins risk as well as maintaining the right gut microflora balance.

Has there been an increased interest in gut health management in the market?

Absolutely. Impextraco has seen the evolution towards gut health management over the last years. It has become a very hot topic today. As a matter of fact, during VIV Asia 2017, we are hosting two presentations on mycotoxins eliminations driven by a long-term biomarkers investment and immunity and a seminar on coccidiosis management.

Gut health plays a major role in nutrition absorption. (Photo: Igor Stramyk/Shutterstock)

Sidki Dhaouadi, director, Power-Protexion, at Impextraco.

Can you tell us a little about Impextraco and the sectors you cater to?

Impextraco is a Belgian family company, the family has been active in feed additives for many generations now. Our business is build upon two corporate pillars: Power-Protexion that stands for cost-effective and sustainable solutions to protect both feed and animals and Xtra-Performance providing the tools to ensure maximum productivity and performance.

We offer the right balance between single ingredients like vitamins, amino acids, colourings, etc and speciality additives so that we can deliver improved value, improved production and performance to our customers.

Do you have a strong presence in the Asian market?

Thanks to our presence since the early days in Asia, we have been able to offer our partners solutions adapted to the challenges of a growing market such as in the Asian region. Today we are present all over Asia, with our own offices in Bangkok and Beijing and warehouses through our local partners throughout the Asia Pacific region.

What are the solutions Impextraco offers for gut management?

Our gut health management concept involves several solutions talking different aspects. We have a full range of anticoccidials, butyrate and natural extract based products in order to improve nutrients absorption, immunity and microflora balance. Within the concept we do offer prebiotics as well as a very strong mycotoxin eliminator. Further to this concept, we also help free water and feed from pathogenic bacteria. Our approach has always been customer centric, meaning that we sit together with our customers, understand what they are trying to achieve and why, so we can offer a sustainable solution in terms of biosecurity, antibiotic free production or simply zootechnical performance improvement. ■

Greater digestibility in inorganic feed phosphates

MINERALS, INCLUDING PHOSPHORUS, are essential elements for life. When it comes to fish nutrition, contrary to other minerals, which can be up taken from the surrounding water, phosphorus has to be supplemented in the feed at sufficient high levels. A supply below requirements will result in a lower productivity of fish or even deformations of the spine. An over supplementation should be avoided because this can lead to unwanted negative effects on the environment, like eutrophication.

Diets for fish are changing with fish meal being increasingly replaced by vegetal protein sources. Contrary to fish meal, vegetal protein contains only low levels of phosphorus, with most of the phosphorus bound to phytate rendering it unavailable for fish. Therefore, fish diets nowadays must be supplemented with inorganic feed phosphates. Inorganic feed phosphates contain both a high level of total and digestible P. The digestibility of different phosphates, as proven in several feed trials, is however not the same. It appears that digestibility greatly depends on product solubility.

Windmill Aquaphos is a feed grade monoammonium phosphate with a P-content of 26 per cent and a high level of water soluble phosphorus, especially developed by Aliphos for use in aquaculture. Several trials have been carried out over the years to show the effectiveness of Windmill Aquaphos. From the start, the trials involved salmonids - trout and salmon. Later trials also involved sea bream and tilapia. According to the company, the outcome of all these trials showed the same trend: Windmill Aquaphos being a higher digestible or retainable phosphorus source than the generally used monocalcium phosphate (MCP).

Low phosphorus in fish feed can result in a lower productivity of fish or even deformations of the spine. (Photo: Vladislav Gajic/Shutterstock)

The latter trial with tilapia (Oreochromis niloticus) confirmed the results from the trials with salmonids. Also here the performances – growth, FCR, SGR – were improved using Windmill Aquaphos against MCP. Tilapia receiving Windmill Aquaphos retained significant higher P-levels, both in the whole body and in the vertebrae. Windmill Aquaphos also reached a significant higher P-digestibility than in case MCP. Averaging the results for digestibility and retention, Windmill Aquaphos scored a value of 100 per cent relative to a value of 80 per cent for MCP in this trial.

Global shrimp production in 2016 hit by high prices and diseases

FAO'S LATEST GLOBEFISH report has revealed that global production of farmed shrimp in 2016 remained stagnant, or even fell, compared to the year before owing to lower international prices and outbreaks of disease in leading producing countries.

According to the report, the main season for farmed shrimp in Asia ended in November with an overall sluggish trend in production. This went against the earlier forecast of increased production in 2016.

Preliminary 2016 production data for farmed shrimp suggest that recovery in Thailand and strong harvests in Ecuador were not enough to offset the falling production of farmed shrimp in China and Vietnam due to persistent shrimp disease and related issues. The average per hectare harvest in Vietnam reportedly declined by 50 per cent, due to poor quality shrimp fry and slow growth. Due to production issues, both China and Vietnam had to import large quantities of shrimp for reprocessing and export.

Overall production in India and Indonesia, the two other large producers of farmed shrimp in Asia, is expected to be lower than the early 2016 forecast. In Latin America, farmed shrimp production increased moderately in Ecuador, but in Mexico disease and premature harvests negatively impacted volume growth. Farmed shrimp supplies also did not improve in other countries in the Central and South American region.

Even with lower than expected growth in shrimp aquaculture, India moved to the leading exporter in international shrimp trade during the first nine months of 2016, followed by Ecuador, Thailand, Indonesia and China. Compared with the same period in 2015, exports from India increased by 11.6 per cent, totaling 315,400 tonnes. Ecuador also increased exports by 7.5 per cent (276,000 tonnes) during this period with increased sales to East Asia, the Russian Federation and Latin America.

Improved farmed shrimp production in Thailand facilitated a 28 per cent rise in exports to 150,000 tonnes during the review period and secured the country its third position in the global shrimp export market. More than 40 per cent of these exports consisted of processed/value-added products.

With two digit rises in Chinese export volumes to the Republic of Korea (+17.25 per cent), Hong Kong SAR (+18.90 per cent) and Taiwan Province of China (+18.32 per cent), total Chinese exports of shrimp increased by nine per cent to total 136,000 tonnes.

Shrimp export volumes from Vietnam posted growth in the USA (+10 per cent), Japan (+5.5 per cent), EU (+12 per cent) and other East Asian markets during January–September 2016 compared with the same period in 2015.

In terms of prices, generally shrimp prices remained soft in global export trade during the review period, dominated by vannamei shrimp. However, exporters of black tiger (Bangladesh, Myanmar and Indonesia) reported firmer price trends following strong demand from the USA and Japan. Supplies of this species have tapered over the years from India, Vietnam and Indonesia.

Despite limited supply of large-sized shrimp in Indonesia, prices have fallen due to weak demand from key markets, particularly from the USA.

Vietnam continues to be an attractive market for Asian and Latin American shrimp exporters. Vietnamese shrimp imports during the first nine months of 2016 exceeded 200,000 tonnes, largely supplied by Ecuador (118,000 tonnes) and India (68,700 tonnes).

76,300 tonnes of shrimp were imported into China during January–September 2016, which is 14 per cent higher than in the same time period in 2015.

However, there were reduced imports from Canada, Ecuador and India.

Benefits of thermal foggers for water-based mixtures

Innovations in thermal fogging machines now allow efficient delivery of water-based products for agricultural pest control.

IN RECENT YEARS, more and more water-based chemical preparations are being used for vector and pest control and disinfection measures. Machines equipped with the patented high performance fogging tube, now permit a fast and efficient application of water-based fogging mixtures at high flow rates, not only in agriculture but also for vector and pest control measures. This advanced technology saves costly carriers like diesel, oil or kerosene and moreover avoids environmental pollution caused by oily carriers. In indoor pest control activities, water based chemicals are especially favorable because the inhabitants do not have to clean up after the application in order to remove the oily residuals that leave a film on every surface, which leads to a much higher acceptance of the application.

All thermal fog generators were originally developed for the application of oil-based fogging mixtures and were mainly used for vector and pest control measures.

This advanced technology saves costly carriers like diesel, oil or kerosene and avoids environmental pollution caused by oily carriers.

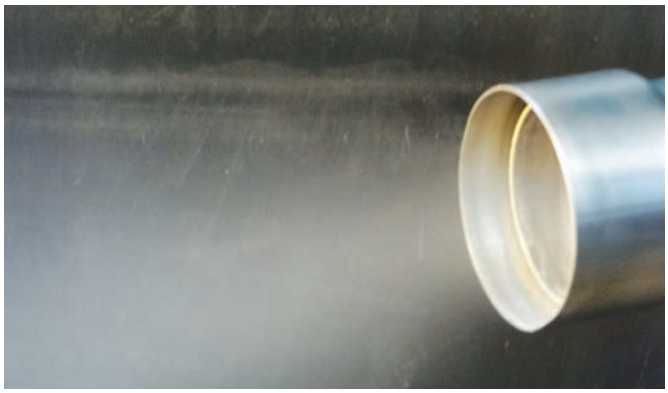
When oil-based fogging mixtures are used with thermal foggers, a rather good droplet spectrum of between 0 and 40 μm is achieved. Up to 80 to 90 per cent of the droplets are in the range of 10 to 25 μm and fulfill the actual requirements of the World Health Organisation specifying a volume median diameter (VMD) of less than 30 μm.

In agricultural pest control measures, almost all chemical preparations are water-based and the chemical has to be mixed with water. Owing to the high surface tension of water, it is by far not possible to achieve a similar good droplet spectrum at reasonable high flow rates with these water-based fogging mixtures, unless a considerable portion of special carriers is added.

Using water-based fogging mixtures at high flow rates and without adding special carriers causes all brands of thermal foggers to generate a rather wide droplet spectrum, and a high number of bigger droplets to fall down in front of the machines, resulting in a puddle of unfogged fogging liquid. This means that a considerable amount of the chemical preparation does not reach the target, causing pollution and a waste of expensive chemicals. Furthermore, this loss leads to an under dosage of the chemicals used, which can lead to building up of resistances.

Leading thermal fogging machine manufacturer, Swingtec, has solved this problem with its patented high performance fogging tube, which is available for all its Swingfog machines.

Using the high performance fogging tube, and without adding special carriers, the Swingfog SN 50 types allow the application of water-based fogging mixtures with flow rates of up to 32 litres per hour and with Swingfog SN 81 and SN 101 machines up to 62 respectively 67 litre per hour.



Swingfog machines generate good droplet spectrum, which is comparable with that of oil-based fogging mixtures. (Photo: Swingtec)

A real good droplet spectrum is generated, which is comparable with the excellent droplet spectrum of oil-based fogging mixtures. Additionally, this also prevents big droplets from falling down and collecting in front of the machine. ■

Choosing the right fungicide application technique

The morphology growth and development of various crops are critical factors to consider while choosing fungicide application techniques. Dr. Terry Mabbet reports on the optimal application techniques to secure good disease control in a broad range of crops.

THE TARGET FOR a fungicide spray is the surface of the crop plant. A contact protectant fungicide is designed to remain on the plant surface for protection from infection by fungal and bacterial plant pathogens. Penetrative systemic fungicides, on the other hand, are designed and developed for an ability to move into the plant as quickly as possible, thereby suppressing or eradicating an infection therein.

Spray coverage is always important and most critically so for contact-action protectant fungicides because deficiencies in coverage can be rapidly exploited by plant pathogens. Once the pathogen is inside the plant "there is no way back" because the protectant fungicide remains on the plant surface.

Achieving adequate spray coverage is not as simple as it may at first appear because:

- Individual pathogens invariably target specific parts of the plant
- Micro-environmental conditions within the crop canopy make some parts more vulnerable to infection and for longer periods of time

Sprays of cuprous oxide fungicide should be targeted at the flower cushions and newly formed pods on cocoa that are prime targets for Phytophthora sp. (Photo: Trond Kristiansen, Nordox)

These variables must be considered when designing a programme of fungicide application for a specific crop/plant pathogen interaction. They are a function of the morphology and anatomy of the crop plant species in question, and the characteristics of the canopy formed when a number of plants are grown in association as a crop. The following account is a practical consideration of plant and crop biology in relation to the application requirements of contact protectant fungicides.

Profile of protectant fungicides

Despite their long history and vintage, contact protectant fungicides remain as the mainstay for plant disease control especially in the tropics. The classic copper fungicides that are completely contact and protectant in action have their roots in the nineteenth century, whereas the first systemic suppressive/eradicant fungicides (the MBCs or benzimidazoles) did not appear until the late 1960s.

Fixed copper fungicides such as cuprous oxide, the dithiocarbamate fungicides (eg, mancozeb) and nitrile fungicides (eg, chlorothalonil) are everyday examples of contact fungicides. They are among the best known and most widely used, especially on tropical tree crops where the bulk of contemporary usage takes place.

Spray timing and placement

Citrus and mango are two classic examples of tropical fruit tree crops that undergo marked foliar (leaf) flushing at particular times of the year in response to seasonally led environmental changes. Flushes of new leaves are soft and remain so until the leaves are fully expanded and hardened by formation of a thick waxy cuticle and a covering of wax bloom over the epidermis.

During this foliar flushing period citrus leaves are highly susceptible to infection by a group of fungal pathogens including Mycosphaerella citri (citrus greasy spot), Elsinöe fawcetti (sour orange scab) and Diaporthe citri (citrus melanose). Not only do these diseases have the capacity to completely destroy new leaf growth but in some cases, such as sour orange scab, can provide the "staging post" and the inoculum (spores) for subsequent infection of the young developing fruit.

Citrus trees should be sprayed and the foliage protected as the branches begin to flush using repeated applications of contact protectant fungicide as necessary to compensate for deposit dilution through leaf expansion and deposit loss through the erosive effects of rainfall.

Gloeosporium limetticola (wither-tip of lime) is a perennial problem on new foliar flushes of lime trees through the distortion of growth pattern and tree canopy shape. Lime trees respond to the loss of these first foliar flushes with abnormal bursts of growth that change normal canopy shape and consequently make future spray application and coverage more difficult.

Colletotrichum gloeosporioides (anthracnose), the major foliar and fruit disease of mango, hits new flushes of the pendulous pink coloured mango leaves before moving on to infect the blossom and newly formed fruit. Anthracnose disease is carried right through to fruit maturity often as latent infections which only start to show and spread post-harvest, causing serious damage during the pre-marketing storage period for the fruit. Long term sustainable control of mango anthracnose requires season-long spray programmes using a copper fungicide such as cuprous oxide, starting with appearance of the new leaf flushes and continued through to the pre-harvest period.

Cocoa undergoes even more vigorous and sustained foliar flushing but it is the fruit (cocoa pods) and not the leaves that are susceptible to the economic diseases of cocoa. The most universally damaging disease is black pod (Phytophthora pod rot) caused by a number of Phytophthora species an notably P. palmivora. Pods at all stages of development are susceptible to Phytophthora pod rot, from tiny newly-formed fruit called "cherelles" on flower cushions to full ripe pods ready for harvest. Infection of flower cushions can lead to Phytophthora stem canker of the bark and wood, which can girdle and kill the tree.

Black pod is the most damaging disease for cocoa farmers. Without a

rigorous programme of copper fungicide sprays, targeted at the vulnerable flower cushions and pods and beginning before the rainy season, cocoa farmers can face total crop loss.

Leaf and fruit surfaces as spray targets

Good spray coverage is critical for the control of those foliar diseases that develop most readily right inside the tree canopy. Leaves inside the canopy take a longer time to dry out after rainfall and are also more difficult to cover with spray.

The abaxial (lower) leaf surface is invariably more susceptible to infection because it lacks the waxy cuticle on the adaxial (upper) leaf surface, and also because this is where most if not all the stomata (leaf pores) are found. The abaxial (lower) surface of a leaf stays wetter for longer after rainfall because it is shielded from air movement and direct rays from the sun.

Plants with stomata confined to the abaxial leaf surface and infected by pathogens entering exclusively via stomatal pores present the most critically difficult targets for spray application. Coffee and citrus are two classic examples in which stomata are confined to the lower (abaxial) leaf surface. Examples of major plant pathogens which enter exclusively via the stomata are Hemileia vastatrix (coffee leaf rust) and Mycosphaeralla citri (citrus greasy spot). Not surprisingly these are two of the most difficult to control diseases of tropical tree crops.

Potential problems and challenges presented by such pathogens, and related to spray coverage requirements, can be overcome by using air-assisted sprayers such as shoulder-mounted low volume knapsack mistblowers and hand-held ULV (ultra-low volume) atomisers.

Tree canopies are surrounded by a layer of still air which forms a barrier to deposition of spray droplets, unless the droplets have sufficient force and momentum to "break through" the barrier. Spray droplets delivered by air-assisted sprayer have this momentum and the spray cloud is preceded by the leading edge of a high-velocity air stream that "flips" the leaves in the outer shell of the canopy. This creates gaps in the outer shell and allows droplets to move into the canopy for deposition on the leaves inside. And by flipping the leaves upwards the air stream exposes the undersides of leaves to incoming spray droplets which are thus deposited on this abaxial surface and exactly where they need to be.

Loose-hanging and pink-coloured new leaf flushes of mango are easy targets for infection by spores of Colletotrichum gloeosporioides causing anthracnose disease. (Photo: Dr Terry Mabbett)

Robusta coffee showing leaf rust disease (orange pustules containing spores) on the undersurface of the leaf. The leaf on the left hand side with fewer rust infections was sprayed with cuprous oxide, a contact protectant fungicide. (Photo: Trond Kristiansen, Nordox)

Such scenarios were proven by field research in Trinidad using fixed copper fungicide sprayed on grapefruit trees using a low volume knapsack mistblower. Initial deposits on the lower (abaxial) and upper (adaxial) surfaces of citrus leaves of 7.63 μg and 5.29 μg Cu^{2+}/cm^2 were reduced to 4.01 μg and 1.39 μg Cu^{2+}/cm^2 respectively, after five months weathering. Thus the initially higher abaxial or lower-leaf surface deposit was reduced by only 48 per cent compared to the 74 per cent loss from the adaxial or upper-leaf surface deposit, after the five months of weathering. Findings were supported by laboratory trials in which initial deposits on abaxial (lower) and adaxial (upper) leaf surface deposits were reduced by 28 per cent and 47 per cent, respectively, after 500 mm of simulated (artificial) rainfall.

Leaf expansion and deposit dilution

One factor often forgotten when calculating the required dose of fungicide and application frequency is the dilution of the initial fungicide deposit due to rapid increases in surface area of young leaves and fruits as they grow towards full size and maturity. If a leaf receives spray on the day after emergence but not again until three weeks later, and by which time it has increased massively in surface area, then the initial fungicide deposit will have been automatically reduced by an equivalent factor (on a $\mu g/cm^2$ basis), even before any loss from weathering is taken into account.

Some of the biggest incremental increases in individual leaf area are shown by the cucurbit crops. Research on field grown cucumber (variety Marketer) in Trinidad showed new leaves were formed at a frequency on one leaf/vine/day and which increased in area by a factor of 23 after seven days of growth. One week (seven days) is the most frequently used spray interval for vegetable crops.

Subsequent investigations into the dilution of copper fungicide deposits on cucumber foliage, caused by this rapid rate of leaf expansion, showed spray intervals as short as three days were required for the successful control the bacterial disease angular leaf spot of cucumber caused by Pseudomonas syringae pv. lachrymans.

The same premise applies for young developing citrus fruit. Research carried out in Australia showed that initial fungicide deposits on young citrus fruits (lemons) were reduced by up to a factor of 15 simply through an incremental increase in fruit size and surface area during the growth and development period from fruit set to harvest.

Protectant fungicide sprays should be applied at a sufficiently high dosage and sufficiently frequently to buffer the effects of deposit dilution. Newly-formed leaves and fruit should receive spray at least once after the main period of leaf and fruit growth and expansion has occurred. ■

Fieldscanner tool to enhance drone usage

HAVING ACCESS TO timely, accurate information in the field is key to identifying and minimising the impact of pests, disease and other crop issues. To help farmers achieve this, DroneDeploy has launched Fieldscanner, an enhancement for its app, which provides in-field, real-time offline maps for improved scouting.

The DroneDeploy app allows users to create flight plans for drones for collecting information on specific tasks. The new Fieldscanner enhancement allows the software to create a low-resolution map that a scout can use right away to track crop issues. Fieldscanner is a real-time drone mapping tool for immediate in-field crop analysis. It instantly captures a 2D, low-resolution field map as the drone flies, enabling farmers to make crop management decisions on the spot. This makes it easier to quickly identify crop stress and address problem areas before they spread.

The Fieldscanner app makes it easier for farmers to identify crop stress and address problem areas quickly. (Photo: Jag_cz/Shutterstock)

"Growers have been asking for real-time, in-field mapping for a long time, and we are excited to be the first company to deliver a solution," said Mike Winn, CEO at DroneDeploy.

Poor connectivity and slow internet speeds have long posed a challenge for mapping in remote areas. To overcome these issues, Fieldscanner, which is designed for use in fields, can operate entirely offline, with no need for cellular or data coverage.

Fieldscanner uses DroneDeploy's existing automatic flight planning for DJI drones and adds local processing on the drone and mobile device to create a low-resolution Fieldscan as the drone is flying, thereby eliminating the need to process imagery into a map on a computer after the flight.

Fieldscanner works in parallel with existing drone mapping workflow to make a real-time, low-resolution map of the field, simultaneously capturing traditional drone imagery for later upload and processing in the cloud.

Fieldscanner allows users to spot variability, see their location as they navigate to problem areas for ground-truthing, and (if a data connection is available) pin notes and photos of findings directly to their map. The imagery from the flight can be uploaded to DroneDeploy to create a high resolution map or 3D model, ideal for analysing drainage issues, creating prescription maps and more.

The company commented that the launch of Fieldscanner represents the first big step in real-time mapping for DroneDeploy and for the commercial drone industry as a whole.

Agricultural Buyers' Guide 2017

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

PLEASE MENTION FAR EASTERN AGRICULTURE WHEN CONTACTING YOUR SUPPLIERS

Section One

Cattle

Dairy Processing
Evans Vanodine International PLC

Exports
Henke-Sass, Wolf GmbH

Feed
Eurofeed Technologies S.p.A.
Leiber GmbH
Unipoint AG

Feeding Systems
Awila Anlagenbau GmbH

Health Products
Anpario PLC
Ayurvet Ltd.
Eurofeed Technologies S.p.A.
Evans Vanodine International PLC
Henke-Sass, Wolf GmbH
Unipoint AG

Milking Equipment
MIK INTERNATIONAL

Ventilation & Control Equipment
Termotecnica Pericoli S.r.l.

Veterinary Equipment
Henke-Sass, Wolf GmbH

Watering Equipment
Impex Barneveld b.v

Chemicals

Disinfectants
Eurofeed Technologies S.p.A.
Evans Vanodine International PLC
Intraco Ltd. n.v

Fumigation
Eurofeed Technologies S.p.A.

Minerals
Eurofeed Technologies S.p.A.
Unipoint AG

Crops

Drilling, Planting Equipment
Special Nutrients

Grain Cleaning
Awila Anlagenbau GmbH

Grain Drying
Awila Anlagenbau GmbH

Grain Handling
Awila Anlagenbau GmbH

Grain Storage
Awila Anlagenbau GmbH

Harvesters
AGCO Ltd.

Horticultural Equipment
Swingtec GmbH

Integrated Pest Management
Swingtec GmbH

Processing, Oil Palm
AGCO Ltd.

Sprayers, Hand
GOIZPER GROUP - Goizper Spraying Business

Sprayers, Knapsack
GOIZPER GROUP - Goizper Spraying Business

Sprayers, Rotary Atomizer
GOIZPER GROUP - Goizper Spraying Business

Sprayers, ULV
GOIZPER GROUP - Goizper Spraying Business
Swingtec GmbH

Spraying Accessories
GOIZPER GROUP - Goizper Spraying Business

Tillage
AGCO Ltd.

Tractors
AGCO Ltd.

Feed

Additives
Anpario PLC
Ayurvet Ltd.
Eurofeed Technologies S.p.A.
Intraco Ltd. n.v
Kemin Industries (Asia) Pte Ltd.
Unipoint AG

Aquaculture
Eurofeed Technologies S.p.A.
Leiber GmbH

Concentrates
Eurofeed Technologies S.p.A.
Intraco Ltd. n.v

Conditioning
Awila Anlagenbau GmbH

Extrusion
Awila Anlagenbau GmbH

Feed mills
Awila Anlagenbau GmbH

Grinding/Pelleting/Cooling
Awila Anlagenbau GmbH
Eurofeed Technologies S.p.A.

Mixing
Awila Anlagenbau GmbH
Eurofeed Technologies S.p.A.

Premixes
Ayurvet Ltd.
Eurofeed Technologies S.p.A.
Intraco Ltd. n.v

Supplements
Eurofeed Technologies S.p.A.
Unipoint AG

Soya Protein
Eurofeed Technologies S.p.A.

Vitamins
Eurofeed Technologies S.p.A.

Pigs

Pest Control
Swingtec GmbH

Veterinary Equipment
Henke-Sass, Wolf GmbH

Watering Equipment
Impex Barneveld b.v

Poultry

Drinking Equipment
Impex Barneveld b.v

Exports
Henke-Sass, Wolf GmbH

Feed
Eurofeed Technologies S.p.A.
Leiber GmbH
Unipoint AG

Feeders
Impex Barneveld b.v

Feeding Systems
Awila Anlagenbau GmbH
MIK INTERNATIONAL
Schauer Agrotronic GmbH

Flooring
MIK INTERNATIONAL

Health Products
Anpario PLC
Ayurvet Ltd.
Eurofeed Technologies S.p.A.
Evans Vanodine International PLC
Henke-Sass, Wolf GmbH
Unipoint AG

Housing
Intraco Ltd. n.v

Medicators
Impex Barneveld b.v

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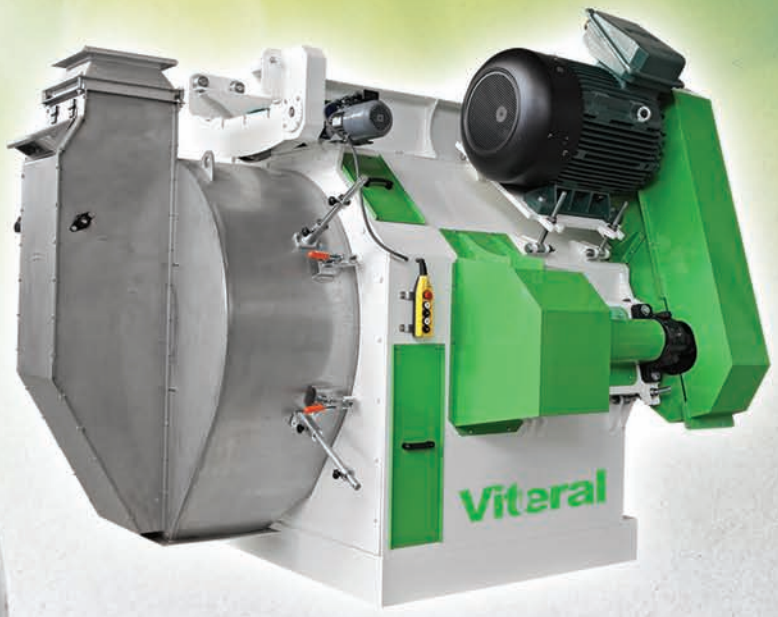

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